Bureau of Land Management
Worland Field Office

Approved
Resource Management Plan

ATTACHMENT 12

From the USDI 2015 Record of Decision and Approved Resource Management Plan Amendments for the Rocky Mountain Region including the Greater Sage-Grouse Sub-Regions of: Lewistown, North Dakota, Northwest Colorado and Wyoming and the Approved Resource Management Plans for Billings, Buffalo, Cody, HiLine, Miles City, Pompeys Pillar National Monument, South Dakota and Worland

September 2015

BLM

Worland Field Office

MISSION STATEMENT

To sustain the health, diversity, and productivity of the public lands
for the use and enjoyment of present and future generations.

BLM/WY/PL-15/021+1610

Table of Contents

State Director Recommendation for Approval xv

Acronyms and Abbreviations xvii

1. Introduction 1

1.1. Description of the Planning Area 1
1.2. Purpose and Need 4
1.2.1. Purpose 4
1.2.2. Need for Revising the Existing Plan 4
1.3. Planning Criteria 6

2. Approved Resource Management Plan for Greater Sage-Grouse Habitat 9

2.1. Description of Greater Sage-Grouse Habitat Management Areas 11
2.2. Worland Field Office Greater Sage-Grouse Conservation Summary 14
2.2.1. Goals, Objectives, and Management Decisions for Greater Sage-Grouse Habitat 19

3. Approved Resource Management Plan 45

3.1. Approved Resource Management Plan Instructions 47
3.2. Goals, Objectives, and Management Decisions 47

4. Consultation, Coordination, and Public Involvement 141

4.1. Consultation and Coordination 143
4.2. Public Involvement 144

5. Plan Implementation 147

5.1. Implementing the Plan 149
5.2. Maintaining the Plan 149
5.3. Changing the Plan 150
5.4. Plan Evaluation, Adaptive Management, and Monitoring 150

6. References 153

Glossary 161

Appendix A. Maps 207

Appendix B. Oil and Gas Lease Notices and Lease Stipulations, including Exception, Modification, and Waiver Criteria 211

B.1. Lease Notices 211
B.2. Lease Stipulations 214
B.3. Processing Exceptions, Modifications, and Waivers 246

Appendix C. Required Design Features and Best Management Practices 249

C.1. Bureau of Land Management Best Management Practices Resources 249
C.2. Other Agency BMP Resources 251
C.3. Greater Sage-Grouse: Required Design Features and Best Management Practices 252
C.3.1. Required Design Features 253
C.4. Best Management Practices 262
C.4.1. Best Management Practices for Important Cultural Resource and Trail Settings 262
C.4.2. Decontamination Procedure for Aquatic Invasive Species 262
C.4.3. Wyoming Forestry Best Management Practices 263
C.4.4. Reseeding Best Management Practices 263
C.4.5. Engineering Best Management Practices 263
C.4.6. Best Management Practices for Livestock Grazing 266
C.4.7. Best Management Practices for Visual Resources 267
C.4.8. Best Management Practices for Water Resources 268
C.4.9. Best Management Practices for Greater Sage-Grouse Protection 269

Appendix D. Greater Sage-Grouse Habitat Management Strategy 271

D.1. Introduction 271
D.2. COT Objective 1: Stop Population Declines and Habitat Loss 273
D.3. COT Objective 2: Implement Targeted Habitat Management and Restoration 288
D.4. COT Objective 3: Develop and Implement State and Federal Conservation Strategies and Associated Incentive-based Conservation Actions and Regulatory Mechanisms 289
D.4.1. Implementation Working Groups 289
D.4.2. Implementation Tracking 290
D.4.3. Public Involvement 291
D.5. COT Objective 4: Proactive Conservation Actions 291
D.6. COT Objective 5: Development of Monitoring Plans 293
D.6.1. Greater Sage-Grouse Monitoring Framework 294
D.6.2. Introduction 294
D.6.3. Broad and Mid-Scales 298
D.6.3.1. Implementation (Decision) Monitoring 298
D.6.3.2. Habitat (Vegetation) Monitoring 299
D.6.3.3. Population (Demographics) Monitoring 316
D.6.3.4. Effectiveness Monitoring 317
D.6.4. Fine and Site Scales 321
D.6.5. Conclusion 323
D.6.6. The BLM Greater Sage-Grouse Disturbance and Monitoring Sub-Team Membership 323

D.6.7. ATTACHMENT A: An Overview of Monitoring Commitments 327
D.6.8. ATTACHMENT B: List of All Sagebrush Species and Subspecies Included in the Selection Criteria for Building the EVT and BpS Layers 328
D.6.9. ATTACHMENT C: User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones 329
D.7. COT Objective 6: Prioritize, Fund, and Implement Research To Address Existing Uncertainties 330
D.7.1. Wyoming Greater Sage-Grouse Adaptive Management Plan 330

Appendix E. Laws, Regulations, Policies, and Guidance 335

Appendix F. Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities 349

F.1. Introduction 349
F.2. Purpose 349
F.3. Mitigation Guidelines 350
F.3.1. Surface Disturbance Mitigation Guideline 350
F.3.2. Wildlife Mitigation Guideline 350
F.3.3. Cultural Resource Mitigation Guideline 352
F.3.4. Special Resource Mitigation Guideline 353
F.3.5. No Surface Occupancy Guideline 353
F.3.6. Regional Mitigation Guideline 354

Appendix G. Federal Oil and Gas Operations on Split-Estate Lands 355

G.1. Purpose 355
G.2. Definitions 355
G.3. General 356
G.4. Operations 356
G.4.1. Geophysical 356
G.4.2. Notice of Staking/Application for Permit to Drill 358
G.4.2.1. Surveying and Staking Activities 358
G.4.2.2. Onsite Inspection(s) 358
G.4.2.3. Required Components of a Complete Application for Permit to Drill for Split-estate Operations 359
G.4.2.4. Approval of the Application for Permit to Drill 361
G.4.3. Sundry Notices 361
G.4.3.1. Emergency Operations 362

Appendix H. Monitoring and Evaluation 365

H.1. Introduction 365
H.2. Data Collection 365
H.3. Data Analysis 365
H.4. Decision 366
H.5. Establishment of Monitoring Protocols 366
H.6. Resource Monitoring Table 366

Appendix I. Land Disposal and Acquisition 379

I.1. Land Tenure Descriptions 379
I.2. Lands Available for Disposal 379
I.3. Criteria for Retention, Acquisition, or Disposal 386
I.3.1. Criteria for Retention or Acquisition 386
I.3.1.1. Criteria for Disposal 387
I.3.1.2. Recreation and Public Purposes Lease/Patent 388
I.3.1.3. Airport Grants 388
I.3.1.4. Desert Land Entries 388
I.4. Access and Easements 389

Appendix J. Recreation Management 391

Appendix K. Biological Opinion 439

Appendix L. Implementation 545

L.1. General 545
L.2. Implementation Working Group 545
L.3. Implementation Tracking Database 545
L.4. Monitoring Working Group 545
L.5. Activity Plan Working Groups 546
L.6. Public Involvement 546

Appendix M. Bighorn Basin Air Resource Management Plan 547

M.1. Introduction 547
M.1.1. Background 547
M.1.2. Purpose 550
M.1.3. Characterization of Air Resources in the Environmental Impact Statement 551
M.1.3.1. Emissions Inventory for Land Use Planning 551
M.1.3.2. Class I Areas 551
M.2. Air Resources Management Plan 551
M.2.1. Resource Inventory and Characterization 551
M.2.2. Permitting 552
M.2.3. Monitoring 553
M.2.4. Modeling 554
M.2.5. Mitigation 554
M.2.6. Contingency Plans 555

Appendix N. Seasonal Raptor Stipulations for All Surface-Disturbing and Disruptive Activities 561

Appendix O. Livestock Grazing 563

Appendix P. Final Environmental Impact Statement and Record of Decision Crosswalk Tables 583

This page intentionally
left blank

List of Figures

Figure 1.1. Worland Field Office Resource Management Plan Planning Area 3
Figure 2.1. Worland Field Office Greater Sage-Grouse Habitat Management Areas for BLM-Administered Lands 13
Figure D.1. Priority Habitat Management Areas and General Habitat Management Areas within the Bighorn Basin Planning Area 273
Figure D.2. Proposed Project Boundary 278
Figure D.3. DDCT Assessment Area 279
Figure D.4. DDCT Assessment Area – Existing Disturbance 280
Figure D.5. DDCT Assessment Area – Existing Disturbance (cont.) 280
Figure D.6. DDCT Assessment Area – Existing Disturbance with Buffer 281
Figure D.7. DDCT Assessment Area – Existing Disturbance with Buffer (cont.) 281
Figure D.8. DDCT Assessment Area – Existing Disruptive Features 282
Figure D.9. DDCT Assessment Area – Existing Disruptive Features Buffer 283
Figure D.10. DDCT Assessment Area – Existing Disruptive Features Buffer (cont.) 283
Figure D.11. Greater Sage-Grouse Range, Populations, Subpopulations and Priority Areas for Conservation as of 2013 295
Figure M.1. Visibility – Standard Visual Range (SVR, miles) for the North Absaroka, Wyoming, IMPROVE Site 549
Figure M.2. Visibility – Standard Visual Range (SVR, miles) for the Cloud Peak, Wyoming, IMPROVE Site 549

This page intentionally
left blank

List of Maps

Map 1-1. Worland Planning Area, Surface Management and Sub-Surface Estate 207
Map 1-2. Worland Planning Area, Greater Sage Grouse Habitat Management Areas across All Jurisdictions 207
Map 1-3. Worland Decision Area, Greater Sage Grouse Habitat Management Areas for BLM Administered Lands 207
Map 2-1. Worland Habitat Management Areas 207
Map 2-2. Worland Livestock Grazing 207
Map 2-3. Worland Fluid Minerals (Oil and Gas) 207
Map 2-4. Worland Locatable Minerals 207
Map 2-5. Worland Salable Minerals (Mineral Materials) 207
Map 2-6. Worland Wind Energy 207
Map 2-7. Worland Designated Utility Corridors 207
Map 2-8. Worland Rights-of-Way 207
Map 2-9. Worland Land Tenure 207
Map 2-10. Worland Trails & Travel Management (OHV) 207
Map 1-4. Surface Ownership within the Worland Field Office 208
Map 1-5. Mineral Ownership within the Worland Field Office 208
Map 3-1. Physical Resources – Water – Worland Field Office 208
Map 3-2. Mineral Resources – Locatable – Bentonite-Bearing Strata 208
Map 3-3. Mineral Resources – Locatable – Gypsum-Bearing Strata 208
Map 3-4. Mineral Resources – Locatable 208
Map 3-5. Mineral Resources – Leasable – Coal-Bearing Strata 208
Map 3-6. Mineral Resources – Leasable – Geothermal 208
Map 3-7. Mineral Resources – Leasable – Existing Oil and Gas Leases 208
Map 3-8. Mineral Resources – Leasable – Oil and Gas 208
Map 3-9. Mineral Resources – Leasable – Oil and Gas Management Areas 208
Map 3-10. Mineral Resources – Leasable – Producing Oil and Gas Fields 208
Map 3-11. Mineral Resources – Salable – Mineral Materials Sites 208
Map 3-12. Mineral Resources – Salable 208
Map 3-13. Mineral Resources – Master Leasing Plan 208
Map 3-14. Biological Resources – Wildlife Management Areas 208
Map 3-15. Biological Resources – Vegetation 208
Map 3-16. Biological Resources – Fish and Wildlife Resources 208
Map 3-17. Biological Resources – Special Status Species – Wildlife 208
Map 3-18. Biological Resources – Wild Horses 209
Map 3-19. Heritage and Visual Resources – Paleontological Resources 209
Map 3-20. Heritage and Visual Resources – Visual Resource Management 209
Map 3-21. Land Resources – Lands and Realty Retention, Disposal, and Acquisition 209
Map 3-22. Land Resources – Renewable Energy Potential 209
Map 3-23. Land Resources – Renewable Energy 209
Map 3-24. Land Resources – Rights-of-Way and Corridors 209
Map 3-25. Physical Resources – Soil Slope and Erosion Hazard 209
Map 3-26. Land Resources – Travel Management Designations 209
Map 3-27. Land Resources – Recreation 209
Map 3-28. Land Resources – Livestock Grazing – Allotment Categories 209
Map 3-29. Land Resources – Livestock Grazing – Closures 209
Map 3-30. Special Designations – Areas of Critical Environmental Concern and other Management Areas 209

Map 3-31. Special Designations – Wilderness Study Areas 209
Map 3-32. Special Designations – Historic Trails 209
Map 3-33. Socioeconomic Resources – Health and Safety 209

List of Tables

Table 2.1. Acres of Priority Habitat Management Areas and General Habitat Management Areas in the Decision Area for the Approved Resource Management Plan 12
Table 2.2. Acres of Greater Sage-Grouse Habitat by County in the Decision Area (BLM-Administered Lands Only) 12
Table 2.3. Acres of Greater Sage-Grouse Habitat Management Areas by BLM District/Field Office in the Decision Area 12
Table 2.4. Threats to Greater Sage-Grouse in the Worland Planning Area as identified by the Conservation Objectives Team 15
Table 2.5. Key Components of the Worland Greater Sage-Grouse Approved Resource Management Plan Addressing Conservation Objectives Team Report Threats 16
Table 2.6. Summary of Allocation Decisions by Greater Sage-Grouse Habitat Management Areas 19
Table 2.7. Greater Sage-Grouse Seasonal Habitat Objectives 22
Table 2.8. Worland Approved RMP Goals, Objectives, and Management Decisions Pertaining to Greater Sage-Grouse or Sagebrush Habitat 29
Table 3.1. 0000 COMMON TO ALL 49
Table 3.2. 1000 PHYSICAL RESOURCES (PR) – Air Quality 50
Table 3.3. 1000 PHYSICAL RESOURCES (PR) – Soil 52
Table 3.4. 1000 PHYSICAL RESOURCES (PR) – Water 54
Table 3.5. 1000 PHYSICAL RESOURCES (PR) – Cave and Karst Resources 57
Table 3.6. 2000 MINERAL RESOURCES (MR) 58
Table 3.7. 3000 FIRE AND FUELS MANAGEMENT (FM) 67
Table 3.8. 4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Forests, Woodlands, and Forest Products 70
Table 3.9. 4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Grassland and Shrubland Communities 72
Table 3.10. 4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Riparian/Wetland Resources 74
Table 3.11. 4000 BIOLOGICAL RESOURCES (BR) – Invasive Species and Pest Management 76
Table 3.12. 4000 BIOLOGICAL RESOURCES (BR) – Fish and Wildlife Resources 78
Table 3.13. 4000 BIOLOGICAL RESOURCES (BR) – Special Status Species 82
Table 3.14. 4000 BIOLOGICAL RESOURCES (BR) – Wild Horses 93
Table 3.15. 5000 HERITAGE AND VISUAL RESOURCES (HR) – Cultural Resources 95
Table 3.16. 5000 HERITAGE AND VISUAL RESOURCES (HR) – Paleontological Resources 98
Table 3.17. 5000 HERITAGE AND VISUAL RESOURCES (HR) – Visual Resource Management 101
Table 3.18. 6000 LAND RESOURCES (LR) – Lands and Realty 103
Table 3.19. 6000 LAND RESOURCES (LR) – Renewable Energy 106
Table 3.20. 6000 LAND RESOURCES (LR) – Rights-of-Way and Corridors 107
Table 3.21. 6000 LAND RESOURCES (LR) – Comprehensive Travel and Transportation Management 110
Table 3.22. 6000 LAND RESOURCES (LR) – Recreation 114
Table 3.23. 6000 LAND RESOURCES (LR) – Lands with Wilderness Characteristics 125
Table 3.24. 6000 LAND RESOURCES (LR) – Livestock Grazing Management 126
Table 3.25. 7000 SPECIAL DESIGNATIONS (SD) – Areas of Critical Environmental Concern (ACECs) 129
Table 3.26. 7000 SPECIAL DESIGNATIONS (SD) – National Back Country Byways 132
Table 3.27. 7000 SPECIAL DESIGNATIONS (SD) – Historic Trails 133

Table 3.28. 7000 SPECIAL DESIGNATIONS (SD) – Wild and Scenic Rivers 134
Table 3.29. 7000 SPECIAL DESIGNATIONS (SD) – Wilderness Study Areas 135
Table 3.30. 8000 SOCIOECONOMIC RESOURCES (SR) – Social and Economic 136
Table 3.31. 8000 SOCIOECONOMIC RESOURCES (SR) – Health and Safety 138
Table B.1. Oil and Gas Lease Stipulations — Worland Field Office Planning Area 216
Table D.1. Greater Sage-Grouse Habitat within the Bighorn Basin Planning Area 272
Table D.2. Implementation of RMP Decisions to Address COT Threats 275
Table D.3. Indicators for Monitoring Implementation of the Strategy, Decisions, Greater Sage-Grouse Habitat, and Greater Sage- Grouse Populations at the Broad and Mid-scales 297
Table D.4. Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring 299
Table D.5. Datasets for Establishing and Monitoring Changes in Sagebrush Availability 302
Table D.6. Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse 303
Table D.7. Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation 307
Table D.8. Geospatial Data Sources for Habitat Degradation (Measure 2) 314
Table D.9. User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones 329
Table E.1. Federal Laws and Statutes 335
Table E.2. Bureau of Land Management Regulations and Policies 338
Table E.3. Applicable Wyoming State Laws and Regulations 343
Table E.4. Memoranda and Agreements 344
Table H.1. Resource Monitoring Table 367
Table I.1. Land Tenure Descriptions 379
Table I.2. Properties Identified for Disposal in the Planning Area 380
Table J.1. Recreation Management Area Prescriptions 392
Table M.1. Applicable National and State Primary Air Quality Standards for Criteria Pollutants and Baseline Representative Concentrations for the Planning Area 548
Table M.2. Total Annual Emissions Summary for BLM Activities within the Bighorn Basin Planning Area 550
Table M.3. Percent Change in Emissions Compared to Base Year 2008 550
Table M.4. Sample Emission Reduction Strategies for Oil and Gas Development 556
Table N.1. Seasonal Restrictions and Spatial Buffers 561
Table O.1. Current Livestock Grazing Allotment Information 563
Table O.2. Standards and Guidelines Summary of Grazing Allotments 573
Table O.3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas 577
Table P.1. Management Actions and Decisions Crosswalk 583
Table P.2. Maps Crosswalk 602
Table P.3. Appendices Crosswalk 606

State Director Recommendation for Approval

I hereby recommend for approval the Worland Field Office Resource Management Plan's management goals, objectives, and decisions.

Mary Jo Rugwell, Acting Wyoming State Director — Date 9/15/15

This page intentionally
left blank

Acronyms and Abbreviations

$:
U.S. dollars

≤:
less than or equal to

≥:
greater than or equal to

µg/m3:
Micrograms per cubic meter

ACEC:
Area of Critical Environmental Concern

ACHP:
Advisory Council on Historic Preservation

AFMSS:
Automated Fluid Minerals Support System

AML:
Abandoned mine lands

AMP:
Allotment management plan

AMS:
Analysis of the Management Situation

AMWG:
Adaptive Management Working Group

APD:
Application for Permit to Drill

APHIS:
Animal and Plant Health Inspection Service

APLIC:
Avian Powerline Interaction Committee

APWG:
Activity Plan Working Group

AUM:
Animal Unit Month

BACT:
Best Available Control Technology

BHBLWG:
Big Horn Basin Sage-grouse Local Working Group

BIA:
Bureau of Indian Affairs

BLM:
Bureau of Land Management

BMP:
Best management practice

BOR:
Bureau of Reclamation

BpS:
Biophysical Setting

BR:
Biological Resources

C&MU:
Classification and Multiple Use

CBNG:
Coalbed Natural Gas

CDL:
Cropland Data Layer

CERCLA:
Comprehensive Environmental Response, Compensation, and Liability Act

CFR:
Code of Federal Regulations

CH_4:
Methane

CO:
Carbon monoxide

CO_2:
Carbon Dioxide

COA:
Condition of Approval

COT:
Conservation Objectives Team

CSU:
Controlled Surface Use

dBA:
Decibels with an A-weighted scale

DDCT:
Density and Disturbance Calculation Tool

DEQ:
Department of Environmental Quality

DLE :
Desert Land Entry

DOE:
United States Department of Energy

DOI:
United States Department of the Interior

DPC:
Desired Plant Community

EIS:
Environmental Impact Statement

EO:
Executive Order

EPA:
United States Environmental Protection Agency

ERMA:
Extensive Recreation Management Area

ESA:
Endangered Species Act

ESD:
Ecological Site Description

FLPMA:
Federal Land Policy and Management Act

FM:
Fire and Fuels Management

FMP:
Fire Management Plan

FR:
Federal Register

FRCC :
Fire Regime Condition Class

GHG:
Greenhouse Gas

GHMA:
General Habitat Management Area

GIS:
Geographic Information System

GRSG:
Greater Sage-Grouse

H_2S:
Hydrogen Sulfide

HA:
Herd Area

HAF:
Habitat Assessment Framework

HAP:
Hazardous Air Pollutant

HMA:
Herd Management Area

HMG:
Habitat Management Guidelines

HMP:
Habitat Management Plan

HU:
Hydrologic Unit Code

IM:
Instruction Memorandum

IMP:
Interim Management Policy

INPS:
Invasive, Nonnative, Plant Species

kV:
Kilovolt

LMF:
Landscape Monitoring Framework

LMP:
Land Management Plan

LR:
Land Resources

LRP:
Land Reclamation Potential

LUP:
Land Use Plan

LWCF:
Land and Water Conservation Fund

MLP:
Master Leasing Plan

MOU:
Memorandum of Understanding

MR:
Mineral Resources

MTBS:
Monitoring Trends in Burn Severity

N_2O:
Nitrous Oxide

NAAQS:
National Ambient Air Quality Standard

NASS:
National Agricultural Statistics Service

NEPA:
National Environmental Policy Act

NH_3:
Ammonia

NHPA:
National Historic Preservation Act

NHT:
National Historic Trail

NIFC:
National Interagency Fire Center

NLCD:
National Land Cover Dataset

NOC:
National Operations Center

NOS:
Notice of Staking

NO_X:
Nitrogen Oxide

NPS:
National Park Service

NRCS:
Natural Resources Conservation Service

NREL:
Natural Renewable Energy Laboratory

NRHP:
National Register of Historic Places

NSO:
No Surface Occupancy

NTT:
National Technical Team

NWSRS:
National Wild and Scenic Rivers System

O_3:
Ozone

OHV:
Off-highway vehicle

OTF:
Ozone Technical Forum

PAC:
Priority Area for Conservation

PARC:
Partners in Amphibian and Reptile Conservation

PEIS:
Programmatic Environmental Impact Statement

PETM:
Paleocene-Eocene Thermal Maximum

PFC:
Proper Functioning Condition

PFYC:
Potential Fossil Yield Classification

PHMA:
Priority Habitat Management Area

PM:
Particulate Matter

PM_{10}:
Particulate matter less than 10 microns in diameter

$PM_{2.5}$:
Particulate matter less than 2.5 microns in diameter

PNC:
Potential Natural Community

ppb:
Parts per billion

ppm:
Parts per million

PR:
Physical Resources

PSD:
Prevention of Significant Deterioration

R&PP:
Recreation and Public Purposes Act

RAATS:
Reduced Agent-Area Treatments

RAMP:
Recreation Area Management Plan

RDF:
Required Design Feature

RMA:
Recreation Management Area

RMP:
Resource Management Plan

RMZ:
Recreation Management Zone

ROD:
Record of Decision

ROW:
Rights-of-Way

RSC:
Recreation Setting Characteristic

SCR:
Selective Catalytic Reduction

SCZ:
Setting Consideration Zone

SD:
Special Designations

SGI:
Sage-Grouse Initiative

SGIT:
Sage-Grouse Implementation Team

SHPO:
State Historic Preservation Office

SLAMS:
State and Local Air Monitoring Site

SMA:
Special Management Area

SO_X:
Sulfur oxide

SR:
Socioeconomic Resources

SRMA:
Special Recreation Management Area

SRP:
Special Recreation Permit

SUA:
Surface Use Agreement

SVR:
Standard Visual Range

TL:
Timing Limitation

TLS:
Timing Limitation Stipulation

TMDL:
Total Maximum Daily Load

TMP :
Travel Management Plan

TPY:
Tons per year

U.S.:
United States

U.S.C.:
United States Code

USFS:
United States Forest Service

USFWS:
United States Fish and Wildlife Service

USGS:
United States Geological Survey

VOC:
Volatile Organic Compound

VRI:
Visual Resource Inventory

VRM:
Visual Resource Management

WAAQS:
Wyoming Ambient Air Quality Standard

WAFWA:
Western Association of Fish and Wildlife Agencies

WARMS:
Wyoming Air Resource Monitoring System

WDEQ:
Wyoming Department of Environmental Quality

WGFD:
Wyoming Game and Fish Department

WHMA:
Wildlife Habitat Management Area

WNv:
West Nile Virus

WO:
Washington Office

WQD:
Water Quality Division

WRAP:
Western Regional Air Partnership

WSA:
Wilderness Study Area

WSR:
Wild and Scenic River

WUI:
Wildland Urban Interface

WY:
Wyoming

Chapter 1. Introduction

This page intentionally
left blank

Introduction

The Record of Decision (ROD) and Approved Resource Management Plan (RMP) are intended to provide land use planning and management direction at a broad scale and to guide future actions for the life of the plan. The regulations for making and modifying land use plan decisions, which comprise an RMP, are found in 43 Code of Federal Regulations (CFR) Part 1600. Land use plan decisions consist of (1) desired outcomes (goals and objectives) and (2) allowable uses and management actions.

This ROD and Approved RMP were prepared by the Bureau of Land Management (BLM) Worland Field Office and provide overall management direction for resources on BLM-administered land in the Worland Field Office, Wyoming. The Approved RMP is the result of a multi-year planning effort (the Bighorn Basin RMP Revision Project) to revise the 1988 Washakie, 1998 Grass Creek, and 1990 Cody RMPs by the BLM Washington Office, Wyoming State Office, Wind River/Bighorn Basin District, Worland Field Office, Cody Field Office, cooperating agencies, special interest and user groups, and concerned citizens. The ROD and Approved RMP contain decisions from the Bighorn Basin Proposed RMP and Final Environmental Impact Statement (EIS) that pertain to the Worland Field Office. The decisions outlined in this ROD and Approved RMP documents will enable the BLM to manage the lands within the Worland Field Office's administrative boundaries to achieve the desired future conditions and management objectives in partnership with communities and citizens.

The ROD documents the approval of the RMP, describes the modifications and clarifications made to the Proposed RMP after release of the Final EIS, presents an overview of the alternatives considered in the Proposed RMP and Final EIS, provides rationale for the decisions, identifies mitigation and monitoring requirements, and describes the public involvement process, including consultation and coordination conducted during the planning process. The Approved RMP presents the purpose and need for revision of the 1988 Washakie RMP and the 1998 Grass Creek RMP, planning issues considered and addressed, an overall vision for the planning area, management decisions, and how the Approved RMP will be implemented. The ROD and Approved RMP are supported by appendices, a Glossary (p. 161), maps (Appendix A, *Maps* (p. 207)), and references. Some of the management action numbers, appendix letters, and map numbers have changed between the Proposed RMP and Final EIS and the ROD and Approved RMP. Appendix P, *Final Environmental Impact Statement and Record of Decision Crosswalk Tables* (p. 583) provides crosswalk tables identifying the changes in numbers or lettering between the two documents.

1.1. Description of the Planning Area

The Worland planning area comprises approximately 3,380,244 acres of land in north-central Wyoming, including portions of Big Horn, Park, and Hot Springs counties, and all of Washakie County. Within the Worland planning area (Figure 1.1, "Worland Field Office Resource Management Plan Planning Area" (p. 3)), the BLM manages approximately 2.1 million acres of public land surface and 2.7 million acres of mineral estate. Maps 1-1, 1-2, and 1-3 show surface management and sub-surface estate as well as Greater Sage-Grouse Habitat Management Areas in the planning and decision areas.

As a note to the reader, acreages provided in this document are approximations based on calculations performed using Geographic Information System (GIS) data and software. Precise

acreages would require physical surveys, which are conducted only when necessary to support site-specific decisions. Over time and with the expanded use of the highly accurate Global Positioning System, the BLM updates its data to improve its precision. The GIS-generated calculations in this document are sufficient for use to support this land use planning effort.

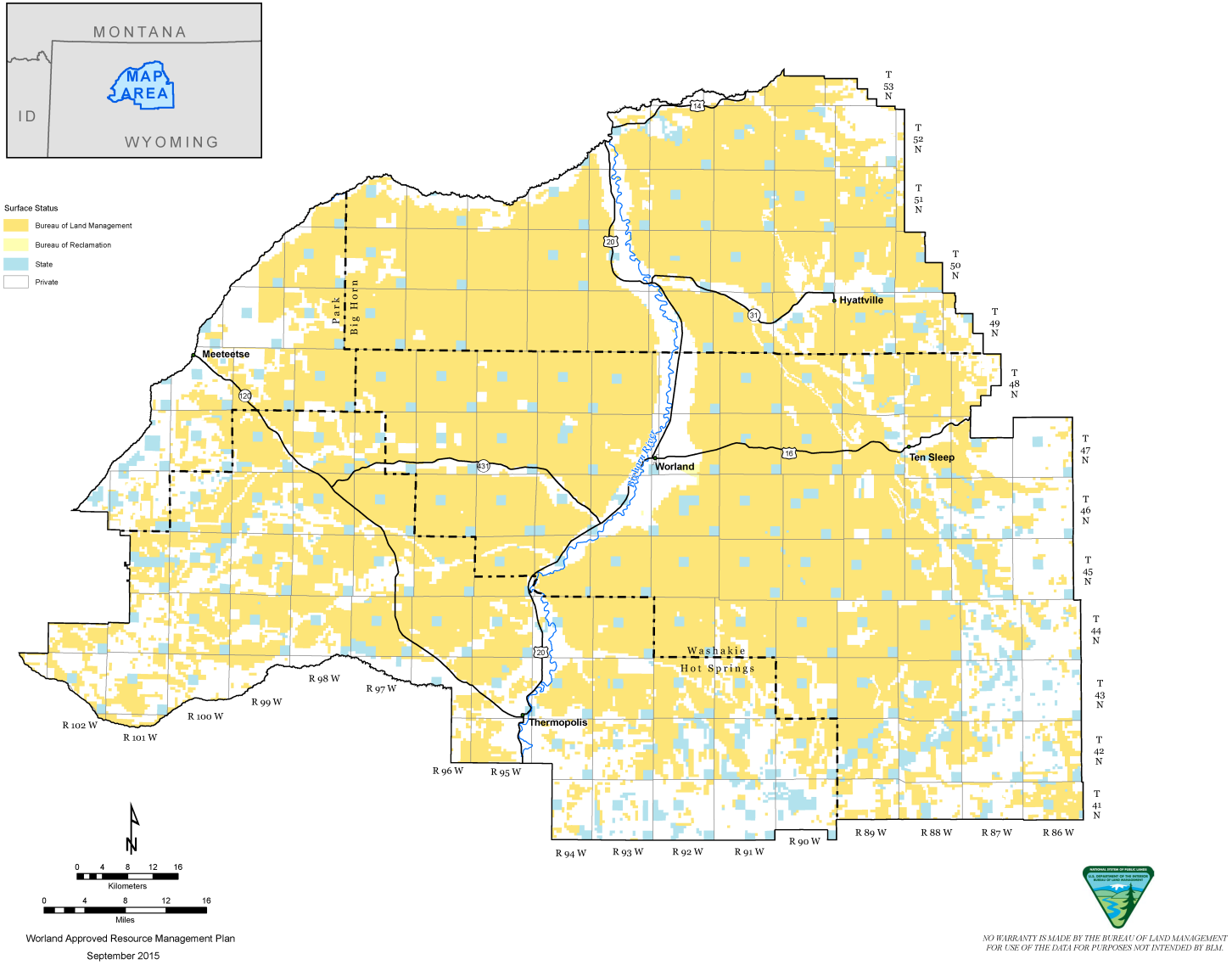


Figure 1.1. Worland Field Office Resource Management Plan Planning Area

1.2. Purpose and Need

1.2.1. Purpose

The Council on Environmental Quality regulations (40 CFR 1502.13) require the purpose and need of an EIS to "specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." The Draft and Final EISs included a detailed explanation of the purpose and need for revision of the 1988 Washakie RMP and 1998 Grass Creek RMP, which is summarized below.

The BLM began a new planning process to allow consideration of changes that occurred since RODs were signed for the Washakie and Grass Creek RMPs, including new data, changes in policy, and emerging public expectations and concerns. The BLM confirmed the need to revise the existing plan based on considerations identified in the Analysis of the Management Situation (AMS) (BLM 2008), an examination of issues raised during the public scoping process, and through collaboration with cooperating local, state, and federal agencies.

1.2.2. Need for Revising the Existing Plan

New Data

Monitoring, availability of new information, and advances in science and technology provided new data to consider in the Bighorn Basin RMP Revision Project. The following documents and sources provided new data:

- Assessing the Potential for Renewable Energy on Public Lands (BLM and U.S. Department of Energy 2003);
- Bighorn Basin Resource Management Plan Revision Project Summary of the Analysis of the Management Situation (BLM 2009a);
- BLM Wyoming Statewide Biological Assessments for Species Regulated by the Endangered Species Act (ESA) (published between 2003 and 2005);
- Cultural Class I Regional Overview (BLM 2009b);
- Energy Policy and Conservation Act of 2000 Scientific Inventory of Onshore Federal Lands Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to their Development (U.S. Department of the Interior [DOI] 2006);
- Final Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States (BLM and U.S. Forest Service (USFS) 2008);
- Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States (BLM 2005a);
- Lands with Wilderness Characteristics Inventory – 2011 Update (BLM 2011a);
- National Assessment of Oil and Gas Fact Sheet – Assessment of Undiscovered Oil and Gas Resources of the Bighorn Basin Province, Wyoming and Montana, 2008 (U.S. Geological Survey [USGS] 2008);
- Oil Shale and Tar Sands Final Programmatic Environmental Impact Statement (BLM 2009c);
- Reasonable Foreseeable Development Scenario for Oil and Gas (BLM 2014);
- Solid Mineral Occurrence and Development Potential Report for the Bighorn Basin Resource Management Plan Revision Project (BLM 2009d);
- Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Environmental Impact Statement (BLM 2007a); and

- Wyoming Greater Sage-Grouse Conservation Plan (Wyoming Sage-grouse Working Group 2003), Western Association of Fish and Wildlife Agencies (WAFWA) Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats (Connelly et al. 2004), and Sage-Grouse Conservation Plan for the Big Horn Basin, Wyoming (Big Horn Basin Sage–grouse Local Working Group 2007), A Report on National Greater Sage-Grouse Conservation Measures (Sage-Grouse National Technical Team [NTT] 2011), Greater Sage-Grouse Conservation Objectives Team (COT) Final Report (U.S. Fish and Wildlife Service [USFWS] 2013), Sage-Grouse Baseline Environmental Report (Manier et al. 2013).

New and Revised Policies

Numerous policies were either revised or developed since the RODs for the existing plans. Appendix E, *Laws, Regulations, Policies, and Guidance* (p. 335) identifies relevant policies, including new and revised policies, and their effective dates.

Emerging Concerns and Changing Circumstances

Emerging issues and changes in local, regional, and national circumstances considered when revising the existing plans included the following:

- Increasing and conflicting demands on planning area resources.
- Increasing complexity of resource management issues.
- Changes in the legal status of plants and wildlife occurring or potentially occurring in the planning area.
- Increasing conflicts between resource uses and protection of specific wildlife and wildlife habitat.
- Changes in Greater Sage-Grouse habitat management.
- Maintaining public access to public lands.
- The spread of invasive plant and animal species on public lands.
- Changing demand for energy and minerals development.
- Changes in oil and gas leasing and the development of Master Leasing Plan analysis (Instruction Memorandum [IM] 2010-117).
- Management of riparian areas and water quality concerns.
- Fire and fuels management practices.
- Changes in livestock grazing practices and rangeland conditions.
- Changes in recreation and visitor use levels and locations.
- Management and protection of recently discovered cultural and paleontological resources.
- Addressing travel management, including increases in off-highway vehicle (OHV) use.
- The appropriateness of certain withdrawals, tenure adjustments, realty leases, and utility corridor rights-of-way.
- Increased interest in renewable energy development across the Nation.
- Updated inventories of lands with wilderness characteristics in the planning area.
- Identifying unique or sensitive areas that meet the criteria for special designation.
- Increasing air quality issues affecting human health and regulatory compliance.
- Cumulative increase in surface disturbance.
- Interest in the management of wild horses and herd levels.
- Increased interest in wind-energy proposals.
- Changes to visual resource classifications.
- Changes in resource- and resource-condition monitoring tasks and the entities performing the monitoring.

- The need to determine the suitability of the eligible waterway corridors within the Bighorn Basin for inclusion into the National Wild and Scenic Rivers System (NWSRS).

Greater Sage-Grouse Management

In March 2010, the USFWS published its listing decision for the Greater Sage-Grouse as "Warranted but Precluded" (USFWS 2010). The listing decision identified the inadequacy of existing regulatory mechanisms as a significant threat to Greater Sage-Grouse now and for the foreseeable future. Further, the USFWS identified conservation measures in RMPs as the principal regulatory mechanism for the BLM. Based on the identified threats to the Greater Sage-Grouse and the USFWS timeline for making a listing decision on this species, the BLM announced a National Greater Sage-grouse Planning Strategy Charter in August 2011 requiring the development of new or revised regulatory mechanisms, through RMPs, to conserve and restore the Greater Sage-Grouse and habitat on BLM-administered lands on a range-wide basis over the long term (Sage-Grouse NTT 2011).

On November 21, 2014, the USGS published Conservation Buffer Distance Estimates for Greater Sage-Grouse - A Review (Manier et al. 2014). The USGS review provided a compilation and summary of published scientific studies evaluating the influence of anthropogenic activities and infrastructure on Greater Sage-Grouse populations. The BLM has reviewed this information and examined how lek buffer-distances were addressed through land use allocations and other management actions for the Worland Field Office proposed in the Bighorn Basin RMP and EIS. The State of Wyoming's Core Area Strategy is designed to protect birds and habitat within core population areas by using a suite of tools and mechanisms that work in concert to conserve Greater Sage-Grouse by reducing habitat loss and fragmentation through lek buffer, disturbance limits, excluded activities, and a sophisticated mapping utility to monitor the amount and density of disturbance. The USFWS has informed the BLM that the combined effect of these overlapping and reinforcing mechanisms gives the USFWS confidence that the lek buffer distances in the Core Area Strategy will be protective of breeding Greater Sage-Grouse.

1.3. Planning Criteria

The planning criteria used in this ROD and Approved RMP are identified in the Bighorn Basin Proposed RMP and Final EIS. A summary of these criteria follows below:

1. The revised RMPs will recognize valid existing rights.
2. Decisions in the revised RMPs will comply with all applicable laws and regulations. Decisions will comply, as appropriate, with policy and guidance.
3. Impacts from the management alternatives considered in the revised RMPs will be analyzed in an EIS developed in accordance with regulations at 43 CFR 1610 and 40 CFR 1500.
4. The planning process will follow the stages of an EIS-level planning process − conduct scoping, develop an Analysis of the Management Situation (AMS) report, formulate alternatives, analyze the alternatives' potential effects, select an agency preferred alternative, publish a Draft RMP and EIS, provide a 90-day public comment period for the draft, prepare and publish a Proposed RMP and Final EIS, provide a 30-day public protest period, and prepare a ROD. For specific information, see the *Land Use Planning Handbook*, H-1601-1.
5. Lands covered in the revised RMPs will be public land and split-estate the BLM administers. The BLM will make no decisions about lands or minerals that are not BLM-administered.
6. BLM decisions will not apply to private land with private mineral estate.

7. The impact analysis will include all lands that could affect or be affected by BLM management of public lands in the planning area.
8. For program-specific guidance regarding land use planning-level decisions, the process will follow the *Land Use Planning Manual* 1601 and *Handbook* H-1601-1, Appendix C.
9. The Bighorn Basin RMP Revision Project planning effort will be collaborative and multi-jurisdictional. The BLM will strive to ensure that its management decisions complement its planning jurisdictions and adjoining properties within the boundaries prescribed by law and regulation.
10. Broad-based public participation will be an integral part of the RMP revision and EIS process.
11. Decisions in the RMP will strive to be compatible with existing plans and policies of adjacent local, state, federal, and tribal agencies as long as the decisions are consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands.
12. The planning team will work cooperatively and collaboratively with cooperating agencies and all other interested groups, agencies, and individuals.
13. The BLM and cooperating agencies will jointly develop alternatives for resolution of resource management issues and management concerns.
14. The planning process will use the Wyoming BLM Mitigation Guidelines to develop management options and alternatives and analyze their impacts, and as part of the planning criteria for developing the options and alternatives and for determining mitigation requirements.
15. Planning and management direction will focus on the relative values of resources, not on the combination of uses that would give the greatest economic return or economic output.
16. All proposed management actions will be based on current scientific information, research and technology, and existing inventory and monitoring information.
17. Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming will apply to all activities and uses.
18. The BLM will provide for public safety and welfare related to fire, hazardous materials, and abandoned mine lands.
19. The BLM will analyze and modify visual resource management class designations to reflect present conditions and future needs.
20. The BLM will consider current and potential future uses of public lands through the development of reasonably foreseeable future development and activity scenarios based on technical analysis of historical, existing, and projected levels of use.
21. The BLM will develop reasonable foreseeable action scenarios for all land and resource uses (including minerals) and portray them based on historical, existing, and projected levels for all programs. The BLM will consider existing endangered species recovery plans, including plans for reintroduction of endangered and other species.
22. The planning process will involve Native American tribal governments and will provide strategies for the protection of recognized traditional uses.
23. Planning decisions will comply with the ESA and BLM interagency agreements with the USFWS.
24. The BLM will continue implementing the National Sage-Grouse Habitat Conservation Strategy that requires impacts to sagebrush habitat and sagebrush-dependent wildlife species be analyzed and considered in BLM land use planning efforts for public lands with sagebrush habitat in the planning area.
25. The BLM applied the relevance and importance criteria for Area of Critical Environmental Concern (ACEC) designation (BLM 1988) to BLM-administered public lands in the planning area to identify areas that have the potential for ACEC designation. An ACEC designation

alone does not change the allowed uses of public lands involved (Federal Land Policy and Management Act Section 201(a) and 43 CFR 1601.0-5a). In addition, protective measures for ACECs are not applied or required simply because of the designation. Any protective measures applied to ACECs are based on what is necessary to protect the relevance and importance criteria for which the ACEC was designated. The only automatic requirement associated with an ACEC designation is that a plan of operations must be submitted for any mining claim development in the area (43 CFR 3809.11(c)(3)).

26. During the preparation of the AMS for the planning area, the BLM evaluated free-flowing streams using the criteria established by the Wild and Scenic Rivers Act of 1968 to determine their eligibility and suitability for inclusion in the NWSRS. The BLM developed interim management prescriptions for stream segments passing through public lands deemed Wild and Scenic River eligible. To provide a clear basis for comparisons, the No Action Alternative will not consider or include any of the stream segments evaluated in association with preparing the AMS for the RMP revisions.
27. OHV use management decisions in the revised RMPs will be consistent with the BLM 2001 National OHV Strategy, BLM Manual 1626 (BLM 2011b), BLM Handbook H-8342-1, 43 CFR 8340, and IM 2008-014. OHV area designations will be "limited" unless otherwise classified as "open" or "closed" to meet land use plan objectives.
28. The BLM will continue to manage Wilderness Study Areas (WSAs) under BLM Manual 6330, Management of Wilderness Study Areas (BLM 2012a) until Congress either designates all or portions of the WSA as wilderness or releases the lands from further wilderness consideration. It is no longer BLM policy to designate additional WSAs through the RMP process, or to manage any lands other than existing WSAs in accordance with the non-impairment standard prescribed in BLM Manual 6330.
29. Forest management strategies will be consistent with the Healthy Forests Restoration Act.
30. Fire management strategies will be consistent with the *Guidance for Implementation of the Federal Wildland Fire Policy* (USFS et al. 2009).
31. Geographic Information Systems and metadata information will meet Federal Geographic Data Committee standards, as required by Executive Order 12906 Coordinating Geographic Data Access, as amended. The BLM will comply with all other applicable BLM data standards.
32. In accordance with the principles of multiple use and sustained yield, this RMP will provide for monitoring and evaluation of RMP decisions over time. To the extent that Adaptive Management, as defined by DOI or BLM guidance (https://www.doi.gov/ppa/Adaptive-Management), applies, the BLM will apply and assess Adaptive Management in activity-level and project-level plans. This RMP is not a standalone Adaptive Management project.
33. The BLM will use the COT Report (USFWS 2013), the WAFWA Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats (Connelly et al. 2004), and any other appropriate resources, to identify Greater Sage-Grouse habitat requirements and best management practices.
34. Consider the likelihood of development of not-yet-constructed surface-disturbing activities—as defined in Table D.4, "Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring" (p. 299) of the *Monitoring Framework* in Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271)—under valid existing rights.

Chapter 2. Approved Resource Management Plan for Greater Sage-Grouse Habitat

This page intentionally
left blank

2.1. Description of Greater Sage-Grouse Habitat Management Areas

The decision area for Greater Sage-Grouse habitat management within this Approved Resource Management Plan (RMP) is Bureau of Land Management (BLM)-administered land in Greater Sage-Grouse habitat management areas, including surface and split-estate lands with BLM subsurface mineral rights. Greater Sage-Grouse habitat on BLM-administered lands in the decision area consists of lands allocated as Priority Habitat Management Areas (PHMA) and General Habitat Management Areas (GHMA) (see Table 2.1, "Acres of Priority Habitat Management Areas and General Habitat Management Areas in the Decision Area for the Approved Resource Management Plan" (p. 12), Table 2.2, "Acres of Greater Sage-Grouse Habitat by County in the Decision Area (BLM-Administered Lands Only)" (p. 12), Table 2.3, "Acres of Greater Sage-Grouse Habitat Management Areas by BLM District/Field Office in the Decision Area" (p. 12), and Figure 2.1, "Worland Field Office Greater Sage-Grouse Habitat Management Areas for BLM-Administered Lands" (p. 13)).

PHMA and GHMA are defined as follows:

- PHMA: BLM-administered lands identified as having the highest value to maintaining sustainable Greater Sage-Grouse populations. The boundaries and management strategies for PHMA are derived from and generally follow the Preliminary Priority Habitat boundaries identified in the Bighorn Basin Proposed RMP and Final Environmental Impact Statement (EIS). Areas of PHMA largely coincide with areas identified as Priority Areas for Conservation (PACs) in the Conservation Objectives Team (COT) report. These areas are consistent with Core Habitat Areas, per version 3 of the State of Wyoming Executive Order (EO) Greater Sage-grouse Core Area of Protection (EO 2011-5) (Wyoming Office of the Governor 2011).
- GHMA: BLM-administered lands where some special management would apply to sustain Greater Sage-Grouse populations. The boundaries and management strategies for GHMA are derived from and generally follow the Preliminary General Habitat boundaries identified in the Bighorn Basin Draft Proposed RMP and Final EIS. These areas are consistent with Non-Core Habitat Areas, per version 3 of the State of Wyoming EO Greater Sage-grouse Core Area of Protection (EO 2011-5) (Wyoming Office of the Governor 2011).

There are no Sagebrush Focal Areas (SFAs) in the Worland Field Office. SFAs are a subset of PHMAs. The SFAs were derived from Greater Sage-Grouse stronghold areas described in a U.S. Fish and Wildlife Service (USFWS) memorandum to the BLM titled, *Greater Sage-Grouse: Additional Recommendations to Refine Land Use Allocations in Highly Important Landscapes* (USFWS 2014). The memorandum and associated maps provided by the USFWS identify areas that represent recognized strongholds for Greater Sage-Grouse that have been noted and referenced as having the highest densities of Greater Sage-Grouse and other criteria important for the persistence of the species.

Table 2.1. Acres of Priority Habitat Management Areas and General Habitat Management Areas in the Decision Area for the Approved Resource Management Plan

Surface Land Management	Priority Habitat Management Areas	General Habitat Management Areas
BLM-Administered Surface Estate	799,391	1,290,562
BLM-Administered Mineral Estate	1,021,583	1,632,171

Source: BLM 2013a

BLM Bureau of Land Management

Table 2.2. Acres of Greater Sage-Grouse Habitat by County in the Decision Area (BLM-Administered Lands Only)

County	Priority Habitat Management Areas		General Habitat Management Areas	
	BLM Surface Estate	BLM Mineral Estate	BLM Surface Estate	BLM Mineral Estate
Big Horn	106,723	119,082	487,427	523,301
Hot Springs	208,222	317,359	286,110	414,482
Park	72,218	99,583	27,560	74,636
Washakie	412,226	485,556	489,454	619,731
Grand Total[1]	799,391	1,021,583	1,290,562	1,632,171

Source: BLM 2013a

[1]Inaccurate boundary locations and distortions with map projections inherent to the GIS data result in totals not equal to the sum of constituent parts.

BLM Bureau of Land Management
GIS Geographic Information System

Table 2.3. Acres of Greater Sage-Grouse Habitat Management Areas by BLM District/Field Office in the Decision Area

BLM Office	Priority Habitat Management Areas	General Habitat Management Areas	Total
Cody Field Office	317,307	740,797	1,058,104
Lander Field Office	1,675,759	696,186	2,371,945
Worland Field Office	799,391	1,290,562	2,089,953
Total Acres (Wind River/Bighorn Basin District Office Total)	2,792,457	2,727,545	5,520,002

Source: BLM 2013a

BLM Bureau of Land Management

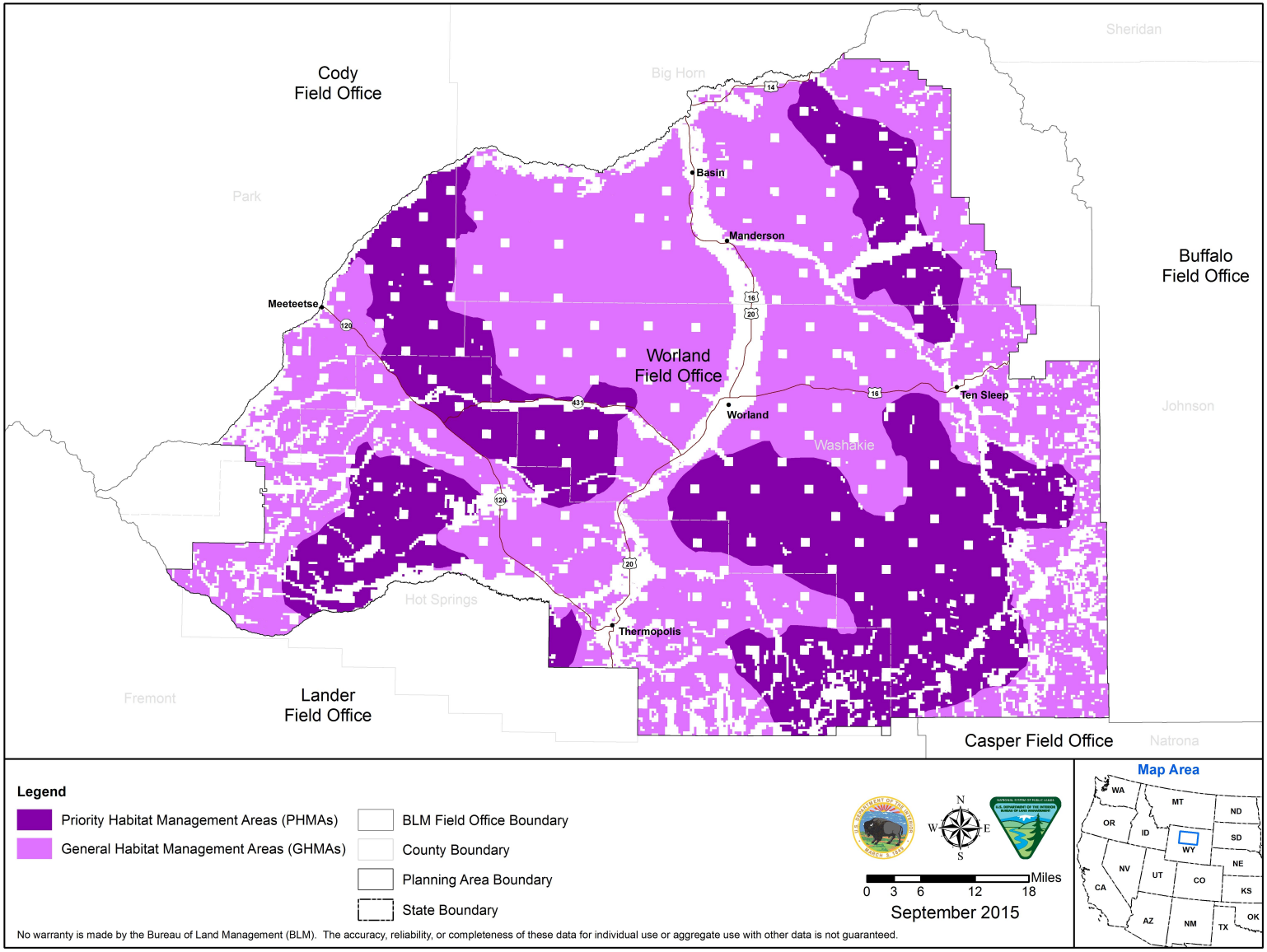


Figure 2.1. Worland Field Office Greater Sage-Grouse Habitat Management Areas for BLM-Administered Lands

2.2. Worland Field Office Greater Sage-Grouse Conservation Summary

The Approved RMP identifies and incorporates conservation measures to protect, restore, and enhance Greater Sage-Grouse habitat by avoiding, minimizing, and compensating for unavoidable impacts of threats to Greater Sage-Grouse habitat. The Approved RMP addresses threats to Greater Sage-Grouse and its habitat identified by the USFWS in the March 2010 listing decision, as well as those threats described in the USFWS COT Report. Per the COT Report, the USFWS identified threats by Greater Sage-Grouse population across the range and stated whether that threat is present and widespread, present but localized, or unknown for that specific population. The Worland Field Office falls with Management Zones I and II as identified by the COT Report. Table 2.4, "Threats to Greater Sage-Grouse in the Worland Planning Area as identified by the Conservation Objectives Team" (p. 15) identifies the Greater Sage-Grouse populations and threats identified by the COT Report contained within the Worland planning area.

Table 2.4. Threats to Greater Sage-Grouse in the Worland Planning Area as identified by the Conservation Objectives Team

Threats are characterized as: Y = threat is present and widespread and L = threat present but localized.														
GRSG Identified Populations from the COT Report Applicable to the Worland Planning Area	**Unit Number**	**Isolated Small Size**	**Sage-brush Elimination**	**Agriculture Conversion**	**Fire**	**Conifers**	**Weeds/ Annual Grasses**	**Energy**	**Mining**	**Infrastructure**	**Improper Livestock Grazing**	**Free-Roaming Equids**	**Recreation**	**Urbanization**
Powder River Basin (WY)	3	N	L	N	L	L	Y	Y	Y	Y	Y	N	Y	L
Wyoming Basin (WY Portion)	9a	N	L	N	L	L	L	Y	L	Y	Y	L	Y	L

Source: USFWS 2013

COT Conservation Objectives Team
GRSG Greater Sage-Grouse
L Threat present, but localized
N Threat is not known to be present
U Unknown
WY Wyoming
Y Threat is present and widespread

Table 2.5, "Key Components of the Worland Greater Sage-Grouse Approved Resource Management Plan Addressing Conservation Objectives Team Report Threats" (p. 16) provides a crosswalk as to how the Approved RMP for the Worland Sub-region addresses the threats from the COT Report.

Table 2.5. Key Components of the Worland Greater Sage-Grouse Approved Resource Management Plan Addressing Conservation Objectives Team Report Threats

Threats to Greater Sage-Grouse and its Habitat (from COT Report)	Key Component of the Worland Approved Resource Management Plan
All threats	• Implement the Adaptive Management Plan, which provides regulatory assurance that unintended negative impacts to GRSG habitat will be addressed before consequences become severe or irreversible. • PHMA: Require and ensure mitigation that provides a net conservation gain to GRSG. • Monitor implementation and effectiveness of conservation measures in GRSG habitats according to the Habitat Assessment Framework.
All development threats, including mining, infrastructure, and energy development	• PHMA: Implement an anthropogenic disturbance cap of 5% at the project-area scale. • PHMA: Implement a density cap of an average of 1 energy and mining facility per 640 acres. • PHMA: Surface occupancy and surface-disturbing activities are prohibited on or within a 0.6-mile radius of the perimeter of occupied GRSG leks. • GHMA: Surface occupancy and surface-disturbing activities are prohibited on or within a 0.25-mile radius of the perimeter of occupied GRSG leks. • Apply RDFs when authorizing actions in GRSG habitat. • Inform infrastructure siting in GRSG habitat through best available science and monitoring to minimize indirect effects. • Effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available.
Energy development—fluid minerals, including geothermal resources	• PHMA: Open to fluid mineral leasing subject to NSO stipulation within 0.6 mile of an occupied lek, and TL stipulation from March 15 to June 30. • GHMA: Open to fluid mineral leasing subject to NSO within 0.25 mile of an occupied lek and TL stipulations. • Prioritize the leasing and development of fluid mineral resources outside GRSG habitat.
Energy development—wind energy	• PHMA: Avoidance area (may be available for wind energy development with special stipulations)
Infrastructure—major ROWs	• PHMA: Avoidance area (may be available for major ROWs with special stipulations)
Infrastructure—minor ROWs	• PHMA: Avoidance area (may be available for minor ROWs with special stipulations)
Mining—locatable minerals	• Apply RDFs to locatable minerals consistent with applicable law.
Mining—Coal	• PHMA is essential habitat for GRSG for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(I).

Threats to Greater Sage-Grouse and its Habitat (from COT Report)	Key Component of the Worland Approved Resource Management Plan
Improper livestock grazing	• Prioritize the review and processing of grazing permits/leases in PHMA. • The NEPA analysis for renewals and modifications of grazing permits/leases will include specific management thresholds, based on the GRSG Habitat Objectives Table, Land Health Standards, and ecological site potential, to allow adjustments to grazing that have already been subjected to NEPA analysis. • Prioritize field checks in PHMA to ensure compliance with the terms and conditions of grazing permits.
Free-roaming equid management	• Update Herd Management Area plans to include GRSG objectives.
Range management structures	• Allow range improvements which do not adversely impact GRSG, or which provide a conservation benefit to GRSG such as fences for protecting important seasonal habitats.
Recreation	• PHMA: Do not construct new recreation facilities.
Fire	• PHMA: Prioritize suppression immediately after life and property to conserve the habitat. • GHMA: Prioritize suppression where wildfires threaten PHMA.
Nonnative, invasive plant species	• Improve GRSG habitat by treating invasive annual grasses. • Treat sites in PHMA and GHMA that contain invasive species infestations through an integrated pest management approach.
Sagebrush removal	• PHMA: Maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush cover or as consistent with specific ecological site conditions. • All BLM use authorizations will contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives for GRSG.
Pinyon and/or juniper expansion	• Remove conifers encroaching into sagebrush habitats, prioritizing occupied GRSG habitat.
Agricultural conversion and exurban development	• Retain the majority of PHMA in federal management.
BLM Bureau of Land Management CFR Code of Federal Regulations COT Conservation Objectives Team GHMA General Habitat Management Area GRSG Greater Sage-Grouse NEPA National Environmental Policy Act	NSO No surface occupancy PHMA Priority Habitat Management Area RDFs Required Design Features ROW Rights-of-Way TL Timing Limitation

While energy development has been identified as the primary threat to the Greater Sage-Grouse within its eastern range, wildfire also represents a threat to the species. Within the Rocky Mountain Region wildfire was identified by the COT Report (USFWS 2013) as a present and widespread threat in 7 of 13 Priority PACs and as a present but localized threat in the remaining PACs. Fire is a naturally occurring disturbance in sagebrush steppe and the incursion of nonnative annual grasses is facilitating an increase in mean fire frequency, which can preclude the opportunity for sagebrush to become re-established. As such, this ROD and Approved RMP include requirements that landscape scale Fire and Invasives Assessments be completed and updated regularly to more accurately define specific areas to be treated to address threats to

sagebrush steppe habitat. Within the Rocky Mountain Region, assessments have not yet been completed but will be scheduled based on the need to identify and address potential threats. Additionally, the Secretary of the Interior issued Secretarial Order 3336 on January 5, 2015, which establishes the protection, conservation, and restoration of "the health of the sagebrush-steppe ecosystem and, in particular, Greater Sage-Grouse habitat, while maintaining safe and efficient operations as a critical fire management priority for the Department. The Secretarial Order will result in a final report of activities to be implemented prior to the 2016 western fire season. This will include prioritization and allocation of fire resources and the integration of emerging science, enhancing existing tools to implement the RMP and improve the BLM's ability to protect sagebrush-steppe from damaging wildfires.

The Approved RMP also identifies conservation measures that are designed to protect, restore, and enhance Greater Sage-Grouse habitat. The Approved RMP applies the following summarized management decisions, subject to valid existing rights, to other uses and resources, such as:

- Providing a framework for prioritizing areas in PHMA and GHMA for wildfire, invasive annual grass, and conifer treatments.
- Adjusting grazing practices as necessary, based on Greater Sage-Grouse habitat objectives, land health standards, and ecological site potential.
- Requiring site-specific design features for certain lands and realty uses.
- Implementing a disturbance cap to limit disturbance in PHMAs.
- Including Greater Sage-Grouse habitat objectives in land health standards.

The Approved RMP also establishes screening criteria and conditions for new anthropogenic activities in PHMAs and GHMAs to ensure a net conservation gain for Greater Sage-Grouse population and habitat, consistent with the State of Wyoming Core Area Strategy. The Approved RMP will reduce habitat disturbance and fragmentation through limitations on surface-disturbing activities, while addressing changes in resource condition and use through monitoring and adaptive management.

The Approved RMP's Greater Sage-Grouse Habitat Management approach was built upon the foundation for Greater Sage-Grouse management established by and complementary to EO 2011-5, Greater Sage Grouse Core Area Protection (Core Area Strategy) (Wyoming Office of the Governor 2011), by establishing similar conservation measures and focusing restoration efforts in the same key areas most valuable to Greater Sage-Grouse. On July 29, 2015, the State of Wyoming issued EO 2015-4, which replaced EO 2011-5 and EO 2013-3 (Wyoming Office of the Governor 2013). Through the Governor's Consistency Review of the Plan, it was determined that guidance and recommendations provided in EO 2015-4 were consistent with the Proposed RMP issued on May 29, 2015. Therefore, throughout the plan, references to the State of Wyoming's Core Area Protection strategy were updated to reference EO 2015-4. In addition, EO 2015-4 modified the Core Area boundaries. The boundary changes are inconsistent with the maps and acreages presented in the Proposed RMP and therefore EO 2011-5 remains the reference for the Core Area boundaries.

Conservation of Greater Sage-Grouse is a large-scale challenge that requires a landscape-scale solution spanning 11 western states. This Approved RMP would achieve the consistent range-wide conservation objectives outlined below and aligns with the State of Wyoming's priorities and land management approaches.

2.2.1. Goals, Objectives, and Management Decisions for Greater Sage-Grouse Habitat

This section of the Approved RMP presents the goals, objectives, land use allocations, and management actions established for protecting and preserving Greater Sage-Grouse and its habitat on BLM-administered land in the Worland planning area. A *Monitoring Framework* is also included (in Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271)) to describe how the program decisions will be tracked to ensure implementation.

All of the goals, objectives, and management actions identified in this section can also be found in Chapter 3, *Approved Resource Management Plan* (p. 45) of this Approved RMP for other resources and/or program areas (e.g., Physical Resources) and have been consolidated in this section to depict how the agency will manage Greater Sage-Grouse habitat. For this reason, the goals, objectives, and management actions in this section are not paginated and retain the title/record number as they are presented in Chapter 3, *Approved Resource Management Plan* (p. 45).

Table 2.6, "Summary of Allocation Decisions by Greater Sage-Grouse Habitat Management Areas" (p. 19), is a summary of the allocation decisions presented for each Greater Sage-Grouse habitat management area. For allocation decisions specific to PHMAs and GHMAs, refer to the Greater Sage-Grouse habitat management maps (Maps 2-1 through 2-10) Appendix A, *Maps* (p. 207).

Table 2.6. Summary of Allocation Decisions by Greater Sage-Grouse Habitat Management Areas

Resource	Priority Habitat Management Areas	General Habitat Management Areas
Land Tenure	Retain	Retain
Wind	Avoidance	Open
ROW	Avoidance	Open
Oil and Gas	Open with Major Stipulations	Open with Minor Stipulations
Geothermal	Open	Open
Salable Minerals	Open	Open
Locatable Minerals	Open	Open
Travel Management	Limited	Limited
Livestock Grazing[1]	Open	Open

Note: This table provides a generalized summary of the management decisions contained in Table 2.8, "Worland Approved RMP Goals, Objectives, and Management Decisions Pertaining to Greater Sage-Grouse or Sagebrush Habitat" (p. 29) of the Approved RMP. As a result, the decisions listed above may not apply to all locations within PHMAs or GHMAs; may be subject to certain exemption, modification, and waiver criteria; or may be subject to overlapping management decisions for other resources and resource uses. Please also note that all actions within priority or seasonal Greater Sage-Grouse habitat areas are subject to general limitations on surface-disturbing and disruptive activities. For example, although PHMAs are generally open to salable mineral development, limitations on surface disturbance prohibit this activity within 0.6 mile of occupied leks inside PHMAs. See the specifics in the description below.

[1] See Appendix O, *Livestock Grazing* (p. 563).

GHMA General Habitat Management Area
PHMA Priority Habitat Management Area
ROW Rights-of-Way
RMP Resource Management Plan

Minimize additional surface disturbance. The most effective way to conserve the Greater Sage-Grouse is to protect existing, intact habitat. The BLM would aim to reduce habitat fragmentation and protect key habitat areas. This Approved RMP would minimize surface disturbance on over two million acres of BLM-administered lands by allocating lands as PHMA and GHMA with decisions that aim to conserve Greater Sage-Grouse habitat.

The limitations on mineral and right-of-way development along with the disturbance cap, lek buffers, and adaptive management would result in a net conservation gain for Greater Sage-Grouse. The Approved RMP prioritizes oil and gas development outside of Greater Sage-Grouse habitat and focuses on a landscape-scale approach to conserving Greater Sage-Grouse habitat. In the context of the planning area, land use allocations under the Approved RMP would limit or eliminate new surface disturbances in PHMA.

The BLM also updated the Approved RMP to reflect new Greater Sage-Grouse state conservation strategies, including recent State of Wyoming EOs. The objectives of these documents are consistent with the State of Wyoming's Core Area Strategy, which is designed to protect Greater Sage-Grouse and its habitat within core areas using a suite of tools and mechanisms that work in concert to conserve Greater Sage-Grouse by reducing habitat loss and fragmentation through lek buffers, disturbance limits, exclusion of activities, and a sophisticated mapping utility to monitor the amount and density of disturbance.

Improve habitat condition. While restoring lost sagebrush habitat can be very difficult in the short term, particularly in the most arid areas, it is often possible to enhance habitat quality through purposeful management. This Approved RMP commits to management actions necessary to achieve science-based vegetation and Greater Sage-Grouse habitat management objectives. Habitat restoration and vegetation management actions would improve Greater Sage-Grouse habitat and prioritize restoration in PHMAs. As a result, the restoration and management of vegetation actions would focus on Greater Sage-Grouse. For mitigation, the BLM would coordinate with the Wyoming Sage-Grouse Implementation Team for application of the "avoid, minimize, compensate" process to ensure anthropogenic activities result in a net conservation gain for Greater Sage-Grouse habitat.

The Approved RMP also includes a process for monitoring and adapting to changing conditions on the landscape. Using monitoring data for population and sagebrush canopy cover, the adaptive management strategy would apply more restrictive management where there is a consistent downward trend. The cause of the downward trend (e.g., anthropogenic disturbance, fire, disease) would be identified through monitoring data.

Reduce threat of rangeland fire to Greater Sage-Grouse and sagebrush habitat. Rangeland fire can destroy sagebrush habitat and lead to the conversion of previously healthy habitat into landscapes dominated by invasive species. This Approved RMP incorporates Secretarial Order 3336 and sets forth protocols to improve the BLM's ability to protect Greater Sage-Grouse habitat from damaging wildfire. Prescribed fire would only be used to improve or maintain habitat for Greater Sage-Grouse and to meet specific fuel objective standards.

Table 2.7, "Greater Sage-Grouse Seasonal Habitat Objectives" (p. 22), summarizes the characteristics that research has found represent the seasonal habitat needs for Greater Sage-Grouse. The specific seasonal components identified in the table were adjusted based on local science and monitoring data to define the range of characteristics used in this subregion. Thus, the habitat objectives provide the broad vegetative conditions the BLM strives to obtain

across the landscape that indicate the seasonal habitats used by Greater Sage-Grouse. These habitat indicators are consistent with the rangeland health indicators used by the BLM.

The habitat objectives will be part of the Greater Sage-Grouse habitat assessment to be used during land health evaluations (see Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271)). These habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination on whether the objectives have been met will be based on the specific site's ecological ability to meet the desired condition identified in Table 2.7, "Greater Sage-Grouse Seasonal Habitat Objectives" (p. 22). All desired conditions will be dependent on site capability and local variation (e.g., weather patterns, localized drought, ecological site description state).

All BLM use authorizations will contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made towards meeting them, there will be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause, the use will be adjusted by the response specified in the instrument that authorized the use.

Table 2.7. Greater Sage-Grouse Seasonal Habitat Objectives

Attribute	Indicators	Desired Condition[1]	Reference
Breeding and Nesting (Seasonal Use Period March 1-June 15)			Doherty, K.E. 2008. Sage-grouse and Energy Development: Integrating Science with Conservation Planning to Reduce Impacts. Holloran, M.J., and S.H. Anderson. 2005. Spatial Distribution of Greater Sage-grouse nests in relatively contiguous sagebrush habitats.
Lek Security	Proximity of trees	Trees absent or uncommon on shrub/grassland ecological sites within 1.8 miles (approximately 3 km) of occupied leks.	Baruch-Mordo, S., J.S. Evans, J.P. Severson, D.E. Naugle, J.D. Maestas, J.M. Kiesecker, M.J. Falkowski, C.A. Hagen, and K.P. Reese. 2013. Saving Greater Sage-grouse from trees. Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: Multi-scale Habitat Assessment Tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies Technical Reference 6710-1. U.S. Bureau of Land Management, Denver, Colorado.
	Proximity of sagebrush to leks	Adjacent protective sagebrush cover within 330 feet (approximately 100 m) of an occupied lek.	Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: Multi-scale Habitat Assessment Tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies Technical Reference 6710-1. U.S. Bureau of Land Management, Denver, Colorado.

Attribute	Indicators	Desired Condition[1]	Reference
Cover	Percent of seasonal habitat meeting desired conditions	Greater than 80 percent of the nesting habitat meets the recommended vegetation characteristics, where appropriate (relative to ecological site potential, etc.).	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.
	Sagebrush cover[2]	5 to 25 percent	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985. Connelly, J.W., K.P. Reese, and M.A. Schroeder. 2003. Monitoring of Greater Sage-Grouse habitats and populations. University of Idaho College of Natural Resources Experiment Station Bulletin 80. University of Idaho, Moscow, ID. Hagen, C.A., J.W. Connelly, and M.A. Schroeder. 2007. A meta-analysis of Greater Sage-Grouse *Centrocercus urophasianus* nesting and brood-rearing habitats. Wildlife Biology 13 (Supplement 1):42-50.
	Sagebrush height Arid sites[3] Mesic sites[4]	4 to 31 inches (10 to 80 cm) 12 to 31 inches (30 to 80 cm)	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.

Attribute	Indicators	Desired Condition[1]	Reference
	Predominant sagebrush shape	Predominantly spreading shape[5]	Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: Multi-scale Habitat Assessment Tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies Technical Reference 6710-1. U.S. Bureau of Land Management, Denver, Colorado.
	Perennial grass cover (such as native bunchgrasses)[2] Arid sites[3] Mesic sites[4]	Greater than or equal to 10 percent Greater than or equal to 15 percent Cool-season bunchgrasses preferred	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985. Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: Multi-scale Habitat Assessment Tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies Technical Reference 6710-1. U.S. Bureau of Land Management, Denver, Colorado. Cagney J., E. Bainter, B. Budd, T. Christiansen, V. Herren, M. Holloran, B. Rashford, M. Smith, and J. Williams. 2010. Grazing influence, objective development, and management in Wyoming's Greater Sage-Grouse habitat. University of Wyoming College of Agriculture Extension Bulletin B-1203. Laramie.

Attribute	Indicators	Desired Condition[1]	Reference
	Perennial grass and forb height (includes residual grasses)	Adequate nest cover greater than or equal to 7 inches or as determined by ESD site potential and local variability.	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985. Connelly, J.W., K.P. Reese, and M.A. Schroeder. 2003. Monitoring of Greater Sage-Grouse habitats and populations. University of Idaho College of Natural Resources Experiment Station Bulletin 80. University of Idaho, Moscow, ID. Doherty, K.E., D.E. Naugle, J.D. Tack, B.L Walker, J.M. Graham, and J.L. Beck. 2014. Linking Conservation Actions to Demography: Grass Height Explains Variation in Greater Sage-grouse Nest Survival. Wildlife Biology 20(6): 320-325. Hagen, C.A., J.W. Connelly, and M.A. Schroeder. 2007. A meta-analysis of greater Greater Sage-Grouse Centrocercus urophasianus nesting and brood-rearing habitats. Wildlife Biology 13 (Supplement 1):42-50. Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: Multi-scale Habitat Assessment Tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies Technical Reference 6710-1. U.S. Bureau of Land Management, Denver, Colorado.

Attribute	Indicators	Desired Condition[1]	Reference
	Perennial forb cover[2] Arid sites[3] Mesic sites[4]	Greater than or equal to 5 percent Greater than or equal to 10 percent	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.
Brood Rearing/Summer (Seasonal Use Period June 16-October 31)[6]			
Cover	Percent of seasonal habitat meeting desired condition	Greater than 40 percent of the summer/brood habitat meets recommended brood habitat characteristics where appropriate (relative to ecological site potential, etc.).	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.
	Sagebrush cover[2]	5 to 25 percent	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.
	Sagebrush height	4 to 32 inches (10 to 80 cm)	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.
	Perennial grass cover and forbs[2]	Greater than or equal to 5 percent arid sites Greater than or equal to 10 percent mesic sites	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.
	Riparian areas/mesic meadows[2]	Proper functioning condition	Preferred forbs are listed in Stiver et al. 2015. Overall total forb cover may be greater than that of preferred forb cover since not all forb species are listed as preferred.

Attribute	Indicators	Desired Condition[1]	Reference
	Upland and riparian perennial forb availability	Preferred forbs are common with several preferred species present[7]	Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: Multi-scale Habitat Assessment Tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies Technical Reference 6710-1. U.S. Bureau of Land Management, Denver, Colorado.
Winter (Seasonal Use Period November 1-February 28)[6]			
Cover and Food	Percent of seasonal habitat meeting desired conditions	Greater than 80 percent of the wintering habitat meets winter habitat characteristics where appropriate (relative to ecological site, etc.).	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.
	Sagebrush cover above snow[2]	Greater than 5 percent	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985. Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: Multi-scale Habitat Assessment Tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies Technical Reference 6710-1. U.S. Bureau of Land Management, Denver, Colorado.

Attribute	Indicators	Desired Condition[1]	Reference
	Sagebrush height above snow	Greater than 10 inches (greater than 25 cm)	Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage Greater Sage-Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.

[1]All desired conditions will be dependent on site capability and local variation (e.g., weather patterns, localized drought, ESD state).
[2]Absolute cover is the actual recorded cover and can exceed 100 percent when recorded across all species and all layers. It is not relative cover, which is the proportions of each species, and equals 100 percent. Note that cover is reported for only those species (e.g., sagebrush, preferred forbs) that are sampled to determine suitability of habitat for Greater Sage-Grouse. Overall cover at the site will be greater than that sampled for Greater Sage-Grouse habitat, due to other species present.
[3]Arid corresponds to the 10 – 12 inch precipitation zone; *Artemisia tridentata wyomingensis* is a common big sagebrush sub-species for this type of site (Stiver et al. 2015).
[4]Mesic corresponds to the ≥12 inch precipitation zone; *Artemisia tridentata vaseyana* is a common big sagebrush sub-species for this type of site (Stiver et al. 2015).
[5]Collectively the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired condition range for nesting/early brood-rearing habitat characteristics, consistent with the breeding habitat suitability matrix identified in Stiver et al. 2015. Sagebrush plants that are more tree or columnar-shaped provide less protective cover near the ground than sagebrush plants with a spreading shape (Stiver et al. 2015). Some sagebrush plants are naturally columnar (e.g., Great Basin big sagebrush), and a natural part of the plant community. However, a predominance of columnar shape arising from animal impacts may warrant management investigation or adjustments at site specific scales.
[6]Where credible data support different seasonal dates than those identified, dates may be shifted but the amount of days cannot be shortened or lengthened by the local unit.
[7]Preferred forbs are listed in Stiver et al. 2015. Overall total forb cover may be greater than that of preferred forb cover since not all forb species are listed as preferred.

> greater than
cm centimeter
ESD Ecological Site Descriptions
km kilometer
m meter

Table 2.8, "Worland Approved RMP Goals, Objectives, and Management Decisions Pertaining to Greater Sage-Grouse or Sagebrush Habitat" (p. 29), represents the goals, objectives, and management decisions from Chapter 3, *Approved Resource Management Plan* (p. 45) that pertain to Greater Sage-Grouse or sagebrush habitat.

Table 2.8. Worland Approved RMP Goals, Objectives, and Management Decisions Pertaining to Greater Sage-Grouse or Sagebrush Habitat

Record #	Goal/Obj.	Decisions
		2000 MINERAL RESOURCES
		Objectives: **MR:2.3** Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 CFR 3162.3-1(h). **MR:2.4** Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce, and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessee, operator, or project proponent in developing an APD for the lease to avoid and minimize impacts to Greater Sage-Grouse or its habitat and will ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.
2005	MR:1.1 MR:1.3 MR:3.1	Consider interest in exploration for, or leasing of, federal coal (Map 3-5), if any on a case-by-case basis. Allow coal exploration licenses subject to the regulations of 43 CFR 3410, and subject to guidance mitigating for surface-disturbing activities in the *Wyoming BLM Standard Oil and Gas Lease Stipulations* (Appendix B, *Oil and Gas Lease Notices and Lease Stipulations, including Exception, Modification, and Waiver Criteria* (p. 211)). Before issuing a coal exploration license, require the authorized officer to prepare an environmental assessment or environmental impact statement, if necessary, of the potential effects of the proposed exploration on the natural and socioeconomic environment of the affected area. If an application for a federal coal lease is received, conduct an appropriate land use and environmental analysis, including the coal screening process, to determine whether the area(s) proposed for leasing is (are) acceptable for coal development and leasing (as per 43 CFR 3425). If public lands are determined to be acceptable for further consideration for coal leasing, amend the land use plan as necessary. Only accept federal coal lease applications on those federal coal lands with development potential identified as suitable for further leasing consideration, after application of the coal screens and unsuitability criteria. At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5. PHMA is essential habitat for maintaining Greater Sage-Grouse for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1). The BLM will also consider that USFWS has found “the core area strategy…if implemented by all landowners via regulatory mechanisms, would provide adequate protection for sage-grouse and their habitats in the state” when considering leasing coal in PHMAs under the criteria set for at 43 CFR 3461.5(o)(1) (USFWS 2010).

Record #	Goal/Obj.	Decisions
2013	MR:1.1 MR:1.3 MR:2.1 MR:2.3	Process oil and gas lease applications on a case-by-case basis. Ensure that leasing activities in PHMAs comply with Greater Sage-Grouse RMP decisions and remain in compliance with laws, regulations, and policy.
2023	MR:1.1 MR:1.3 MR:2.1	Delineate **Oil and Gas Management Areas** (Map 3-9) (333,488 acres of federal mineral estate) around existing intensively-developed fields, applying a 2-mile buffer from the outer boundary of the existing field (Map 3-10); adding enhanced oil recovery areas identified by the Governor's Office Enhanced Oil Recovery Institute and excluding Greater Sage-Grouse PHMAs. Manage these areas primarily for oil and gas exploration and development. Oil and gas development, including enhanced oil recovery operations, within Oil and Gas Management Areas is allowed to take place at the same level and density as the existing development in the field. Levels and densities beyond the existing field development may require additional reclamation or compensatory offsite mitigation. As oil and gas fields expand or exploration reaches beyond the Oil and Gas Management Areas depicted on Map 3-9, Oil and Gas Management Areas may be enlarged as appropriate. To enlarge Oil and Gas Management Areas, the expansion area would: i) have to be adjacent to the field and under valid oil and gas lease(s) with stipulations allowing surface occupancy and development; ii) have to have a surface density of, on average, at least four well pads per 640-acres; a determination that additional well density is required to efficiently and adequately produce the oil or gas resource; iii) have a project-specific environmental analysis prepared to analyze the impacts and determine operating methods, mitigation, and BMPs to be used in the efficient and comprehensive development of the field; iv) need surface resources to be satisfactorily mitigated; and v) need commitment to accelerate reclamation as required by the authorized officer.
		3000 FIRE AND FUELS MANAGEMENT
		Objectives: **FM:1.5** Following wildland fires, conduct appropriate emergency stabilization and rehabilitation when and where needed. In priority Greater Sage-Grouse habitat areas, prioritize suppression immediately after life and property to conserve the habitat. In general Greater Sage-Grouse habitat, prioritize suppression where wildfires threaten priority Greater Sage-Grouse habitat. **FM:2.1** Consult and cooperate with adjacent landowners, state and local governments, and other stakeholders to plan and implement prescribed fire and other vegetation treatments across the landscape. In areas of general Greater Sage-Grouse habitat, design and implement fuels treatments with an emphasis on protecting existing sagebrush ecosystems.

Record #	Goal/Obj.	Decisions
3008	FM:1	Suppress fires threatening Greater Sage-Grouse habitats and crucial winter wildlife habitat within Wyoming big sagebrush communities. Where fire would be utilized to meet resource objectives, work closely with resource specialists to protect and improve Greater Sage-Grouse habitat. For fuels management, the BLM would consider multiple tools for fuels reduction and would analyze in NEPA compliance documentation before electing to implement prescribed fire in PHMAs. If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address: ● why alternative techniques were not selected as a viable options; ● how Greater Sage-Grouse goals and objectives would be met by its use; ● how the COT Report objectives would be addressed and met; and ● a risk assessment to address how potential threats to Greater Sage-Grouse habitat would be minimized. Prescribed fire as a vegetation or fuels treatment in Greater Sage-Grouse habitat shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire could be used to meet specific fuels objectives that would protect Greater Sage-Grouse habitat in PHMAs (e.g., creation of fuel breaks that would disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities). Prescribed fire in known crucial winter wildlife habitat shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in and/or around crucial winter wildlife habitat must be strategically-designed to reduce wildfire risk and protect winter range habitat quality.
		4000 BIOLOGICAL RESOURCES

Record #	Goal/Obj.	Decisions
		Objective: **BR:2.6** In PHMAs, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Technical Reference 1734-6 [BLM 2005c]). **GOAL BR:9** GREATER SAGE-GROUSE – Sustain the integrity of the sagebrush biome to provide the amount, continuity, and quality of habitat that is necessary to maintain sustainable populations of Greater Sage-Grouse and other species by achieving the objectives below. **Objective:** **BR:9.1** Maintain large patches of high quality sagebrush habitats, with emphasis on patches occupied by Greater Sage-Grouse. **BR:9.2** Maintain connections between sagebrush habitats, with emphasis on connections between habitats occupied by Greater Sage-Grouse. **Objective:** **BR:10.1** Reconnect large patches of sagebrush habitat with emphasis on reconnecting patches occupied by stronghold and isolated populations of Greater Sage-Grouse.
4058	BR:5.1	Maintain or improve important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies and the application of *The Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management* (Wyoming Interagency Vegetation Committee 2002) and the *Wyoming BLM Standard Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (Appendix F, *Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (p. 349)), BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)), and similar guidance updated over time.
4070	BR:5.1 BR:5.3	Conduct habitat enhancement vegetation treatments within sagebrush communities as opportunities and funding allow, consistent with EO 2015-4 (Wyoming Office of the Governor 2015).
4071	BR:5.1 BR:6.1	Modify identified hazard fences, and analyze and construct new fences in accordance with wildlife needs, the BLM Fencing Handbook 1741-1, and WO IM 2010-022, *Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken*, and similar guidance and policy as updated over time.
4076	BR:6.1	Allow water development projects in crucial elk winter range and in greater Greater Sage-Grouse nesting habitat with 10 inches or less annual precipitation only when adverse effects can be avoided, minimized and/or compensated based on site-specific analysis. Allow existing uses pending site-specific analysis on a priority basis.
4080	BR:6.1	Avoid wind energy projects in big game crucial winter range and raptor concentration areas. Wind-energy development would be avoided in Greater Sage-Grouse PHMAs (Map 3-17), and not allowed unless it can be sufficiently demonstrated that the development activity would not result in declines of Greater Sage-Grouse PHMA populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS.

Record #	Goal/Obj.	Decisions
4087	BR:9.1	Discourage the use of broad-spectrum insecticides where insect control is required. Target pest control toward key problem areas and schedule applications to be effective in minimum doses in Greater Sage-Grouse brood-rearing areas. Field Offices may implement treatments within Greater Sage-Grouse habitat utilizing RAATS protocols.
4088	BR:9.1	Avoid aerial pesticide spraying in favor of ground applications to minimize drift into non-target areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.
4089	BR:9.1	Avoid applying pesticides to Greater Sage-Grouse breeding habitat during the nesting and early brood-rearing season (March 15 through June 30) to reduce the loss of food supply to chicks and avoid the chance of secondary poisoning unless benefits of treatments are likely to outweigh impacts.
4090	BR:10.1	Maintain seeps, springs, wet meadows, and riparian vegetation in a functional and diverse condition for young Greater Sage-Grouse and other species that depend on forbs and insects associated with these areas. Consider management actions if desirable green vegetation associated with these wet areas is not available, accessible, or cannot be maintained with current livestock, wildlife, or wild horse use, and the impacts are outweighed by the improved habitat quality.
4091	BR:10.1	Restore Greater Sage-Grouse brood-rearing habitats in riparian/wetland areas.
4092	BR:10.1	Restore lost riparian functioning systems by repairing abnormally incised drainages to raise water tables and increase water storage and brood-rearing habitats within Greater Sage-Grouse habitat.
4093	BR:9.1	Manage vegetation composition diversity and structure, as determined by ESD, or other methods that reference site potential, and WGFD protocols to achieve Greater Sage-Grouse habitat management objectives, in cooperation with stakeholders. Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to Greater Sage-Grouse habitat to determine if they should be restored to Greater Sage-Grouse or habitat of higher quality for Greater Sage-Grouse. If these seedings provide value in conserving or enhancing Greater Sage-Grouse habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat during the land health assessments. Burned areas within PHMAs would be restored to suitable habitat with consideration given to ESDs, reference sites, site potential and local variability. The BLM could bring in burned area rehabilitation and Burned Area Emergency Response teams who would work cooperatively with partners at the federal, state, and local levels to rehabilitate and restore Greater Sage-Grouse habitats in a manner consistent with the core habitat populations area strategy for conservation. DDCT reviews would be conducted in coordination with the WGFD Habitat Protection Program located in Cheyenne, Wyoming at the WGFD headquarters. Areas within PHMAs would be prioritized for restoration of Greater Sage-Grouse habitat beyond immediate response.
4094	BR:10.1	Maintain sagebrush and understory diversity (relative to ecological site description) in crucial seasonal Greater Sage-Grouse habitats unless such removal is necessary to achieve Greater Sage-Grouse habitat management objectives. For example, thinning small patches of dense sagebrush may increase desirable forbs in early brood-rearing habitat.
4095	BR:10.1	Increase the composition and canopy cover of Wyoming big sagebrush, within existing nonnative grass seedings with less than 5 percent sagebrush canopy cover, to greater than or equal to neighboring sagebrush communities or historical levels. (See Shrubland-Salt Desert/Salt Bottom on Map 3-15; deeper soiled, and gentler sloped portions of the Shrubland-Salt Desert/Salt Bottom, colored in pink, would be those areas where sagebrush restoration efforts could be conducted.)

Record #	Goal/Obj.	Decisions
4096	BR:10.1	Investigate opportunities to increase sagebrush in lower precipitation zones.
4097	BR:9.1	Plan and construct mining and mineral development activities, to the degree possible given state water rights, to minimize disturbances that would result in alterations to springs and riparian Greater Sage-Grouse habitat. Alternative water sources may be developed to replace natural sources that have been affected or destroyed during these development activities.
4098	BR:8.3 BR:8.5	Treat constructed or non-natural water storage impoundments to control mosquito breeding (and the associated spread of West Nile virus), to prevent disease spread to Greater Sage-Grouse as necessary.
4099	BR:9.1	In cooperation with stakeholders, manage to promote the growth and persistence of native shrubs, grasses, and forbs needed by Greater Sage-Grouse for seasonal food and concealment.
4100	BR:9.1	In cooperation with stakeholders, design and locate fences so as not to disturb PHMAs. Increase the visibility of fences in these areas which have been identified as hazardous to flying Greater Sage-Grouse.
4101	BR:9.1	Conduct fire management activities to minimize overall wildfire size and frequency in sagebrush plant communities where Greater Sage-Grouse habitat objectives are at risk. General priorities for habitat protection: Priority # 1 – Protection of Greater Sage-Grouse PHMAs. Priority # 2 – Wyoming big sagebrush communities outside Greater Sage-Grouse PHMAs and habitats recovering from disturbance within or adjacent to Greater Sage-Grouse PHMAs.
4102	BR:9.1	Annually maintain FMPs to incorporate updated sagebrush habitat information as well as fire suppression priorities in sagebrush habitats. Incorporate fire management objectives for the management of sagebrush ecosystems into FMPs. Provide fire management objectives for sagebrush ecosystems to initial attack personnel at the beginning of each fire season.
4103	BR:10.1	Establish fuels treatment projects at strategic locations to minimize size of wildfires and limit loss of Greater Sage-Grouse habitat.
4104	BR:10.1	Reintroduce appropriate fire regimes to limit conifer encroachment into the sagebrush plant communities. Take into account invasive herbaceous species and Fire Regime Group and FRCC (measure of departure from historic fire regime) with treatments. Where possible, achieve a balance between treating areas that have significantly departed from the historic fire regime (Condition Class 3) and areas that are functioning within an appropriate fire regime (Condition Class 1).
4105	BR:10.1	Remove conifers encroaching into sagebrush habitats in a manner that considers tribal and cultural values. Prioritize treatments closest to occupied Greater Sage-Grouse habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2 as defined in Miller et al. (2005). Refine the location of specific priority areas to be treated by utilizing site-specific analysis and principles like those included in the FIAT report (Chambers et. al. [2014]) and other ongoing modeling efforts to address conifer encroachment.

Record #	Goal/Obj.	Decisions
4106	BR:7.1-7.4 BR:9.1 BR:9.2	**Inside PHMAs** Prohibit surface occupancy and surface-disturbing activities on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks. The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse (Map 3-17). **Outside PHMAs** Prohibit surface-disturbing and disruptive activities and apply a NSO restriction within a ¼-mile radius of the perimeter of occupied Greater Sage-Grouse leks (Map 3-17). Outside Greater Sage-Grouse PHMAs, the BLM's goal is to sustain important habitats that support core populations and to maintain lek persistence over the long term in sufficient proportions of the Greater Sage-Grouse population to facilitate movement and genetic transfer between core populations, including those found in adjacent states.
4107	BR:7.2 BR:9.1	**Inside PHMAs** Prohibit disruptive activities on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30 (81,281 acres). **Outside PHMAs** Prohibit disruptive activities on or within a ¼ mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30 (3,157 acres). **Inside PHMAs** Prohibit surface-disturbing and/or disruptive activities from March 15 to June 30 to protect Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat (1,021,583 acres). Apply this timing limitation throughout the PHMAs. Activities in unsuitable habitats would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis. **Outside PHMAs** Prohibit surface-disturbing and/or disruptive activities in Greater Sage-Grouse nesting and early brood-rearing habitat within a 2-mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30. Note: Where credible data support different timeframes for these seasonal restrictions, dates may be expanded by up to 14 days prior to or subsequent to the above dates.

Record #	Goal/Obj.	Decisions
4108	BR:7.2 BR:9.1	**Greater Sage-Grouse winter concentration areas:** Surface-disturbing and/or disruptive activities in sage-grouse winter concentration areas would be prohibited from December 1–March 14. Activities in unsuitable habitats within PHMAs would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis. Protection of additional mapped winter concentration areas in GHMAs would be implemented only where winter concentration areas are identified as supporting biologically significant numbers of sage-grouse nesting in PHMAs and/or attending leks within PHMAs. Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated in consultation with the WGFD in all identified winter concentration areas. Evaluate and allow activities in unsuitable habitats within PHMAs in accordance with exception and modification criteria on a case-by-case basis. Protection of additional mapped winter concentration areas in GHMAs would be implemented only where winter concentration areas are identified as supporting biologically significant numbers of Greater Sage-Grouse nesting in PHMAs and/or attending leks within PHMAs. Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated in consultation with the WGFD in all identified winter concentration areas.

Record #	Goal/Obj.	Decisions
4109	BR:7.2 BR:9.1	**Density of Disturbances:** In Greater Sage-Grouse PHMAs, the density of disturbance of energy or mining facilities would be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights (Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271)). The one location and cumulative value of existing disturbances would not exceed 5 percent of habitat of the DDCT area. Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5 percent within the DDCT area using the DDCT process. Consolidate anthropogenic features from development and transmission on the landscape. Allow on a case-by-case basis high profile structures within Greater Sage-Grouse nesting habitat. Sagebrush Treatment: For vegetation treatments in sagebrush within PHMAs, refer to WGFD Protocols for Treating Sagebrush to Benefit Sage-Grouse (WGFD 2011, as updated) and BLM WO IM 2013-128 (Sage-grouse Conservation Related to Wildland Fire and Fuels Management). These recommended protocols, subject to seasonal conditions of approval, would be used in determining whether proposed treatment constitutes a "disturbance" that would contribute toward the 5 percent threshold for habitat maintenance. Additionally, these protocols would be used to determine whether the proposed treatment configuration would be expected to have neutral or beneficial impacts for PHMA populations or if they represent additional habitat loss or fragmentation. Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse would be evaluated based upon habitat quality and the functionality/use of treated habitats post-treatment. The BLM would work collaboratively with partners at the state and local levels to maintain and enhance Greater Sage-Grouse habitats. Seasonal restrictions would be applied, as needed, for implementing fuels management treatments according to the type of seasonal habitat present. Wildfire burns will be treated as disturbed if sagebrush is reduced below 5 percent unless there is an implementation plan outlining restorationefforts and 3 years of data showing a trend back to suitable habitat.
4110	BR:7.2 BR:9.1	New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L_{50}) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 to May 15). Specific noise protocols for measurement and implementation will be developed as additional research and information emerges.

Record #	Goal/Obj.	Decisions
4111	BR:7.1-7.4 BR:9.1 BR:9.2	Allow motorized vehicle use in Greater Sage-Grouse PHMAs consistent with other resource objectives. Manage new road construction in and adjacent to Greater Sage-Grouse habitat consistent with applicable restrictions on surface-disturbing and disruptive activities. Avoid construction of new or local collector roads (as defined in BLM Manual 9113 [BLM 2011d]) within 1.9 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMAs. Prohibit all new roads within 0.6 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMAs. Construct roads to minimum design standards needed for production activities.
4112	SD:1.1 SD:1.2	In PHMAs, implement mitigation and minimization guidelines and required design features, including specific measures for Greater Sage-Grouse (refer to Appendix C, *Required Design Features and Best Management Practices* (p. 249)), as applicable and consistent with EO 2015-4 (Wyoming Office of the Governor 2015). Incorporate Greater Sage-Grouse specific measures into project proposals as required design features or mitigation for any authorized federal action, regardless of surface ownership.
4113	SD:1.1 SD:1.2	In PHMAs, require the development of a wildlife resource monitoring and mitigation plan to address potential impacts from mineral development on wildlife populations and/or habitat on a case-by-case basis.
4114	SD:1.1 SD:1.2	Use the following travel management criteria in PHMAs: ● During subsequent travel management planning, all routes within PHMAs would undergo a route evaluation to determine its purpose and need and the potential resource and/or user conflicts from motorized travel. Where resource and/or user conflicts outweigh the purpose and need for the route, the route would be considered for closure or considered for relocation outside of sensitive Greater Sage-Grouse habitat. ● During implementation-level travel planning, threats to Greater Sage-Grouse and their habitat would be considered when evaluating route designations and/or closures. ● During subsequent travel management planning, routes within PHMAs that do not have a purpose or need would be considered for closure. ● During subsequent travel management planning, routes within PHMAs that are duplicative parallel, or redundant would be considered for closure. ● During subsequent travel management planning, OHV timing limitations would be considered in important seasonal habitats where OHV use is a threat. ● During subsequent travel management planning, consider limiting snow machine travel to designated routes or consider seasonal closures in Greater Sage-Grouse wintering areas from November 1 through March 31. ● During subsequent travel management planning, routes in PHMAs not required for public access or recreation with a current administrative/agency purpose or need would be evaluated for administrative access only. ● During subsequent travel management planning, prioritize restoration of routes not designated in a Travel Management Plan within PHMAs. ● During subsequent travel management planning, consider using seed mixes or transplant techniques that will maintain or enhance Greater Sage-Grouse habitat when rehabilitating linear disturbances. ● During subsequent travel management planning, consider scheduling road maintenance to avoid disturbance during sensitive periods and times to the extent practicable. Use time of day limits (after 10:00 AM to 7:00 PM) to reduce impacts on Greater Sage-Grouse during breeding and nesting periods.

Record #	Goal/Obj.	Decisions
4115	SD:1.1 SD:1.2	The Greater Sage-Grouse adaptive management plan provides regulatory assurance that unintended negative impacts to Greater Sage-Grouse habitat will be addressed before consequences become severe or irreversible. Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts. See Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271) for more information on soft and hard triggers. Soft Triggers Response: Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. For population metrics, normal population trends are calculated as the 5-year running mean of annual population counts. BLM field offices, with the assistance of their respective land and RMP implementation groups, local WGFD offices, and local sage-grouse working groups will evaluate the metrics with the Adaptive Management Working Group on an annual basis. The purpose of these strategies is to address localized greater sage-grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold. Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short or long term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM) and the Adaptive Management Work Group will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or statewide level. Hard Trigger Response: Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect. Within the range of normal population variables (5-year running mean of annual population counts), hard triggers shall be determined to take effect when two of the three metrics exceeds 60 percent of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40 percent of normal variability for a 3 year time period within a 5-year range of analysis. A minimum of 3 consecutive years in a 5-year period is used to determine trends (i.e., years 1-2-3, years 2-3-4, years 3-4-5).

Record #	Goal/Obj.	Decisions
		Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions within the Biologically Significant Unit for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the Adaptive Management Work Group will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment). In making amendments to this plan, the BLM will coordinate with the USFWS as BLM continues to meet its objective of protecting, restoring, and enhancing Greater Sage-Grouse habitat by reducing, minimizing or eliminating threats to that habitat. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.
4142	BR:11.1	Base future adjustments to the appropriate management level on monitoring information and multiple use considerations through development of and/or revisions to HMA Plans. Update HMA plans to include Greater Sage-Grouse objectives.
		6000 LAND RESOURCES
		Objective: **LR:1.5** Effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available.
6014	LR:1.1 LR:1.2 LR:1.5	Retain approximately 2,048,905 acres of BLM-administered land. 52,080 acres of BLM-administered land are available for disposal by sale, exchange or other means (Map 3-21) (Appendix I, *Land Disposal and Acquisition* (p. 379)). Disposal can include none, some, or all of the mineral estate as allowed by 43 CFR 2720 and FLPMA Section 209(b)(1). A mineral potential report would determine if a surface estate disposal includes none, some, or all of the mineral estate. Lands classified as PHMAs and GHMAs for Greater Sage-Grouse will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will provide a net conservation gain to the Greater Sage-Grouse or (2) the agency can demonstrate that the disposal of the lands, including land exchanges, will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse. Consider exceptions where there is mixed ownership. Allow land exchanges for additional or more contiguous federal ownership patterns within PHMAs. For PHMAs with minority federal ownership, include an additional, effective mitigation agreement for any disposal of federal land. Consider pursuing a permanent conservation easement as a final preservation measure. For lands in GHMAs that are identified for disposal, the BLM will only dispose of such lands consistent with the goals and objectives of this plan, including, but not limited to, the land use plan objective to maintain or increase Greater Sage-Grouse abundance and distribution. Note: All land actions to acquire or dispose of lands would require a site specific analysis under NEPA.

Record #	Goal/Obj.	Decisions
6028	LR:3.1	Designate ROW corridors as shown on Map 3-24. PHMAs are designated as avoidance areas for high voltage transmission line and pipeline ROWs. All authorizations in these areas must comply with the conservation measures outlined in this Approved RMP, including the RDFs and avoidance criteria presented in Appendix C, *Required Design Features and Best Management Practices* (p. 249). Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: **New Transmission Lines (greater than 115 kV):** Allow new transmission lines greater than 115 kV in PHMA only (1) when located within 0.5 miles or less of an existing 115 kV or greater transmission lines constructed prior to 2008; or (2) in designated RMP corridors authorized for aboveground transmission lines. Do not count Transmission lines routed using one or more of the two criteria listed above against the DDCT 5 percent disturbance cap. Consider new transmission lines greater than 115 kV proposed outside of these areas where it can be demonstrated that declines in Greater Sage-Grouse populations could be avoided through project design and/or mitigation. These projects will be subject to the density and disturbance restrictions for PHMAs. Incorporate the *Framework for Sage-grouse Impact Analysis for Interstate Transmission Lines* (BLM 2012b) and other appropriate documents into the review of transmission line proposals, consistent with the three routing criteria described above. For new projects within PHMAs that may require future utility lines, including distribution and transmission lines or pipelines, include the proposed utility lines in their DDCT as part of the proposed disturbance. Count lines permitted, but not located in the above mentioned routes or a designated corridor, toward the 5 percent disturbance calculation (line distance is equal to the anticipated construction footprint or construction ROW width multiplied by length and includes all access roads, staging area, and other surface disturbance associated with construction outside of the construction ROW). **New Electric Distribution Lines (less than 115 kV):** Require burial of new electric distribution lines where economically feasible. If not economically feasible, distribution lines may be authorized when effectively designed/mitigated to protect Greater Sage-Grouse and when the authorized officer determines that overhead installation is the action alternative with the fewest adverse impacts while still meeting the project need. Consider agricultural and residential linesto be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 mile from the lek perimeter with appropriate timing constraints and constructed to the latest APLIC standards. These ROW authorizations will be subject to approval by the State Director.

Record #	Goal/Obj.	Decisions
		Pipelines: Allow new pipelines through PHMAs: (1) within an RMP corridor currently authorized for that use or designated through future RMP amendments; or (2) constructed in or adjacent to existing utilities (buried and aboveground) or roads. Pipelines constructed in RMP corridors or adjacent to existing utilities or roads will require completion of a DDCT analysis for baseline data collection, but the project is not required to meet the threshold of 5 percent. However, within 6 months of the completion of construction, the project proponent will provide the authorized officer with as-built drawings so that the total disturbance within PHMAs can be calculated annually.
6029	LR:3.1	Manage 1,767,274 acres as ROW avoidance areas (Map 3-24). Manage PHMAs as ROW avoidance areas for new ROW or SUA permits (799,391 acres). Within PHMAs where new ROWs/SUAs are necessary, locate new ROWs/SUAs within designated RMP corridors or adjacent to existing ROWs/SUAs where technically feasible. Subject to valid existing rights, including non-federal land inholdings, locate new, required ROWs/SUAs adjacent to existing ROWs/SUAs or where impacts to Greater Sage-Grouse are minimized. Work with proponents to design ROW applications to protect Greater Sage-Grouse.
6040	LR:6.3	Allow temporary closures to motorized vehicle use in areas that pose public health and safety risks, and/or where resource damage is imminent. In PHMAs and GHMAs, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use). Temporary closure or restriction orders under these authorities are enacted at the discretion of the authorized officer to resolve management conflicts and protect persons, property, and public lands and resources. Where an authorized officer determines that off-highway vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR 8341.2) A closure or restriction order should be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders should be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.
6054	LR:7.4-7.7 LR:8	Design recreational sites, recreation facility development, and recreational access to avoid riparian habitat areas or develop and manage them in a manner that minimizes effects on riparian habitats. Construction of recreation facilities within PHMA must conform with the avoidance and minimization measures of this plan. If it is determined that these conservation measures are inadequate for the conservation of Greater Sage-Grouse, the BLM will require and ensure compensatory mitigation that provides a net conservation gain to the species.

Record #	Goal/Obj.	Decisions
6198	LR:10.1 LR:10.3	In cooperation, consultation, and coordination with permittees/lessees, cooperators, and interested public, develop and implement appropriate livestock grazing management actions to enhance land health, improve forage for livestock, and meet other multiple use objectives by using the *Wyoming Guidelines for Livestock Grazing Management*, other appropriate BMPs (see Appendix C, *Required Design Features and Best Management Practices* (p. 249)), and development of appropriate range improvements. The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMAs. In setting workload priorities, precedence will be given to existing permits/leases in areas not meeting Land Health Standards, with focus on allotments containing riparian areas or wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., wildfire) and legal obligations. The BLM will collaborate with appropriate federal agencies, and the State of Wyoming as contemplated under EO 2013–3 (Wyoming Office of the Governor 2013), to 1) develop appropriate conservation objectives; (2) defined a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site-specific actions to achieve Greater Sage-Grouse conservation objectives within the framework.
6202	LR:10.1	Utilize a rangeland health assessment, resource monitoring, or analysis to determine if livestock grazing adjustments in amounts, kinds, or season are necessary. The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMAs will include specific management thresholds based on Greater Sage-Grouse Habitat Objectives Table (Table 2.7, "Greater Sage-Grouse Seasonal Habitat Objectives" (p. 22)) and Land Health Standards (43 CFR 4180.2) and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis. Greater Sage-Grouse Habitat Objectives Table (Table 2.7, "Greater Sage-Grouse Seasonal Habitat Objectives" (p. 22)), Land Health Standards (43 CFR 4180.2) and ecological site potential, and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.
6214	LR:10.1	Allotments within PHMAs, focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.

APD Application for Permit to Drill	IM Instruction Memorandum
APLIC Avian Powerline Interaction Committee	kV Kilovolt
BLM Bureau of Land Management	NEPA National Environmental Policy Act
BMP Best Management Practice	NSO No Surface Occupancy
CFR Code of Federal Regulations	OHV Off-highway vehicle
COT Conservation Objectives Team	PHMA Priority Habitat Management Area
dBA Decibels with an A-weighted scale	RAATS Reduced Agent-Area Treatments
DDCT Density and Disturbance Calculation Tool	RMP Resource Management Plan
EO Executive Order	ROW Rights-of-way
ESD Ecological Site Description	SUA Surface Use Agreement
FLPMA Federal Land Policy and Management Act	U.S.C. United States Code
FMP Fire Management Plan	USFS United States Forest Service
FRCC Fire Regime Condition Class	USFWS United States Fish and Wildlife Service
GHMA General Habitat Management Area	WGFD Wyoming Game and Fish Department
HMA Herd Management Area	WO Washington Office

Chapter 3. Approved Resource Management Plan

This page intentionally
left blank

3.1. Approved Resource Management Plan Instructions

The decisions in this Approved Resource Management Plan (RMP) will guide the Bureau of Land Management's (BLM's) management of the planning area; however, implementation of certain decisions will require site-specific National Environmental Policy Act analysis. For instance, although the Approved RMP may identify an area as open for rights-of-way (ROW) development, subsequent site-specific analysis may lead the BLM to deny authorization if development in that particular location could have adverse impacts to other values. Early consultation with the BLM by project proponents will help to identify potential conflicts in advance, increasing the efficiency of the approval process. Terminology that is specific to this RMP, defined by BLM policy, or that may be unfamiliar to the general public (e.g., ROW avoidance and exclusion) are defined in the Glossary (p. 161).

3.2. Goals, Objectives, and Management Decisions

Table 3.1, "0000 COMMON TO ALL " (p. 49) through Table 3.31, "8000 SOCIOECONOMIC RESOURCES (SR) – Health and Safety" (p. 138) identify the goals, objectives, and management decisions according to the following resource topics:

0000. Common to All
1000. Physical Resources (PR) – Air Quality, Soil, Water, and Cave and Karst Resources
2000. Mineral Resources (MR) – Locatable, Leasable, and Salable Minerals
3000. Fire and Fuels Management (FM)
4000. Biological Resources (BR) – Vegetation, Invasive Species and Pest Management, Fish and Wildlife, Special Status Species, and Wild Horses
5000. Heritage and Visual Resources (HR) – Cultural, Paleontological, and Visual
6000. Land Resources (LR) – Lands and Realty, Renewable Energy, Rights-of-Way and Corridors, Comprehensive Travel and Transportation Management, Recreation, Lands with Wilderness Characteristics, and Livestock Grazing Management
7000. Special Designations (SD) – Areas of Critical Environmental Concern, National Back Country Byways, Historic Trails, Wild and Scenic Rivers, and Wilderness Study Areas
8000. Socioeconomic Resources (SR) – Social and Economic and Health and Safety

This numbering system and the abbreviations for each of the eight resource topics serve to organize Table 3.1, "0000 COMMON TO ALL " (p. 49) through Table 3.31, "8000 SOCIOECONOMIC RESOURCES (SR) – Health and Safety" (p. 138). Goals and objectives describe the desired outcomes for each resource topic. Management decisions are intended to achieve these goals and objectives.

While the decisions in the Approved RMP are organized by the eight resource topics listed above, decisions for resources and resource uses are interconnected and a comprehensive review of decisions in all eight resource topics is required to ensure a full understanding of the Approved RMP. The reader may need to reference multiple sections to understand the decisions as a whole. For example, the oil and gas section states the acres subject to various constraints (Decisions 2018 through 2022). However, the reason for those constraints is generally based on other programs, such as wildlife or water quality.

The emphasis on Greater Sage-Grouse following the U.S. Fish and Wildlife Service listing decision is reflected in these decisions. However, Greater Sage-Grouse conservation measures benefit many other wildlife species and resources. Similarly, management to protect one resource,

such as limiting surface disturbance to protect visual resources, may also benefit other resources in the area, such as wildlife. Please refer to the Proposed RMP and Final EIS for additional information on how management actions affect resources and resource uses across the larger Bighorn Basin Planning Area.

Table 3.1. 0000 COMMON TO ALL

0000 COMMON TO ALL		
Record #	**Goal/Obj.**	**Decisions**
0001	PR:3.1 MR:1.1 MR:1.3 MR:3.1	Surface-disturbing activities are subject to the *Wyoming BLM Mitigation Guidelines for Surface-Disturbing and Disruptive Activities*, the *Wyoming BLM Reclamation Policy*, and the *Wyoming DEQ-WQD's Storm Water Permitting Program*.
0002	SD:1 SD:5.1 BR:7.1 BR:7.6 BR:8.2 BR:9.2 BR:9.2	The BLM may pursue a withdrawal from appropriation under the mining laws for locatable minerals within ACECs, recommended WSR suitable waterway segments, and special status species habitat on a case-by-case basis in compliance with laws, regulations, and policy.
0003	MR:1.2 MR:1.2 MR:2 BR:6 BR:6.1 BR:7 LR:2.1 LR:3.1	Utilize recommendations found in WGFD documents *Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats* (WGFD 2010a), *Wildlife Protection Recommendations for Wind Energy Development in Wyoming* (WGFD 2010b), and similar documents updated over time where determined applicable and consistent with valid existing rights.

Table 3.2. 1000 PHYSICAL RESOURCES (PR) – Air Quality

1000 PHYSICAL RESOURCES (PR) – Air Quality		
Record #	**Goal/Obj.**	**Decisions**
		GOAL PR:1 Minimize the impact of management actions in the planning area on air quality by complying with all applicable air quality laws, rules, and regulations. **Objectives:** **PR:1.1** Maintain concentrations of criteria pollutants in compliance with applicable state and federal Ambient Air Quality Standards within the scope of BLM's authority. **PR:1.2** Maintain concentrations of PSD pollutants associated with management actions in compliance with the applicable increment. **GOAL PR:2** Improve air quality in the planning area as practicable. **Objectives:** **PR:2.1** Reduce visibility-impairing pollutants in accordance with the reasonable progress goals and time-frames established within the State of Wyoming's Regional Haze State Implementation Plan. **PR:2.2** Reduce atmospheric deposition pollutants to levels below generally accepted levels of concern and levels of acceptable change.
1001	PR:1	Manage prescribed burns to comply with all applicable air quality laws, rules, and regulations, including Wyoming DEQ Air Quality District smoke-management rules and regulations.
1002	PR:1	Define a criteria pollutant and air quality related values monitoring strategy and cooperatively establish a monitoring network by creating a method for siting air quality monitors in order to provide additional data for describing background concentrations.
1003	PR:1 PR:2	Provide for compliance with applicable air quality standards in the planning area and work cooperatively to encourage industry and other permittees to adopt measures to reduce emissions.
1004	PR:1.1	Enhance the existing cooperative process that shares air quality information with agencies, stakeholders, and the public.

1000 PHYSICAL RESOURCES (PR) – Air Quality		
Record #	**Goal/Obj.**	**Decisions**
1005	PR:1.1	The State of Wyoming has primary responsibility (primacy) for administering and enforcing air quality standards and regulations within the state. BLM actions will conform with Wyoming DEQ Air Quality Standards and Regulations through application of BMPs and other measures consistent with resource goals and objectives.
1006	PR:1 PR:2	Characterize the condition of Class I areas within and adjacent to the planning area (Table 3-4 in the Proposed RMP and Final EIS), with stakeholders. Appendix M, *Bighorn Basin Air Resource Management Plan* (p. 547) describes the details of this characterization. The proponent of a project will demonstrate regard for air resources and will demonstrate consideration of measures to reduce emissions to meet air quality goals and objectives and Decision 1003. The BLM will require additional air emission control measures and strategies within its regulatory authority and in consultation with stakeholders if proposed or committed measures are insufficient to achieve air quality goals and objectives. Perform quantitative air quality analyses (i.e., modeling) for project specific developments as determined on a case-by-case basis in consultation with state, federal, and tribal entities to determine the potential impacts of proposed air emissions. Modeling may be performed to determine the effectiveness of mitigation strategies. Perform a quantitative air quality analysis to ensure protection of air quality when the sum of project specific developments in the planning area approaches a level of concern as determined in consultation with state, federal, and tribal entities. The BLM may facilitate discussions with stakeholders to implement mitigation measures beyond BLM's authority, to reduce emissions from current levels in the planning area.

Table 3.3. 1000 PHYSICAL RESOURCES (PR) – Soil

1000 PHYSICAL RESOURCES (PR) – Soil		
Record #	**Goal/Obj.**	**Decisions**
		GOAL PR:3 Maintain or improve soil health (e.g., chemical, physical, and biotic properties) while focusing on making significant progress toward meeting the *Wyoming Standards for Healthy Rangelands* (BLM 1997). **Objective:** **PR:3.1** Apply guidelines and appropriate measures to all management actions (including reclamation) affecting soil health to decrease erosion and sedimentation, to achieve and maintain stability, and to support the hydrologic cycle by providing for water capture, storage, and release.
1007	PR:3.1	Use BMPs to reduce runoff, soil erosion, and sediment yield, and to retain water on the landscape.
1008	PR:3.1	Develop appropriate mitigation for surface-disturbing and disruptive activities associated with wildlife and fish management through use of the mitigation guidelines described in Appendix F, *Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (p. 349).
1009	PR:3.1	Maintain existing watershed improvement projects.
1010	PR:3.1	Allow surface-disturbing activities on fragile soils, biological crusts, soils with low reclamation potential, and soils with highly erosive characteristics on a case-by-case basis.
1011	PR:3.1	Construct water flow, sediment control, and watershed stabilization projects in partnership with local, state, and federal programs.
1012	PR:3.1	Prioritize and reseed portions of watersheds as opportunities arise.
1013	PR:3.1	Stabilize existing watershed improvement projects to prevent the release of stored sediment if projects are no longer needed to meet resource objectives.
1014	PR:3.1	Analyze all surface-disturbing activities for suitability and impacts.
1015	PR:3.1	Assess erosion and soil stability during land health evaluations. Incorporate erosion rates and soil stability into soil survey efforts as soil survey funds become available.
1016	PR:3.1	Allow seeding of areas disturbed by surface-disturbing activities (as part of interim and final reclamation) and areas not meeting resource objectives using approved BLM seed mixtures.
1017	PR:3.1	In disturbed areas, reestablish healthy native or desired plant communities based on pre-disturbance/desired plant species composition.
1018	PR:3.1	When appropriate for the site and situation, require temporary protective surface treatments such as weed-free mulch, matting, netting, or tackifiers to facilitate the reclamation of areas affected by authorized or unauthorized surface-disturbing activities. If needed, allow, the use of sterile, weed-free temporary protective surface treatments to facilitate stabilization following wildfires.

1000 PHYSICAL RESOURCES (PR) – Soil		
Record #	**Goal/Obj.**	**Decisions**
1019	PR:3.1	Interim and final reclamation will begin at the earliest feasible time. Successful final reclamation of the desired vegetative cover will be considered achieved if conditions are equal to or better than pre-disturbance site condition. Require reclamation in compliance with BLM policy, including Wyoming BLM Reclamation Policy and similar guidance updated over time.
1020	PR:3.1	Reclamation plans, stipulations, and/or mitigation and monitoring measures are required prior to approval of all authorized surface-disturbing activities. Develop specific objectives and timeframes for reclamation plans in coordination with stakeholders.
1021	PR:3.1	In consultation with stakeholders and subject to site-specific NEPA actions, close and reclaim unnecessary and/or heavily eroded roads and trails if other stable roads and trails are available on a priority basis. Stabilize or relocate heavily eroded or washed out roads and trails if other stable roads and trails are unavailable on a priority basis.
1022	PR:3.1	Salvage and segregate topsoil for all applicable surface-disturbing activities. Use salvaged topsoil in the reclamation of the associated surface disturbance.
1023	PR:3 PR:3.1	Channel crossings and surface disturbance are subject to the monitoring and reporting requirements of Reclamation Requirement 10 of the Wyoming Reclamation Policy, where applicable, and similar guidance updated over time.

Table 3.4. 1000 PHYSICAL RESOURCES (PR) – Water

1000 PHYSICAL RESOURCES (PR) – Water		
Record #	**Goal/Obj.**	**Decisions**
		GOAL PR:4 Maintain the quality of surface water and groundwater resources, maintain compliance with applicable federal and state water quality standards, and improve water quality where practical within the scope of the BLM's authority. **Objectives:** **PR:4.1** Manage water resources to meet or achieve the *Wyoming Standards for Healthy Rangelands* (BLM 1997). **PR:4.2** Attain, maintain, or enhance the physical, chemical, and biological integrity of surface water (Map 3-1). **PR:4.3** Manage watersheds to prevent accelerated channel erosion and undesirable adjustments in channel geometry (e.g., width-depth ratio, sinuosity, bank stability, gradient) of stream channels within the authority of the BLM. **PR:4.4** Manage watersheds to restore stream channels that have been degraded within the authority of the BLM. **PR:4.5** Manage watersheds to achieve and maintain erosional stability and to support the hydrologic cycle and aquifer recharge. **PR:4.6** Manage pollutants on federal lands to minimize threats to drinking water sources. **PR:4.7** Manage produced water to meet other resource goals and objectives. **GOAL PR:5** Within the scope of BLM's authority, provide for the availability of water to support uses on public lands. **Objective:** **PR:5.1** Rehabilitate, maintain, acquire, develop, or reclaim water supply sources to meet other resource goals and objectives within the scope of BLM's authority.
1024	PR:4	Water quality standards, enforcement, and remediation are the primacy of and administered by the State of Wyoming. BLM actions will conform with Wyoming DEQ-WQD regulations and requirements through application of BMPs and other measures consistent with resource goals and objectives. Reporting of leaks and spills to the Wyoming DEQ and/or Wyoming Oil and Gas Conservation Commission will be required, as appropriate.
1025	PR:5.1	File for water rights to water projects on BLM-administered land as determined appropriate by the BLM.
1026	PR:4.2 PR:4.6	Avoid aerial application of fire suppressant chemicals within 300 feet of perennial waters. Consider ground-based application on a case-by-case basis.
1027	PR:4.5	Protect watershed resources through the application of watershed conservation practices and BMPs.
1028	PR:4.6	In cooperation with stakeholders and within BLM's authority, protect groundwater during BLM activities and permitted actions through appropriate measures. These measures may be determined through methods such as predictive modeling, the results of monitoring, or project-specific analysis.

1000 PHYSICAL RESOURCES (PR) – Water		
Record #	**Goal/Obj.**	**Decisions**
1029	PR:4.2 PR:4.5-4.7	Apply BMPs for oil and gas and water well drilling operations, mining, and other activities, which could affect groundwater resources. For all oil and gas wells, a groundwater monitoring program will be established in accordance with state requirements.
1030	PR:4.2 PR:4.5-4.7	Conduct water quality monitoring following the application of pesticides when treatments are conducted adjacent to streams within municipal watersheds, fish hatchery supply watersheds, or adjacent to major fish-bearing streams on a case-by-case basis.
1031	PR:4.2 PR:4.3 PR:4.5	Control water runoff from disturbed or developed sites and control soil erosion to appropriate rates for natural conditions through the Wyoming Storm Water Discharge Program using appropriate BMPs and technologies.
1032	PR:4.3-4.5	Participate in the development and implementation of local watershed management plans and/or TMDLs with interested stakeholders and Wyoming DEQ. Apply BMPs as appropriate from the *E. coli Total Maximum Daily Loads for the Big Horn River Watershed* (Wyoming DEQ 2013), for the development and implementation of authorized activities on BLM lands in the Big Horn watershed.
1033	PR:4.5	Implement BMPs to protect water quantity and water quality within cave and karst areas exhibiting unique underground drainage characteristics.
1034	PR:4.1 PR:4.2 PR:4.7 PR:5.1	Acquire abandoned mineral wells that produce water as determined appropriate by BLM to meet other resource objectives.
1035	PR:4.5	Cooperate with stakeholders to plug unneeded abandoned water wells to prevent groundwater contamination and with the State Engineers Office regulations (Part III) for proper water well abandonment.
1036	PR:4.6	Cooperate with EPA, the State of Wyoming, and local governments in the development and implementation of source water and wellhead protection plans to protect drinking water sources.
1037	PR:4.1-4.4 PR:4.6	Develop watershed improvement practices in cooperation with local governments to reduce sediment loading in stream and river systems as well as lakes and reservoirs. Once developed, include in all activity plans and permitted activities. Apply BMPs and work in cooperation with stakeholders on activity plans and other authorized activities.
1038	PR:4.2 PR:4.3	In cooperation with other stakeholders, encourage the maintenance of natural flow regimes in priority streams supporting fisheries in compliance with Wyoming water laws.
1039	PR:4.1-4.3	Consider fencing of springs, wetlands, reservoirs, and riparian areas, and provide offsite water when necessary to meet resources objectives.
1040	PR:4.3 PR:4.4	Cooperate with adjacent landowners, managers, and the Wyoming DEQ to address waterbodies not meeting state water quality standards. Prioritize and implement BMPs to address causal factors related to the impairment of water quality of waters where the evidence indicates that failure to meet such standards is the result of BLM management actions or permitted activities.

1000 PHYSICAL RESOURCES (PR) – Water		
Record #	**Goal/Obj.**	**Decisions**
1041	PR:4.1 PR:4.2 PR:4. PR:4.7	Authorize new activities resulting in the surface discharge of produced water where compatible with other resource objectives and in consultation with stakeholders. Require water monitoring plans for new activities resulting in surface discharges of water to track changes in receiving channels and to minimize adverse impacts to watershed health. If adverse impacts to receiving channels or watershed health occur, require development and implementation of water management plans which include reclamation strategies and mitigation to address impacts. Avoid or mitigate BLM-authorized activities and infrastructure such as unlined impoundment ponds/pits, reserve pits, and evaporation ponds that could result in the contamination of sensitive water resources, including Source Water Protection Areas identified in Wellhead or Source Water Protection Plans approved local governing bodies and "High" and "Moderately High" sensitivity aquifer systems identified through the use of the Wyoming Groundwater Vulnerability Assessment Handbook or similar document as updated over time, on a case-by-case basis. BMPs appropriate for consideration to mitigate potential water quality impacts are listed in Appendix C, *Required Design Features and Best Management Practices* (p. 249).
1042	PR:4.6	Avoid activities that could negatively affect water resources within a ¼ mile area around public water supply wells, and an area including ¼ mile on both sides of a river or stream, for 10 miles upstream of the public water supply intake, within the watershed. For lakes and reservoirs, this would include a ¼ mile area around the waterbody. For unavoidable activities in these areas, site specific mitigation will be included to minimize risk of adverse impacts.

Table 3.5. 1000 PHYSICAL RESOURCES (PR) – Cave and Karst Resources

1000 PHYSICAL RESOURCES (PR) – Cave and Karst Resources		
Record #	**Goal/Obj.**	**Decisions**
		GOAL PR:6 Conserve significant cave and karst resources and enhance educational and scientific research opportunities relative to cave and karst resources in the planning area. **Objectives:** **PR:6.1** Manage significant cave resources as mandated by the Federal Cave Resources Protection Act of 1988. **PR:6.2** Foster public awareness, public use, and provide opportunities for cave and karst research.
1043	PR:6.1	Cave and karst areas (6,627 acres) are closed to mineral materials disposal, withdrawn from locatable entry, and closed to mineral leasing. These same restrictions apply to important caves or cave passages and karst resources as they are identified.
1044	PR:6.1	Manage cave and karst areas as ROW avoidance areas.
1045	PR:6.1	Motorized vehicle use is limited to designated roads and trails in areas over important caves or cave passages.
1046	PR:6.2	Manage recreational use of caves under a cave management plan. Goals of the plan will include: ● Promoting the significance and importance of cave resources through interpretive and educative programs and techniques. ● Protecting and maintaining cave resources, including wildlife species and habitat in and around caves by interpreting, restricting, and/or prohibiting nonconforming uses. ● Enhancing user experiences and opportunities by managing use at levels compatible with resource carrying capacity and protection.
1047	PR:6.2	For safety reasons, group sizes must be at least three people in all caves where use is allowed.
1048	PR:6.1	Accomplish cave resource protection and provide for user safety with controls such as timing of use to avoid crowding and closing caves to use during periods of high water runoff. Close cave and karst areas during all critical periods for bats and when user safety is at risk due to high water, radon, H_2S, and fire.
1049	PR:6.2	Manage cave and karst areas consistent with resource objectives.
1050	PR:6.2	Allow scientific research of cave and karst areas on a case-by-case basis.
1051	PR:6.2	Manage caves to protect bats from White Nose Syndrome by requiring decontamination protocol under BLM IM 2010-181 or the National White Nose Syndrome protocol.

Table 3.6. 2000 MINERAL RESOURCES (MR)

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
		GOAL MR:1 Provide opportunities for mineral extraction and energy exploration and development to meet national and local needs, while avoiding or mitigating impacts on other resources. **Objectives:** **MR:1.1** Provide opportunities to explore for, sell and/or permit, and develop leasable, salable, and locatable mineral resources. **MR:1.2** Encourage sound, balanced exploration and development of mineral resources in the planning area. **MR:1.3** Provide opportunities for exploring, leasing, and developing conventional and unconventional oil and gas, CBNG, coal, sodium, phosphate, and other leasable minerals including, but not limited to, oil shale and geothermal resources. **GOAL MR:2** Manage leasable fluid mineral resources (oil, gas, CBNG, geothermal) in the planning area to meet the Nation's energy needs, without compromising long-term health and diversity of public lands and resources. **Objectives:** **MR:2.1** Provide opportunities to explore and develop federal oil and gas resources and other leasable minerals. **MR:2.2** Provide opportunities for collection of subsurface geological (geophysical) data to aid in the exploration of oil and gas resources in areas open to leasing. **MR:2.3** Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 CFR 3162.3-1(h). **MR:2.4** Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce, and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessee, operator, or project proponent in developing an APD for the lease to avoid and minimize impacts to Greater Sage-Grouse or its habitat and will ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
		GOAL MR:3 Manage solid leasable mineral resources (coal, oil shale, tar sands, phosphate, sodium, etc.) to help meet local and regional needs, while avoiding or mitigating effects on other resources. **Objective:** **MR:3.1** Provide opportunities for exploration, leasing, and development of solid leasable minerals consistent with goals and objectives of other natural and cultural resources and values. **GOAL MR:4** Manage salable mineral materials to meet local and regional needs, while avoiding or mitigating effects on other resources. **Objectives:** **MR:4.1** Anticipate need and identify areas suitable for ongoing and future mineral materials disposals to meet needs. **MR:4.2** Provide opportunities for exploration and development of salable minerals in suitable locations while avoiding or mitigating effects to other resources. **GOAL MR:5** Manage locatable minerals activities on lands open to mineral entry, while preventing unnecessary and undue degradation of public lands as defined in 43 CFR 3809.5, and while avoiding or mitigating effects of exploration and production on other resources. **Objective:** **MR:5.1** Provide opportunities for exploration and development of locatable minerals while reducing and mitigating effects of mining on other natural resources. **GOAL MR:6** Provide protections for resource values in areas of conflict with mineral exploration and development. **Objectives**: **MR:6.1** Manage oil and gas operations in the Master Leasing Plan areas to prevent degradation of resources. **MR:6.2** Minimize, avoid, and mitigate impacts of environmental risks on fish and wildlife. **MR:6.3** Manage the direct indirect and cumulative impacts so as to maintain a minimal level of user conflict. **MR:6.4** Manage habitat to conserve, recover, and maintain fish and wildlife consistent with appropriate local, state, and federal management plans. **MR:6.5** Utilize a comprehensive approach to travel planning and management to sustain and enhance use. **MR:6.6** Apply guidelines and appropriate measures to all management actions (including reclamation) affecting soil health to decrease erosion and sedimentation, to achieve and maintain stability, and to support the hydrologic cycle by providing for water capture, storage, and release.

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
2001	BR:8.3 BR:8.5	Design, construct, and operate evaporation, reserve, work over, and production pits with protective features to reduce mortality livestock and wildlife due to drowning or entrapment as addressed in BLM Wyoming's *Management of Oil and Gas Exploration and Production Pits* (BLM 2011c). Do not allow infrastructure (such as unlined impoundment ponds/pits, reserve pits, evaporation ponds, and other uses) that could impact water resources and cause contamination in order to protect sensitive water resources (within 500 feet of riparian areas and surface waters, Source Water Protection Areas identified in Wellhead or Source Water Protection Plans approved by the local governing body, and "High" and "Moderately High" sensitivity aquifer systems identified through the use of the Wyoming Groundwater Vulnerability Assessment Handbook or similar document as updated over time), unless anticipated impacts are mitigated (Appendix C, *Required Design Features and Best Management Practices* (p. 249)).
		Locatable Minerals
2002	MR:1.1 MR:5.1	Lands not formally withdrawn or segregated from mineral entry are available for mineral entry for bentonite (Map 3-2), gypsum (Map 3-3), and other locatable minerals.
2003	MR:5.1	2,661,343 acres are available for locatable mineral entry in the planning area. Pursue a withdrawal from appropriation under the mining laws for locatable minerals for 25,348 acres in the planning area (Map 3-4).
		Leasable Minerals – Coal
2004	MR:1.1 MR:1.3 MR:3.1	Allow coal exploration on lands through the coal exploration license process.
2005	MR:1.1 MR:1.3 MR:3.1	Consider interest in exploration for, or leasing of, federal coal (Map 3-5), if any on a case-by-case basis. Allow coal exploration licenses subject to the regulations of 43 CFR 3410, and subject to guidance mitigating for surface-disturbing activities in the *Wyoming BLM Standard Oil and Gas Lease Stipulations* (Appendix B, *Oil and Gas Lease Notices and Lease Stipulations, including Exception, Modification, and Waiver Criteria* (p. 211)). Before issuing a coal exploration license, require the authorized officer to prepare an environmental assessment or environmental impact statement, if necessary, of the potential effects of the proposed exploration on the natural and socio-economic environment of the affected area. If an application for a federal coal lease is received, conduct an appropriate land use and environmental analysis, including the coal screening process, to determine whether the area(s) proposed for leasing is (are) acceptable for coal development and leasing (as per 43 CFR 3425). If public lands are determined to be acceptable for further consideration for coal leasing, amend the land use plan as necessary. Only accept federal coal lease applications on those federal coal lands with development potential identified as suitable for further leasing consideration, after application of the coal screens and unsuitability criteria. At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5. PHMA is essential habitat for maintaining Greater Sage-Grouse for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1). The BLM will also consider that USFWS has found "the core area strategy…if implemented by all landowners via regulatory mechanisms, would provide adequate protection for sage-grouse and their habitats in the state" when considering leasing coal in PHMA under the criteria set for at 43 CFR 3461.5(o)(1) (USFWS 2010).

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
2006	MR:1.1 MR:1.3 MR:3.1	Continue all coal and phosphate withdrawals and classifications unless no longer needed and do not return the lands involved to operation of the mining laws.
		Leasable Minerals – Geothermal Resources
2007	MR:1.1 MR:1.3 MR:2	Unless otherwise noted, BLM-administered land in the planning area that is open to oil and gas leasing is open to geothermal leasing, subject to appropriate mitigation developed through use of the mitigation guidelines described in Appendix F, *Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (p. 349). Unless otherwise noted, those lands identified as closed to oil and gas leasing are closed to geothermal leasing.
2008	MR:2	Unless otherwise noted, the exploration and development of geothermal resources are subject to restrictions on surface-disturbing activities as they are applied to oil and gas exploration and development activities.
2009	MR:5.1	BLM-administered land or federal mineral estate within 5 miles of Hot Springs State Park in Thermopolis is closed to geothermal leasing.
2010	MR:5.1	A total of 175,872 acres are closed to geothermal leasing (Map 3-6). A total of 2,484,878 acres are open to geothermal leasing.
		Leasable Minerals – Oil and Gas/CBNG Exploration and Development
2011	MR:1 MR:2	Protect important resources, including in areas closed to leasing on existing leases (Map 3-7) to the extent this restriction does not violate the leaseholder/operator lease rights, by applying an NSO restriction and prohibiting surface-disturbing activities. In areas identified as available for leasing, additional planning, analysis, and decision making may be necessary prior to lease issuance under the following criteria: 1) when oil and gas development is resulting in unacceptable multiple-use or natural/cultural resources conflicts, 2) new information evidences increased oil and gas development densities or surface disturbance, or 3) at the discretion of the Field Manager, District Manager, or State Director. Areas closed for oil and gas leasing may be leased with an NSO stipulation to deal with drainage of these resources from federal mineral estate.
2012	MR:2.1 MR:2.3 MR:2.4	Determine the routing of access roads and location of well pads after considering the views of the surface owner on split-estate lands (private surface-federal minerals/oil and gas), where possible. Where the federal government owns the mineral estate, and the surface is in non-federal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner. Where the federal government owns the surface and the mineral estate is in non-federal ownership, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee.
2013	MR:1.1 MR:1.3 MR:2.1 MR:2.3	Process oil and gas lease applications on a case-by-case basis. Ensure that leasing activities in PHMAs comply with Greater Sage-Grouse RMP decisions and remain in compliance with laws, regulations, and policy.

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
2014	MR:1.1 MR:1.3 MR:2.1 MR:2.3 MR:2.4	Unless otherwise noted, areas that are open to oil and gas leasing are open to geophysical exploration subject to appropriate mitigation developed through use of the mitigation guidelines described in Appendix F, *Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (p. 349). Areas closed to oil and gas leasing are closed to geophysical exploration. However, geophysical exploration may be permitted on a case-by-case basis so long as the resource goals and objectives under which the area was closed are not compromised. Geophysical exploration projects that are designed to minimize habitat fragmentation within PHMAs would be allowed, except where prohibited or restricted by existing land use plan decisions, in conformance with timing and distances Management Decisions.
2015	MR:1.1 MR:1.3 MR:2.1 MR:2.3 MR:2.4	In cases where federal oil and gas leases are or have been issued without stipulated restrictions or requirements that are later found to be necessary, or with stipulated restrictions or requirements later found to be insufficient, consider their inclusion before approving subsequent exploration and development activities. Include these restrictions or requirements only as reasonable measures or as conditions of approval in authorizing APDs or Master Development Plans. Conversely, in cases where leases are or have been issued with stipulated restrictions or requirements that are later found to be excessive or unnecessary, the stipulated restrictions or requirements may be appropriately modified, excepted or waived in authorizing actions. Both the application of reasonable measures or COAs and the modification, exception, or waiver of stipulated restrictions or requirements must first be based upon site-specific analysis including the necessary supporting NEPA.
2016	MR:2.1	On split-estate lands, at the time of APD review, negotiations among the surface owner, operators, and the BLM may be undertaken to incorporate specific needs of the surface owner (see Appendix G, *Federal Oil and Gas Operations on Split-Estate Lands* (p. 355)).
2017	MR:1.2	Utilize BMPs in the exploration, development, production, and abandonment of oil and gas resources.
2018	MR:1.1 MR:1.3 MR:2.1 MR:2.3 MR:2.4	Approximately 481,257 acres of federal mineral estate are open to oil and gas leasing subject to the terms and conditions of the **standard** lease form only (Map 3-8). Require geothermal resource monitoring and protection within 5 miles of Hot Springs State Park and within the Thermopolis Anticline.
2019	MR:1.1 MR:1.3 MR:2.1 MR:2.3 MR:2.4	Approximately 1,101,542 acres of federal mineral estate are open to oil and gas leasing subject to the terms and conditions of the standard lease form, as well as **moderate** constraints (Map 3-8).
2020	MR:1.1 MR:1.3 MR:2.1 MR:2.3 MR:2.4	Approximately 939,636 acres of federal mineral estate are open to oil and gas leasing subject to the terms and conditions of the standard lease form, as well as **major** constraints (Map 3-8).

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
2021	MR:1.1 MR:1.3 MR:2.1 MR:2.3 MR:2.4	Approximately 138,315 acres of federal mineral estate are **closed** to oil and gas leasing (Map 3-8).
2022	MR:1.1 MR:1.3 MR:2.1 MR:2.3 MR:2.4	On a case-by-case basis, prohibit suspension of existing non-producing mineral leases in areas closed to mineral leasing. After such leases expire, do not offer those lands for lease again.
Leasable Minerals – Oil and Gas Management Areas, Master Leasing Plan Areas, and Other Areas		
2023	MR:1.1 MR:1.3 MR:2.1	Delineate **Oil and Gas Management Areas** (Map 3-9) (333,488 acres of federal mineral estate) around existing intensively-developed fields, applying a 2-mile buffer from the outer boundary of the existing field (Map 3-10); adding enhanced oil recovery areas identified by the Governor's Office Enhanced Oil Recovery Institute and excluding Greater Sage-Grouse PHMAs. Manage these areas primarily for oil and gas exploration and development. Oil and gas development, including enhanced oil recovery operations, within Oil and Gas Management Areas is allowed to take place at the same level and density as the existing development in the field. Levels and densities beyond the existing field development may require additional reclamation or compensatory offsite mitigation. As oil and gas fields expand or exploration reaches beyond the Oil and Gas Management Areas depicted on Map 3-9, Oil and Gas Management Areas may be enlarged as appropriate. To enlarge Oil and Gas Management Areas, the expansion area would: i) have to be adjacent to the field and under valid oil and gas lease(s) with stipulations allowing surface occupancy and development; ii) have to have a surface density of, on average, at least four well pads per 640-acres; a determination that additional well density is required to efficiently and adequately produce the oil or gas resource; iii) have a project-specific environmental analysis prepared to analyze the impacts and determine operating methods, mitigation, and BMPs to be used in the efficient and comprehensive development of the field; iv) need surface resources to be satisfactorily mitigated; and v) need commitment to accelerate reclamation as required by the authorized officer.
Leasable Minerals – Other Solid Leasables (Oil Shale, Tar Sands, Phosphate, etc.)		
2024	MR:1.1 MR:1.3 MR:3.1	Surface disturbance restrictions for geophysical exploration activities for other solid leasable minerals apply to both leased and un-leased lands.
2025	MR:1.1 MR:1.3 MR:3.1	Lease solid minerals such as phosphates or sodium, consistent with other resources, on a case-by-case basis. All non-energy leasable mineral activities would be considered in PHMAs, provided that the activities can be completed in compliance with all occupancy, timing, density, and disturbance restrictions.

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
2026	MR:1.1 MR:1.3 MR:3.1	Sherard Dome and Trapper Canyon tar sands are closed to solid mineral leasing.
		Salable Minerals
2027	MR:4.1 MR:4.2	Existing BLM-approved mineral material sites (Map 3-11) are open to mineral materials disposal. New mineral materials disposal sites in areas open to mineral materials disposal are subject to site-specific analysis prior to approval. Ensure that each community pit has an updated site-specific reclamation fee based on a current mining and reclamation plan. Ensure that reclamation occurs in mined-out areas of community pits.
2028	MR:1.1 MR:1.2 MR:4.1 MR:4.2	Dispose of mineral materials on a case-by-case basis, subject to site-specific analysis and appropriate mitigation prior to approval, in areas open to mineral materials disposal.
2029	MR:1.1 MR:1.2 MR:4.1 MR:4.2	Prohibit disposal of topsoil.
2030	MR:1.1 MR:4.1 MR:4.2	2,468,896 acres are open to mineral materials disposal. 217,794 acres are closed to mineral materials disposal (Map 3-12).
		Geophysical Exploration and Development
2031	MR:1.1 MR:1.3 MR:2.2	Allow geophysical exploration if it can be conducted within the constraints necessary to protect other resources and subject to motorized vehicle use limitations and restrictions on surface-disturbing activities.
		Carbon Dioxide (CO_2) Sequestration
2032	MR:1.2	Allow carbon dioxide sequestration research and projects in consideration of other resource objectives.
		Master Leasing Plan Analysis Areas-- Absaroka Front
2033	MR:6	Apply an MLP analysis to 98,852 acres (Zone 3) in the Absaroka Front MLP Analysis Area (Map 3-13).
2034	MR:6.1 MR:6.2 MR:6.4	Zone 3 – Areas inside elk crucial winter range are subject to CSU. Oil and gas-related surface disturbances are restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 64 acres. A minimum lease size of 1,280 noncontiguous acres of federal mineral estate is required inside elk crucial winter range. Smaller parcels may be leased only when 1,280 acres of federal mineral estate are not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. ● Allow additional disturbance pending acceptable final reclamation. ● Co-locate new disturbance where technically feasible. ● Utilize unitization to minimize surface disturbance in elk crucial winter range.
2035	MR:6.1 MR:6.2 MR:6.4	Zone 3 – Apply a CSU to avoid locating new surface disturbance within forest type vegetation in areas identified as habitat for big game crucial winter range (Map 3-14).

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
2036	MR:6.3	Zone 3 – Apply a TLS for surface-disturbing or disruptive activity from September 1-November 15 to maintain recreational settings for hunting within the Absaroka Mountain Foothills SRMA.
		Master Leasing Plan Analysis Areas – Fifteenmile
2037	MR:6	Apply an MLP analysis to 230,869 acres in the Fifteenmile MLP Analysis Area (Map 3-13).
2038	MR:6.3 MR:6.6	Apply a CSU restriction within the Fifteenmile MLP Analysis Area. Allow no more than 1 surface disturbance per lease, to include 1 well pad and ancillary facilities, to maintain recreational settings, and conserve geologic features, LRP soils, allow no more than 1 surface disturbance per lease. Total surface disturbance per lease will not exceed 32 acres. A minimum lease size of 640 acres of federal mineral estate would be applied within the analysis area. The lease can consist of noncontiguous parcels. Smaller parcels may be leased only when 640 acres of federal mineral estate are not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. ● Allow additional disturbance pending acceptable final reclamation. ● Co-locate new disturbance where technically feasible. ● Utilize unitization to control the pace and density of development.
2039	MR:6.6	Apply a lease notice to restrict surface disturbance on LRP soils and unique geologic features unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts, which may include, but not be limited to include an Erosion, Revegetation and Restoration Plan. The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● The disturbed area will be stabilized with no evidence of accelerated erosion features. ● The disturbed area shall be managed to ensure soil characteristics approximate an appropriate reference site with regard to erosional features to maintain soil productivity and sustainability. ● Slope stability is maintained preventing slope failure and erosion. ● Sufficient viable topsoil is maintained for ensuring successful final reclamation. At locations where interim reclamation will be completed, this will be accomplished by respreading all salvaged topsoil over the areas of interim reclamation. ● The original landform and site productivity will be partially restored during interim reclamation and fully restored as a result of final reclamation.
2040	MR:6.5	Limit off-road vehicular use for NOS level casual use actions within the Fifteenmile MLP Analysis Area. Allow OHV and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
		Master Leasing Plan Analysis Areas – Big Horn Front
2041	MR:6	Apply an MLP analysis to 236,261 acres in the Big Horn Front MLP Analysis Area (Map 3-13).
2042	MR:6.1 MR:6.2 MR:6.4	Apply an NSO restriction: Prohibit surface-disturbing activities within ½ mile of big game migration corridors within the Big Horn Front MLP Analysis Area.

2000 MINERAL RESOURCES (MR)		
Record #	**Goal/Obj.**	**Decisions**
2043	MR:6.1 MR:6.2 MR:6.4	Apply a TLS to avoid surface-disturbing and disruptive activities within big game crucial winter range from November 15 through April 30. In addition, apply a TLS to avoid surface-disturbing and disruptive activities within elk winter range from November 15 through April 30 within the Big Horn Front MLP Analysis Area. Apply a CSU: Within elk crucial winter range, oil and gas-related surface disturbances would be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. A minimum lease size of 1,280 acres of federal mineral estate would be required. The lease can consist of noncontiguous parcels. Total surface disturbance per lease will not exceed 64 acres. Smaller parcels may be leased only when 1,280 acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. ● Allow additional disturbance pending acceptable final reclamation. ● Co-locate new disturbance where technically feasible. ● Utilize unitization to minimize surface disturbance in crucial winter range.
2044	MR:6.5	Limit off-road vehicular use for NOS level casual use actions within the Big Horn Front MLP Analysis Area. Allow OHV and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.

Table 3.7. 3000 FIRE AND FUELS MANAGEMENT (FM)

3000 FIRE AND FUELS MANAGEMENT (FM)		
Record #	**Goal/Obj.**	**Decisions**
		GOAL FM:1 The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. **Objectives:** **FM:1.1** Maintain partnerships with the public and interagency cooperators to strengthen coordination of all fire management activities and encourage the creation of fire safe communities. **FM:1.2** Enhance the wildland fire public education prevention program regarding wildland fire. **FM:1.3** Manage fuels to restore and maintain landscapes, and promote fire-adapted communities and infrastructure. Fire and fuels management actions will focus on restoring natural fire regimes and frequencies, and accomplishing DPC objectives. **FM:1.4** Utilize fire management strategies and tactics that are appropriate for the values at risk while also minimizing impacts on resource values. **FM:1.5** Following wildland fires, conduct appropriate emergency stabilization and rehabilitation when and where needed. In priority Greater Sage-Grouse habitat areas, prioritize suppression immediately after life and property to conserve the habitat. In general Greater Sage-Grouse habitat, prioritize suppression where wildfires threaten priority Greater Sage-Grouse habitat. **FM:1.6** Management of fire and fuels will be as consistent as possible with approved local fire plans in coordination with counties, cooperators, and stakeholders. **GOAL FM:2** Restore natural fire regimes and frequencies to the landscape, and utilize fire and vegetation treatments to accomplish DPC objectives. **Objectives:** **FM:2.1** Consult and cooperate with adjacent landowners, state and local governments, and other stakeholders to plan and implement prescribed fire and other vegetation treatments across the landscape. In areas of general Greater Sage-Grouse habitat, design and implement fuels treatments with an emphasis on protecting existing sagebrush ecosystems. **FM:2.2** Implement and maintain a FMP for the planning area; the FMP identifies the site-specific fire management practices and fuels treatment actions needed to meet this RMP's goals and objectives and includes a focus on restoring natural fire regimes and frequencies or accomplishing DPC objectives.
3001	FM:2.1	Ensure all prescribed burning activities comply with Wyoming DEQ air quality standards and smoke management rules.

3000 FIRE AND FUELS MANAGEMENT (FM)		
Record #	**Goal/Obj.**	**Decisions**
3002	FM:1.5	Implement the BLM Emergency Stabilization and Rehabilitation standards located in the *BLM Burned Area Emergency Stabilization and Rehabilitation Handbook* (BLM 2007b).
3003	FM:1.4 FM:1.1	Base the response to wildfires consistent with objectives and the cost/benefits of the resources at risk. For Wildland Fire Management, the protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection.
3004	FM:1.4 HR:3.3	Restrict or prohibit the use of fire retardant chemicals as appropriate to protect rock art. Avoid aerial application of fire suppressant chemicals within 300 feet of perennial waters. Consider ground-based application on a case-by-case basis.
3005	HR:3.3	Prohibit the use of bulldozers in areas of important cultural resources or historic trails for fire suppression unless an archeologist and/or resource advisor is present.
3006	HR:1.2	Assign an archeologist to all fires with heavy equipment employed beyond Minimum Impact Suppression Techniques (see Glossary) to assist in determinations of appropriate suppression strategies.
3007	FM:1 FM:2	Maintain and implement an FMP consistent with this RMP to address fire management on a landscape scale. Under the appropriate environmental conditions the use of unplanned ignitions for resource benefit and prescribed fire to meet resource management objectives is allowed in the entire planning area.
3008	FM:1	Suppress fires threatening Greater Sage-Grouse habitats and crucial winter wildlife habitat within Wyoming big sagebrush communities. Where fire would be utilized to meet resource objectives, work closely with resource specialists to protect and improve Greater Sage-Grouse habitat. For fuels management, the BLM would consider multiple tools for fuels reduction and would analyze in NEPA compliance documentation before electing to implement prescribed fire in PHMAs. If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address: ● why alternative techniques were not selected as a viable options; ● how Greater Sage-Grouse goals and objectives would be met by its use; ● how the COT Report objectives would be addressed and met; and ● a risk assessment to address how potential threats to Greater Sage-Grouse habitat would be minimized. Prescribed fire as a vegetation or fuels treatment in Greater Sage-Grouse habitat shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire could be used to meet specific fuels objectives that would protect Greater Sage-Grouse habitat in PHMAs (e.g., creation of fuel breaks that would disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities). Prescribed fire in known crucial winter wildlife habitat shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in and/or around crucial winter wildlife habitat must be strategically-designed to reduce wildfire risk and protect winter range habitat quality.
3009	FM:1	Protect facilities or habitable structures from fire.

3000 FIRE AND FUELS MANAGEMENT (FM)		
Record #	**Goal/Obj.**	**Decisions**
3010	FM:2	Cooperate with other agencies and landowners to conduct landscape treatments, resulting in enhanced fuels management and/or restoration of fire-adapted ecosystems.
3011	FM:1.1 BR:4.3	In cooperation with the WGFD, identify waters that contain high-risk aquatic invasive species. Avoid using these identified water sources for suppression activities except in cases where public and firefighter safety are threatened.
3012	FM:1.1 BR:4.3	Clean (i.e., disinfect) fire-fighting equipment where water sources containing high-risk aquatic invasive species must be utilized.
3013	FM:2	Reduce hazardous fuels in the wildland urban interface.
3014	FM:1.4 FM:1.1	Response to wildland fire may vary from full suppression in areas where fire is undesirable, to monitoring fire behavior in areas where fire can be used as a management tool.
3015	FM:2.1 FM:2.2	Utilize wildland fires (wildfires managed for resource benefit and prescribed fires) and other vegetation treatments to restore fire-adapted ecosystems, reduce hazardous fuels, and accomplish resource management objectives.
3016	FM:2.1 FM:2.2	Use mechanical, chemical, and biological treatments across the landscape as needed to restore vegetative diversity and reduce the risk of unnatural fire within those ecosystems.

Table 3.8. 4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Forests, Woodlands, and Forest Products

4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Forests, Woodlands, and Forest Products		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:1 Maintain, enhance, or restore forest stand community health, composition, and diversity taking into account density, basal area, canopy cover, age class, stand health, and understory components. **Objectives:** **BR:1.1** Maintain overall forest health by managing forest and woodland stands for endemic populations of native insects and disease. **BR:1.2** Provide for commercial and local forest product needs in consideration of other resource values.
4001	BR:1.1 BR:1.2	Close campgrounds to cutting of timber and firewood, except for purposes of public safety and campground management.
4002	BR:1.1	Regenerate all harvest areas by natural or artificial means consistent with BLM policy. If at the end of fifteen years any clear-cut area fails to regenerate naturally, use planting and other methods to assure regeneration unless converting vegetation to another type is the objective.
4003	BR:1.1	Slash resulting from timber harvesting will be made available for biomass, piled or lopped and scattered, roller chopped, or burned to provide watershed protection, promote reforestation, provide nutrient recycling, and improve wildlife habitat.
4004	BR:1.1	Require a permit for harvesting firewood and other forest products on BLM-administered land, except for small amounts used onsite for camping, cooking, or warming.
4005	BR:1.1	Surface-disturbing activities associated with all types of forest management are subject to appropriate mitigation developed through use of the mitigation guidelines described in the Wyoming Forestry BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)).
4006	BR:1.1	Consider the commercial harvest of forest products and other vegetative treatments on all forest and woodland areas, except those areas excluded from harvest by law or statute, to accomplish wildlife, watershed, and forest management objectives. Base actual harvest levels on treatments needed to meet management objectives to restore historic processes, composition, and structures of the forests and woodlands.
4007	BR:1.1 BR:1.2	Allowable cut figures, when calculated, reflect the level of harvest needed to develop and maintain the desired structure of forestland base.
4008	BR:1.2	Allow the sale of permits to meet public demand for personal use and harvest of forest products including posts, poles, firewood, sawlogs, Christmas trees, and other vegetative products consistent with wildlife habitat requirements. After NEPA analysis, authorize commercial use for seed collections or for use in habitat restoration or research.
4009	BR:1.1	Apply forest management techniques to attain the management goals of timber production and enhancement of other resource values if traditional forms of logging are not possible or if stands are not purchased when offered for sale. These may include: (1) burning instead of logging, (2) disease treatment by spraying, (3) spraying grasses and shrubs to eliminate competition with tree species, or (4) non-commercial mechanical treatments.
4010	BR:1	Manage forestlands to enhance or maintain resources or multiple resource uses, such as recreation opportunities, livestock grazing, forest products, wildlife, watershed, and scenic values where appropriate for the forest type. Some of these lands are on the west slope of the Big Horn Mountains and Absaroka Mountains.

4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Forests, Woodlands, and Forest Products		
Record #	**Goal/Obj.**	**Decisions**
4011	BR:1.1	Apply partial cutting, extended forest crop rotations, or other restrictions on forest management where applicable.
4012	BR:1.1	Evaluate the size, extent, distance from roads, and characteristics of forestland vegetation, when forest harvests are considered, to maintain or improve the effectiveness of residual wildlife security areas.
4013	BR:1.1	Maintain sustainable populations of forest and woodland tree species, including limber pine, subalpine fir, whitebark pine, cottonwood, willow, Rocky Mountain juniper, Utah juniper, and aspen, while enhancing the management of intermingled resources and resources uses, such as watersheds, wildlife habitat, scenic values, recreation opportunities, and livestock grazing.
4014	BR:1.1	Actively promote aspen regeneration throughout the planning area using a variety of vegetation treatments and natural processes.
4015	BR:1.1 BR:1.2	On a priority basis, plant conifer areas exposed by wildfire and harvesting with conifer species found in managed or desired forest and woodland areas if they do not regenerate naturally 15 years.
4016	BR:1.1	Projects in old growth stands must fully maintain, or contribute toward the restoration of the structure and composition of old growth stands according to pre-suppression old growth condition characteristics of the forest type, taking into account the contribution of the stand to landscape fire adaptation and watershed health, and retaining the large trees contributing to old growth structure. Identify old growth forest characteristics for the various forest types. Adopt connectivity of existing or potential old growth areas whenever feasible.
4017	BR:1.1	Manage endemic insect and disease with the full range of silviculture techniques and treatment methods.
4018	BR:1.1	Allow salvage of dead stands on a case-by-case basis with appropriate levels of snag retention.
4019	BR:1.2	Allow precommercial thinning in overstocked areas and regenerated timber sale areas when trees in those areas the 10- to 20-year age class or when the regenerated trees are 5- to 15-feet tall.
4020	BR:1	Assess the need to close existing and future timber access and haul roads on a case-by-case basis. Generally, close spur roads after completion of timber management.
4021	BR:1.1	Perform treatments in all woodland types, including but not limited to juniper, aspen, cottonwood, and ponderosa, limber, and whitebark pine woodlands.
4022	BR:1.1	Use logging, timbering, or wildland fire when appropriate to revitalize decadent stands and improve stand density.
4023	BR:1.1	Manage conifer encroachment to improve wildlife habitat and forest health conditions as well as make progress toward potential natural communities, as determined by the site's ESD.
4024	BR:1.2	Within the areas classified as commercial forestland, conduct timber harvesting in a manner that protects and benefits watershed, wildlife, and riparian/wetland habitat values; emphasize areas where forest health is a primary concern.
4025	BR:1.1	Use a variety of silvicultural practices and cutting methods, such as clear cutting, shelterwood, individual tree and group selection, and various regeneration treatments.
4026	BR:1.1	In important seasonal wildlife habitat areas, generally restrict clear cuts to no more than 100 acres unless salvaging dead or dying timber.

Table 3.9. 4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Grassland and Shrubland Communities

4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Grassland and Shrubland Communities		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:2 Manage vegetation resources to meet DPC objectives. **Objectives:** **BR:2.1** Manage native plant communities to restore, maintain, or enhance vegetation community health, composition, and diversity to provide a mix of successional stages that incorporate diverse structure and composition into the desired vegetation types. **BR:2.2** Maintain, improve, enhance, or restore native plant communities to facilitate the conservation, recovery, and maintenance of populations of native and desirable nonnative plant species and wildlife habitat. **BR:2.3** Maintain, improve, or enhance areas of ecological importance, priority plant species and habitats, and unique plant associations with native plant communities. **BR:2.4** Manage native plant communities across landscapes through cooperation with adjacent landowners, state and local governments, and other stakeholders. **BR:2.5** Coordinate with local, state, and federal agencies, and stakeholders to protect and recover native plant communities, and their included vegetative resources and habitat components affected by extreme environmental conditions. **BR:2.6** In PHMAs, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Technical Reference 1734-6 [BLM 2005c]).
4027	BR:2.1 BR:2.2 BR:2.4 BR:2.6	Manage native plant communities (Map 3-15) in accordance with *Wyoming Standards for Healthy Rangelands* (BLM 1997). Use ESDs and other available information, resource objectives established in this RMP, and specific management practices to maintain or achieve the standards.
4028	BR:2	Continue to monitor and evaluate climatic and vegetative data. Compile and share data with other land management agencies and partners within the planning area using a cooperative, collaborative approach. Should the analysis of data indicate that the vegetative resource is either not meeting or making significant progress towards meeting the *Wyoming Standards for Healthy Rangelands* or other site specific vegetative objectives, corrective management actions will be implemented to achieve desired results.

4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Grassland and Shrubland Communities		
Record #	**Goal/Obj.**	**Decisions**
4029	BR:2.1-2.4 BR:2.6	Manage to achieve or make progress toward the appropriate community phase for the site. In plant communities determined to be meeting *Wyoming Standards for Healthy Rangelands*, manage to maintain or improve those communities. Potentially manage some areas for a higher plant community state or phase (based on state and transition models in ESDs) where site-specific management objectives determine that a higher plant community state or phase is desirable. In these areas the desired plant community states or phases will be determined on a site-specific basis at the implementation level. Manage areas at a lower level of ecological status to provide preferred habitat for wildlife species with unique habitat requirements on a case-by-case basis.
4030	BR:2.1-2.3 BR:2.6	Manage to maintain contiguous blocks of native plant communities and minimize fragmentation; allow for appropriate mosaic of interrelated plant communities while allowing for other resource uses.

Table 3.10. 4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Riparian/Wetland Resources

4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Riparian/Wetland Resources		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:3 Manage riparian/wetland areas to provide a natural combination of vegetation and landform to provide the habitat and the water conditions necessary for aquatic and terrestrial species. Objectives: **BR:3.1** Manage vegetation, soil, landform, and water to meet PFC. **BR:3.2** Manage priority riparian/wetland areas to attain desired future conditions unique to the landscape setting. **BR:3.3** Manage riparian/wetland areas with consideration of the effects of all herbivory. **BR:3.4** Manage riparian/wetland areas in consideration of the working landscape. **BR:3.5** Manage riparian/wetland vegetation communities to attain an appropriate mix of wetland plant species and age-classes, with high vigor and extensive root systems, capable of withstanding high streamflow events.
4031	BR:3.1 BR:3.2 BR:3.4 BR:3.5	Manage to meet PFC and *Wyoming Standards for Healthy Rangelands* in lotic and lentic riparian/wetland areas.
4032	BR:3.1 BR:3.2 BR:3.4 BR:3.5	Consider linear watercourse crossings on a case-by-case basis.
4033	BR:3.1 BR:3.2 BR:3.4 BR:3.5	Ensure all actions comply with EO 11988, *Floodplain Management*, and EO 11990, *Protection of Wetlands,* and the Wyoming DEQ water quality standards, applicable regulations, and permitting requirements, including U.S. Army Corps of Engineers Section 404 permits, storm water, and other Wyoming Pollutant Discharge Elimination System permits.
4034	BR:3.1 BR:3.2 BR:3.4 BR:3.5	Manage all riparian/wetland areas and streams with unique recreational or aquatic values to meet or make progress towards PFC, giving priority to those areas that are functioning at risk with a downward trend or that are in non-functioning condition.

4000 BIOLOGICAL RESOURCES (BR) – Vegetation – Riparian/Wetland Resources		
Record #	**Goal/Obj.**	**Decisions**
4035	BR:3.1 BR:3.2 BR:3.4 BR:3.5	Prohibit surface-disturbing activities within 500 feet of surface water and riparian/wetland areas (39,801 acres) except when such activities are necessary and when their impacts can be mitigated.
4036	BR:3.1 BR:3.2 BR:3.4 BR:3.5	Apply an NSO restriction on wetland areas greater than 20 acres and on designated 100-year flood plains.

Table 3.11. 4000 BIOLOGICAL RESOURCES (BR) – Invasive Species and Pest Management

4000 BIOLOGICAL RESOURCES (BR) – Invasive Species and Pest Management		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:4 Manage for healthy native plant communities by reducing, preventing expansion of, or eliminating the occurrence of undesirable invasive, nonnative species, undesirable, nonnative, or noxious weeds (predatory plant pests or disease) by implementing management actions consistent with national guidance and state and local weed management plans. **Objectives:** **BR:4.1** Maintain internal (BLM) and external support for managing invasive species using an integrated approach for the detection, control, or eradication of new infestations. **BR:4.2** Maintain adequate baseline information regarding the extent and control of invasive species to make informed decisions, evaluate effectiveness of management actions, and assess progress toward goals to improve invasive species management. **BR:4.3** Continue coordination of invasive species detection and control activities across the working landscape including non BLM-administered lands, and include provisions for invasive species management for all BLM-funded or authorized actions.
4037	BR:4.1-4.3	Manage invasive plant species in the planning area in conjunction with local counties and other stakeholders consistent with the ROD for the Final PEIS addressing *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States* (BLM 2007a), and current with policy and similar guidance updated over time.
4038	BR:4.1-4.3	Manage invasive plant species using an Integrated Pest Management approach consistent with DOI Manual 517, *Integrated Pest Management* (DOI 2007).
4039	BR:4	Avoid raptor and migratory bird nesting seasons and other times when loss of cover or disturbance by equipment used in a treatment is determined to be detrimental.
4040	BR:4.1-4.3	In cooperation with APHIS and other stakeholders, work to control outbreaks of grasshopper and Mormon crickets on BLM-administered land in the planning area in accordance with the MOU between BLM and APHIS.
4041	BR:4.1 BR:4.3	Use certified noxious weed-seed free vegetation products on all BLM-administered land in the planning area.
4042	BR:4	Allow the application of pesticides within the Spanish Point Karst ACEC when drinking water will not be impacted.
4043	BR:4.2	Develop and maintain an invasive species and pest management plan. If necessary, review and update this plan annually based on available funding and input from other agencies, organizations, and interested stakeholders.
4044	BR:4.2 BR:4.3	Reduce and prevent the expansion of cheatgrass through cooperation with other agencies, organizations, and interested stakeholders. Treat areas that contain cheatgrass and other invasive or noxious species to minimize competition and favor establishment of desired species.
4045	BR:4.2 BR:4.3	Reduce and prevent beet leafhopper infestations on BLM-administered land through cooperation with appropriate government and state agencies, private industry, and other interested stakeholders.
4046	BR:4.3	Cooperate and coordinate with appropriate government agencies, private industry, and other interested stakeholders in public education, research, management, and control of aquatic invasive species.

4000 BIOLOGICAL RESOURCES (BR) – Invasive Species and Pest Management		
Record #	**Goal/Obj.**	**Decisions**
4047	BR:4.3	In cooperation with other agencies, organizations, and interested stakeholders, seek opportunities to promote public awareness and prevention of noxious and invasive species through public outreach, volunteer programs, signage, and other appropriate measures.
4048	BR:4	Allow aerial application of pesticides on a case-by-case basis in coordination with the authorized officer.
4049	BR:4.1-4.3	Require livestock flushing on a case-by-case basis.

Table 3.12. 4000 BIOLOGICAL RESOURCES (BR) – Fish and Wildlife Resources

4000 BIOLOGICAL RESOURCES (BR) – Fish and Wildlife Resources		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:5 In compliance with the *Wyoming Standards for Healthy Rangelands* (BLM 1997), manage for the biological integrity of terrestrial and aquatic ecosystems to sustain or enhance fish and wildlife habitat, while providing for multiple uses of BLM-administered lands. Objectives: **BR:5.1** Manage habitat to conserve, recover, and maintain fish and wildlife consistent with appropriate local, state, and federal management plans. **BR:5.2** Work cooperatively with the WGFD to recommend adjustments to herd objectives based upon habitat condition trends and recommend wildlife use adjustments if monitoring data indicate adjustments are necessary. **BR:5.3** Manage fish and wildlife habitats in consideration of the working landscape. **GOAL BR:6** Manage environmental risks and associated impacts in a manner compatible with sustaining plant, fish, and wildlife populations. Objectives: **BR:6.1** Minimize, avoid, and mitigate impacts of environmental risks on fish and wildlife. **BR:6.2** Manage pesticide, rodenticide, and herbicide application in a manner compatible with fish and wildlife health. **BR:6.3** Coordinate with other agencies to prevent or control diseases that threaten the health of humans, wildlife, livestock, and vegetation. **BR:6.4** Coordinate with other agencies who manage native and nonnative predatory animals that pose a threat to the health or productivity of natural ecosystems.
4050	BR:5.1 BR:5.3	Coordinate with WGFD to design reservoirs with consideration of fish and wildlife habitat values.
		Fish
4051	BR:5.1 BR:5.3 BR:6.1	Direct priority management in planning/actions for fisheries to perennial waters containing fish or contributing directly to fisheries.
4052	BR:5.1 BR:5.3	Manage intermittent streams judged as having potential to become, or return to being, perennial streams with fish on a watershed scale to acquire perennial flows values in compliance with Wyoming water laws.

4000 BIOLOGICAL RESOURCES (BR) – Fish and Wildlife Resources		
Record #	**Goal/Obj.**	**Decisions**
4053	BR:5.1 BR:5.3 BR:6.1	Apply an NSO restriction and prohibit surface-disturbing activities within 500 feet and apply a CSU and avoid surface-disturbing activities within ¼ mile of any waters rated by the WGFD as Blue Ribbon or Red Ribbon (trout streams of national or statewide importance).
4054	BR:5.1 BR:5.3 BR:6.1	On a priority basis and in coordination with stakeholders, restore and reclaim important stream segments for fisheries habitat with the highest priority given to species listed on the *State Species of Greatest Conservation Need*.
4055	BR:5.1 BR:5.3 BR:6.1	Manage fisheries habitat to improve and enhance its value through the implementation of management practices such as vegetation manipulation and planting, installing sediment and erosion control structures, fencing, and acquiring, developing, and maintaining water sources.
4056	BR:5.1 BR:5.3 BR:6.1	Encourage reservoir design to enhance fisheries and to establish minimum pools sufficient to maintain viable fisheries. Maintain existing reservoir and stream fishery habitat. Existing reservoirs are managed by the ROW stipulations attached to them at the time of their construction and the BLM encourages managing for minimum pool levels, but cannot require them after issuing a ROW.
4057	BR:5.1 BR:5.3 BR:6.1	On a priority basis, design or retrofit culverts in streams containing fish to allow fish passage, both upstream and downstream, in both low and high water flows. Harden low water crossings to minimize sediment movement. Low water crossings should be perpendicular to streams and located in straight stream reaches to avoid flow modification that could cause erosion of banks
Wildlife		
4058	BR:5.1	Maintain or improve important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies and the application of *The Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management* (Wyoming Interagency Vegetation Committee 2002) and the *Wyoming BLM Standard Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (Appendix F, *Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (p. 349)), BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)), and similar guidance updated over time.
4059	BR:5.1	Continue to implement the following existing HMPs and update as necessary to include management objectives and prescriptions for wildlife: West Slope HMP, Bighorn River HMP, and Absaroka Front HMP.
4060	BR:5.1 BR:6.1	Prohibit surface-disturbing and disruptive activities in the Bighorn River HMP/RAMP tracts and apply an NSO restriction as appropriate. Exceptions include casual use and uses related to the development of recreation facilities or wildlife habitat, including vegetation treatments.
4061	BR:5.1	In cooperation with the USFS, WGFD, and other stakeholders, work to maintain and enhance healthy bighorn sheep habitat.
4062	BR:5.1-5.3	In cooperation with the USFS, USFWS, WGFD, and other stakeholders, work to determine the feasibility of reestablishing bighorn sheep at other suitable locations.
4063	BR:5.1-5.3	Consider transmission of disease between wildlife and domestic livestock in grazing authorizations. Follow the recommendations for the protection of bighorn sheep in the *Statewide Bighorn/Domestic Sheep Interaction Report* (Wyoming State-wide Bighorn/Domestic Sheep Interaction Working Group 2004), and *Western Association of Fish and Wildlife Agencies (WAFWA) Wild Sheep Working Group Initial Subcommittee Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat June 12, 2007* (WAFWA 2007), and similar guidance that is updated over time.
4064	BR:5.1 BR:5.2	In cooperation with stakeholders on a case-by-case basis, manage for the augmentation and/or reintroduction of important wildlife species within suitable habitats and in accordance with applicable policy and guidance (e.g., BLM Manual 1745, *Introduction, Transplant, Augmentation and Reestablishment of Fish, Wildlife and Plants*).

4000 BIOLOGICAL RESOURCES (BR) – Fish and Wildlife Resources		
Record #	**Goal/Obj.**	**Decisions**
4065	BR:5.2 BR:6.4	Coordinate authorized animal damage control with federal and state wildlife agencies, and other agencies, as appropriate, using guidance provided by the existing MOU (APHIS and BLM 2003).
4066	BR:6.1	Consult with the WGFD in applying mitigation for wildlife needs and before waiving, allowing exceptions to, or modifying wildlife-related land use restrictions and mitigation in conformance with MOU WY131 Appendix 5 (g).
4067	BR:6.1	In consideration of other resources, provide, to the extent possible, suitable habitat to support wildlife populations defined in the Cody Region Big Game Job Completion Report (https://wgfd.wyo.gov/Hunting/Job-Completion-Reports) objectives. Cooperatively consider proposals by the BLM or WGFD to change population objective levels based on habitat capability and availability.
4068	BR:5.1	In cooperation with WGFD, local governments, and other stakeholders, limit access (including public access via all modes-of-transport) where necessary in crucial habitat and sensitive species habitat. The type of limitation, if any, depends on the kind of resource value being protected.
4069	BR:5.1 BR:5.2	In cooperation with WGFD and other stakeholders, work to develop water sources for wildlife and special status species in coordination with the WGFD and the BLM Water Development Handbook (H-1741-2).
4070	BR:5.1 BR:5.3	Conduct habitat enhancement vegetation treatments within sagebrush communities as opportunities and funding allow, consistent with EO 2015-4 (Wyoming Office of the Governor 2015).
4071	BR:5.1 BR:6.1	Modify identified hazard fences, and analyze and construct new fences in accordance with wildlife needs, the BLM Fencing Handbook 1741-1, and WO IM 2010-022, *Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken*, and similar guidance and policy as updated over time.
4072	BR:5.1-5.3	Conduct vegetation treatments within aspen stands for wildlife values as opportunities and funding allow.
4073	BR:5.1 BR:5.3	Pursue exchanges to enhance public access or improve management of important wildlife habitat areas by consolidating public land. In cooperation with willing sellers and other stakeholders, consider all land tenure adjustment authorities for the acquisition of, and interest in, lands for the improved management of important wildlife habitat. Emphasize the acquisition of access to public lands on the Bighorn and Greybull rivers; Gooseberry Creek; the upper portions of Cottonwood and Grass Creeks; and on lands where other riparian areas occur.
4074	BR:6.1	Apply a TLS to avoid surface-disturbing and disruptive activities within big game crucial winter range (1,458,712 acres) from November 15 through April 30, except exempt Oil and Gas Management Areas (Map 3-9) from discretionary big game seasonal stipulations.
4075	BR:6.1	Absaroka Front Management Area (51,739 acres of BLM-administered surface land; 98,852 acres of federal mineral estate): ● a mix of CSU (31,996 acres), NSO (41,215 acres), and closed to leasing (17,184 acres) on the federal mineral estate (Map 3-14) ● areas available for leasing are open to geophysical exploration with specific resource protection ● manage as a renewable energy avoidance area ● manage as a ROW avoidance area ● partially closed to motorized vehicle use and limited to designated roads and trails on the rest of the area Allow and seasonally stipulate, where feasible, vegetative/silviculture treatments; invasive, nonnative pest species control; fuels management; and maintenance of existing facilities.

4000 BIOLOGICAL RESOURCES (BR) – Fish and Wildlife Resources		
Record #	**Goal/Obj.**	**Decisions**
4076	BR:6.1	Allow water development projects in crucial elk winter range and in greater Greater Sage-Grouse nesting habitat with 10 inches or less annual precipitation only when adverse effects can be avoided, minimized and/or compensated based on site-specific analysis. Allow existing uses pending site-specific analysis on a priority basis.
4077	BR:6.1	Apply wildlife seasonal protections for surface-disturbing and disruptive activities to non-routine maintenance and operation of projects when the actions are determined to be detrimental to wildlife through site-specific NEPA analysis.
4078	BR:5.1 BR:6.1	Identify and protect traditional migration and travel corridors for big game wildlife species and migratory birds on a case-by-case basis. In the Big Horn Front MLP Analysis Area, prohibit surface-disturbing activities within ½ mile of big game migration corridors (12,890 acres) (Map 3-17).
4079	BR:5.1	Determine the appropriate DPC to manage vegetation on a case-by-case basis in areas identified as habitat for special status species or crucial winter range for big game.
4080	BR:6.1	Avoid wind energy projects in big game crucial winter range and raptor concentration areas. Wind-energy development would be avoided in Greater Sage-Grouse PHMAs (Map 3-17), and not allowed unless it can be sufficiently demonstrated that the development activity would not result in declines of Greater Sage-Grouse PHMA populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS.
4081	BR:5.1	At the discretion of the BLM and its stakeholders, use produced water to develop and enhance waterfowl, special status species, and other wildlife habitats in accordance with federal, state, and local laws and regulations.
4082	BR:5.1 BR:6.1	Allow temporary closures of designated roads, trails, or geographic areas within big game crucial winter range depending on impacts to big game, weather conditions, and/or human caused disturbance levels.

Table 3.13. 4000 BIOLOGICAL RESOURCES (BR) – Special Status Species

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:7 WILDLIFE – Manage for the biological integrity and habitat functionality to facilitate the conservation, recovery, and maintenance of populations of fish and wildlife to avoid contributing to the listing of or jeopardizing the continued existence or recovery of special status species and their habitats. **Objectives:** **BR:7.1** Maintain or enhance areas of ecological importance for special status wildlife species. **BR:7.2** Conserve and recover special status wildlife species by determining and implementing conservation strategies including restoration opportunities, use restrictions, and management actions. **BR:7.3** Manage specific environmental hazards, risks, and impacts in a manner compatible with special status wildlife species health. **BR:7.4** Maintain sufficient undisturbed or minimally disturbed habitats to protect special status wildlife species resource values while providing for multiple use management. **BR:7.5** Develop and implement HMPs, activity plans, or use other mechanisms to protect high priority special status wildlife species. **BR:7.6** Manage special status fish and wildlife species in consideration of the working landscape. **GOAL BR:8** PLANTS – Manage for the biological integrity and habitat function to facilitate the conservation, recovery, and maintenance of populations of BLM special status plant species and to avoid contributing to the listing of or jeopardizing the continued existence or recovery of special status species and their habitats. **Objectives:** **BR:8.1** Manage the habitats of special status plants to meet or exceed the *Wyoming Standard #4 for Healthy Rangelands.* **BR:8.2** Protect or enhance habitat for BLM special status plant species. **BR:8.3** Maintain sufficient undisturbed or minimally disturbed habitats to protect special status plant species resource values while providing for multiple use management. **BR:8.4** Manage specific environmental hazards, risks, and impacts in a manner compatible with BLM special status plant species' health. **BR:8.5** Manage BLM special status plant species in consideration of the working landscape.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:9 GREATER SAGE-GROUSE – Sustain the integrity of the sagebrush biome to provide the amount, continuity, and quality of habitat that is necessary to maintain sustainable populations of Greater Sage-Grouse and other species by achieving the objectives below. **Objectives:** **BR:9.1** Maintain large patches of high quality sagebrush habitats, with emphasis on patches occupied by Greater Sage-Grouse. **BR:9.2** Maintain connections between sagebrush habitats, with emphasis on connections between habitats occupied by Greater Sage-Grouse. **GOAL BR:10** Identify the amount of habitat that should undergo restoration and/or rehabilitation during the life of the plan and initiate restoration and/or rehabilitation by achieving the objective below. **Objective:** **BR:10.1** Reconnect large patches of sagebrush habitat with emphasis on reconnecting patches occupied by stronghold and isolated populations of Greater Sage-Grouse.
4083	BR:7.1-7.4 BR:7.6 BR:8.1-8.5	Postpone or modify projects that may negatively affect special status species to protect these species. Consult with USFWS in such cases, in accordance with the Endangered Species Act.
4084	BR:7.1-7.4 BR:7.6 BR:8.1-8.5	Consult with stakeholders early in the permitting process to design projects in a manner that would minimize or avoid potential adverse effects to special status species.
4085	BR:7.2 BR:8.3 BR:9.1 BR:9.2 BR:10.1	Assist authorized agencies in the restoration, reintroduction, augmentation, or re-establishment of threatened, endangered, and other special status species populations and/or habitats.
4086	BR:7.1-7.4 BR:7.6 BR:8.1-8.5	Motorized vehicle use is limited to designated roads and trails in essential and recovery habitat for threatened or endangered species as identified and designated by USFWS.
Greater Sage-Grouse		
4087	BR:9.1	Discourage the use of broad-spectrum insecticides where insect control is required. Target pest control toward key problem areas and schedule applications to be effective in minimum doses in Greater Sage-Grouse brood-rearing areas. Field Offices may implement treatments within Greater Sage-Grouse habitat utilizing RAATS protocols.
4088	BR:9.1	Avoid aerial pesticide spraying in favor of ground applications to minimize drift into non-target areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4089	BR:9.1	Avoid applying pesticides to Greater Sage-Grouse breeding habitat during the nesting and early brood-rearing season (March 15 through June 30) to reduce the loss of food supply to chicks and avoid the chance of secondary poisoning unless benefits of treatments are likely to outweigh impacts.
4090	BR:10.1	Maintain seeps, springs, wet meadows, and riparian vegetation in a functional and diverse condition for young Greater Sage-Grouse and other species that depend on forbs and insects associated with these areas. Consider management actions if desirable green vegetation associated with these wet areas is not available, accessible, or cannot be maintained with current livestock, wildlife, or wild horse use, and the impacts are outweighed by the improved habitat quality.
4091	BR:10.1	Restore Greater Sage-Grouse brood-rearing habitats in riparian/wetland areas.
4092	BR:10.1	Restore lost riparian functioning systems by repairing abnormally incised drainages to raise water tables and increase water storage and brood-rearing habitats within Greater Sage-Grouse habitat.
4093	BR:9.1	Manage vegetation composition diversity and structure, as determined by ESD, or other methods that reference site potential, and WGFD protocols to achieve Greater Sage-Grouse habitat management objectives, in cooperation with stakeholders. Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to Greater Sage-Grouse habitat to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings provide value in conserving or enhancing Greater Sage-Grouse habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat during the land health assessments. Burned areas within PHMAs would be restored to suitable habitat with consideration given to ESDs, reference sites, site potential and local variability. The BLM could bring in burned area rehabilitation and Burned Area Emergency Response teams who would work cooperatively with partners at the federal, state, and local levels to rehabilitate and restore Greater Sage-Grouse habitats in a manner consistent with the core habitat populations area strategy for conservation. DDCT reviews would be conducted in coordination with the WGFD Habitat Protection Program located in Cheyenne, Wyoming at the WGFD headquarters. Areas within PHMAs would be prioritized for restoration of Greater Sage-Grouse habitat beyond immediate response.
4094	BR:10.1	Maintain sagebrush and understory diversity (relative to ecological site description) in crucial seasonal Greater Sage-Grouse habitats unless such removal is necessary to achieve Greater Sage-Grouse habitat management objectives. For example, thinning small patches of dense sagebrush may increase desirable forbs in early brood-rearing habitat.
4095	BR:10.1	Increase the composition and canopy cover of Wyoming big sagebrush, within existing nonnative grass seedings with less than 5 percent sagebrush canopy cover, to greater than or equal to neighboring sagebrush communities or historical levels. (See Shrubland-Salt Desert/Salt Bottom on Map 3-15; deeper soiled, and gentler sloped portions of the Shrubland-Salt Desert/Salt Bottom, colored in pink, would be those areas where sagebrush restoration efforts could be conducted.)
4096	BR:10.1	Investigate opportunities to increase sagebrush in lower precipitation zones.
4097	BR:9.1	Plan and construct mining and mineral development activities, to the degree possible given state water rights, to minimize disturbances that would result in alterations to springs and riparian Greater Sage-Grouse habitat. Alternative water sources may be developed to replace natural sources that have been affected or destroyed during these development activities.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4098	BR:8.3 BR:8.5	Treat constructed or non-natural water storage impoundments to control mosquito breeding (and the associated spread of West Nile virus), to prevent disease spread to Greater Sage-Grouse as necessary.
4099	BR:9.1	In cooperation with stakeholders, manage to promote the growth and persistence of native shrubs, grasses, and forbs needed by Greater Sage-Grouse for seasonal food and concealment.
4100	BR:9.1	In cooperation with stakeholders, design and locate fences so as not to disturb PHMAs. Increase the visibility of fences in these areas which have been identified as hazardous to flying Greater Sage-Grouse.
4101	BR:9.1	Conduct fire management activities to minimize overall wildfire size and frequency in sagebrush plant communities where Greater Sage-Grouse habitat objectives are at risk. General priorities for habitat protection: Priority # 1 – Protection of Greater Sage-Grouse PHMAs. Priority # 2 – Wyoming big sagebrush communities outside Greater Sage-Grouse PHMAs and habitats recovering from disturbance within or adjacent to Greater Sage-Grouse PHMAs.
4102	BR:9.1	Annually maintain FMPs to incorporate updated sagebrush habitat information as well as fire suppression priorities in sagebrush habitats. Incorporate fire management objectives for the management of sagebrush ecosystems into FMPs. Provide fire management objectives for sagebrush ecosystems to initial attack personnel at the beginning of each fire season.
4103	BR:10.1	Establish fuels treatment projects at strategic locations to minimize size of wildfires and limit loss of Greater Sage-Grouse habitat.
4104	BR:10.1	Reintroduce appropriate fire regimes to limit conifer encroachment into the sagebrush plant communities. Take into account invasive herbaceous species and Fire Regime Group and FRCC (measure of departure from historic fire regime) with treatments. Where possible, achieve a balance between treating areas that have significantly departed from the historic fire regime (Condition Class 3) and areas that are functioning within an appropriate fire regime (Condition Class 1).
4105	BR:10.1	Remove conifers encroaching into sagebrush habitats in a manner that considers tribal and cultural values. Prioritize treatments closest to occupied Greater Sage-Grouse habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2 as defined in Miller et al. (2005). Refine the location of specific priority areas to be treated by utilizing site-specific analysis and principles like those included in the FIAT report (Chambers et. al. [2014]) and other ongoing modeling efforts to address conifer encroachment.
4106	BR:7.1-7.4 BR:9.1 BR:9.2	**Inside PHMAs** Prohibit surface occupancy and surface-disturbing activities on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks. The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse (Map 3-17). **Outside PHMAs** Prohibit surface-disturbing and disruptive activities and apply a NSO restriction within a ¼-mile radius of the perimeter of occupied Greater Sage-Grouse leks (Map 3-17). Outside Greater Sage-Grouse PHMAs, the BLM's goal is to sustain important habitats that support core populations and to maintain lek persistence over the long term in sufficient proportions of the Greater Sage-Grouse population to facilitate movement and genetic transfer between core populations, including those found in adjacent states.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4107	BR:7.2 BR:9.1	**Inside PHMAs** Prohibit disruptive activities on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30 (81,281 acres). **Outside PHMAs** Prohibit disruptive activities on or within a ¼ mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30 (3,157 acres). **Inside PHMAs** Prohibit surface-disturbing and/or disruptive activities from March 15 to June 30 to protect Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat (1,021,583 acres). Apply this timing limitation throughout the PHMAs. Activities in unsuitable habitats would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis. **Outside PHMAs** Prohibit surface-disturbing and/or disruptive activities in Greater Sage-Grouse nesting and early brood-rearing habitat within a 2-mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30. Note: Where credible data support different timeframes for these seasonal restrictions, dates may be expanded by up to 14 days prior to or subsequent to the above dates.
4108	BR:7.2 BR:9.1	**Greater Sage-Grouse winter concentration areas:** Surface-disturbing and/or disruptive activities in sage-grouse winter concentration areas would be prohibited from December 1–March 14. Activities in unsuitable habitats within PHMAs would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis. Protection of additional mapped winter concentration areas in GHMAs would be implemented only where winter concentration areas are identified as supporting biologically significant numbers of Greater Sage-Grouse nesting in PHMAs and/or attending leks within PHMAs. Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated in consultation with the WGFD in all identified winter concentration areas. Evaluate and allow activities in unsuitable habitats within PHMAs in accordance with exception and modification criteria on a case-by-case basis. Protection of additional mapped winter concentration areas in GHMAs would be implemented only where winter concentration areas are identified as supporting biologically significant numbers of Greater Sage-Grouse nesting in PHMAs and/or attending leks within PHMAs. Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated in consultation with the WGFD in all identified winter concentration areas.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4109	BR:7.2 BR:9.1	**Density of Disturbances:** In PHMAs, the density of disturbance of energy or mining facilities would be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights (Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271)). The one location and cumulative value of existing disturbances would not exceed 5 percent of habitat of the DDCT area. Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5 percent within the DDCT area using the DDCT process. Consolidate anthropogenic features from development and transmission on the landscape. Allow on a case-by-case basis high profile structures within Greater Sage-Grouse nesting habitat. Sagebrush Treatment: For vegetation treatments in sagebrush within PHMAs, refer to WGFD Protocols for Treating Sagebrush to Benefit Sage-Grouse (WGFD 2011, as updated) and BLM WO IM 2013-128 (Sage-grouse Conservation Related to Wildland Fire and Fuels Management). These recommended protocols, subject to seasonal conditions of approval, would be used in determining whether proposed treatment constitutes a "disturbance" that would contribute toward the 5 percent threshold for habitat maintenance. Additionally, these protocols would be used to determine whether the proposed treatment configuration would be expected to have neutral or beneficial impacts for PHMA populations or if they represent additional habitat loss or fragmentation. Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse would be evaluated based on habitat quality and the functionality/use of treated habitats post-treatment. The BLM would work collaboratively with partners at the state and local levels to maintain and enhance Greater Sage-Grouse habitats. Seasonal restrictions would be applied, as needed, for implementing fuels management treatments according to the type of seasonal habitat present. Wildfire burns will be treated as disturbed if sagebrush is reduced below 5 percent unless there is an implementation plan outlining restoration efforts and 3 years of data showing a trend back to suitable habitat.
4110	BR:7.2 BR:9.1	New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L_{50}) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 to May 15). Specific noise protocols for measurement and implementation will be developed as additional research and information emerges.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4111	BR:7.1-7.4 BR:9.1 BR:9.2	Allow motorized vehicle use in Greater Sage-Grouse PHMAs consistent with other resource objectives. Manage new road construction in and adjacent to Greater Sage-Grouse habitat consistent with applicable restrictions on surface-disturbing and disruptive activities. Avoid construction of new or local collector roads (as defined in BLM Manual 9113 [BLM 2011d]) within 1.9 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMAs. Prohibit all new roads within 0.6 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMAs. Construct roads to minimum design standards needed for production activities.
4112	SD:1.1 SD:1.2	In PHMAs, implement mitigation and minimization guidelines and required design features, including specific measures for Greater Sage-Grouse (refer to Appendix C, *Required Design Features and Best Management Practices* (p. 249)) as applicable and consistent with EO 2015–4 (Wyoming Office of the Governor 2015). Incorporate Greater Sage-Grouse specific measures into project proposals as required design features or mitigation for any authorized federal action, regardless of surface ownership.
4113	SD:1.1 SD:1.2	In PHMAs, require the development of a wildlife resource monitoring and mitigation plan to address potential impacts from mineral development on wildlife populations and/or habitat on a case-by-case basis.
4114	SD:1.1 SD:1.2	Use the following travel management criteria in PHMAs: ● During subsequent travel management planning, all routes within PHMAs would undergo a route evaluation to determine its purpose and need and the potential resource and/or user conflicts from motorized travel. Where resource and/or user conflicts outweigh the purpose and need for the route, the route would be considered for closure or considered for relocation outside of sensitive Greater Sage-Grouse habitat. ● During implementation-level travel planning, threats to Greater Sage-Grouse and their habitat would be considered when evaluating route designations and/or closures. ● During subsequent travel management planning, routes within PHMAs that do not have a purpose or need would be considered for closure. ● During subsequent travel management planning, routes within PHMAs that are duplicative parallel, or redundant would be considered for closure. ● During subsequent travel management planning, OHV timing limitations would be considered in important seasonal habitats where OHV use is a threat. ● During subsequent travel management planning, consider limiting snow machine travel to designated routes or consider seasonal closures in Greater Sage-Grouse wintering areas from November 1 through March 31. ● During subsequent travel management planning, routes in PHMAs not required for public access or recreation with a current administrative/agency purpose or need would be evaluated for administrative access only. ● During subsequent travel management planning, prioritize restoration of routes not designated in a Travel Management Plan within PHMAs. ● During subsequent travel management planning, consider using seed mixes or transplant techniques that will maintain or enhance Greater Sage-Grouse habitat when rehabilitating linear disturbances. ● During subsequent travel management planning, consider scheduling road maintenance to avoid disturbance during sensitive periods and times to the extent practicable. Use time of day limits (after 10:00 AM to 7:00 PM) to reduce impacts on Greater Sage-Grouse during breeding and nesting periods.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4115	SD:1.1 SD:1.2	The Greater Sage-Grouse adaptive management plan provides regulatory assurance that unintended negative impacts to Greater Sage-Grouse habitat will be addressed before consequences become severe or irreversible. Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts. See Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271) for more information on soft and hard triggers. Soft Triggers Response: Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. For population metrics, normal population trends are calculated as the 5-year running mean of annual population counts. BLM field offices, with the assistance of their respective land and RMP implementation groups, local WGFD offices, and local sage-grouse working groups will evaluate the metrics with the Adaptive Management Working Group on an annual basis. The purpose of these strategies is to address localized greater sage-grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold. Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short or long term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM) and the Adaptive Management Work Group will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or statewide level. Hard Trigger Response: Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect. Within the range of normal population variables (5-year running mean of annual population counts), hard triggers shall be determined to take effect when two of the three metrics exceeds 60 percent of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40 percent of normal variability for a 3 year time period within a 5-year range of analysis. A minimum of 3 consecutive years in a 5-year period is used to determine trends (i.e., years 1-2-3, years 2-3-4, years 3-4-5).

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
		Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions within the Biologically Significant Unit for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the Adaptive Management Work Group will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment). In making amendments to this plan, the BLM will coordinate with the USFWS as BLM continues to meet its objective of protecting, restoring, and enhancing Greater Sage-Grouse habitat by reducing, minimizing or eliminating threats to that habitat. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.
		Raptors
4116	BR:7.2 BR:7.6	Implement, where appropriate, conservation measures, terms and conditions, and appropriate BMPs and reasonable and prudent measures within existing state programmatic biological opinions for the bald eagle.
4117	BR:6.1 BR:10.1	Work with proponents to design powerlines following USFWS guidelines to protect raptors from electrocution and to reduce predation on other special status species. Work with ROW holders to retrofit existing lines.
4118	BR:6.1	To protect nesting raptors, apply a TLS on 83,940 acres to prohibit surface-disturbing and disruptive activities within: ● ¼ mile of active raptor nests and ½ mile of active golden eagle, bald eagle, northern goshawk, merlin, and prairie and peregrine falcon nests during specific species nesting period or until young birds have fledged (Map 3-17). See Appendix N, *Seasonal Raptor Stipulations for All Surface-Disturbing and Disruptive Activities* (p. 561) for species nesting periods. ● 1 mile of active ferruginous hawk nests from March 1 to July 31 or until young birds have fledged (Map 3-17). To protect the actual nest site, apply a year-round CSU stipulation within ¼ mile of all raptor nests (32,197 acres) (Map 3-17). Actual distances and dates will vary based on topography, species, season of use, and other pertinent factors.
		Migratory Birds
4119	BR:7.1-7.4 BR:10 BR:11.1	Avoid taking migratory birds through timing limitations, project design modifications, pre-disturbance surveys and buffers. Direct impacts to migratory bird species or their nests/eggs/young can often be avoided by requiring pre-disturbance clearance surveys or using seasonal timing windows and nesting buffers to avoid disturbance during occupancy periods and minimizing habitat loss. USFWS identifies migratory bird nesting periods between February 1 and August 31 for species protected by MBTA. Seasonal timing limitations should be adjusted to shorter periods to match the habitat, species and condition of the project site. Migratory bird mortalities can also be avoided by including or requiring designs that exclude migratory birds from facilities that are known to pose a preventable mortality risk and marking structures that have known collision risks.
4120	BR:7.1 BR:7.2	Implement conservation measures, terms and conditions, and appropriate BMPs and reasonable and prudent measures within existing state programmatic biological opinions for the mountain plover. Allow and stipulate, where feasible, vegetative treatments, invasive and nonnative pest species control, fuels management, and maintenance of existing facilities.
		Mammals

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4121	BR:7.1-7.4	Implement conservation measures, terms and conditions, and appropriate BMPs and reasonable and prudent measures within existing state programmatic biological opinions for the Canada lynx, gray wolf, and black-footed ferret.
4122	BR:7.1-7.4	Implement conservation measures, terms and conditions, BMPs, and reasonable and prudent measures within the existing state programmatic biological opinion for the grizzly bear and in accordance with the Interagency Grizzly Bear Conservation Strategy signed by the BLM in 2006.
4123	BR:7.1-7.4	If the USFWS and WGFD determine that large prairie dog colonies and/or complexes within the planning area are suitable for black-footed ferret reintroduction, apply an NSO restriction on these areas.
4124	BR:7.1-7.4	Implement, where appropriate, conservation measures, Biological Evaluations, and inter-agency coordination memorandums for all prairie dogs and prohibit prairie dog poisoning.
Fish		
4125	BR:7.1-7.6	Give priority to special status species fish over other fish species in planning and management.
4126	BR:7.3	Restore or reclaim fisheries habitat with present or potential special status species fish populations through upland management and hydrologic function enhancement actions on a priority basis consistent with other resource uses.
4127	BR:7.1-7.3 BR:7.6	On a priority basis, construct barriers to prevent nonnative fish from colonizing habitat occupied by native fish species. Remove barriers or construct fish passageways to enable native fish to occupy all suitable habitats.
4128	BR:7.1-7.3 BR:7.6	Prohibit surface-disturbing activities within 500 feet and avoid surface-disturbing activities within ¼ mile of perennial surface water and riparian/wetland areas except when their impacts can be mitigated to an acceptable level.
4129	BR:7.1-7.3 BR:7.6	Pursue coordination with WGFD and other stakeholders in restoring Yellowstone cutthroat trout to its historically occupied watersheds wherever feasible.
4130	BR:7.1-7.3 BR:7.6	Work with WGFD and other stakeholders to introduce special status fish species to waters outside of their historic range on a case-by-case basis.
Amphibians and Reptiles		
4131	BR:7.1-7.4	Stipulate and/or implement the appropriate management guidelines identified in *Habitat Management Guidelines for Amphibians and Reptiles of the Northwestern U.S. and Canada, PARC Technical Publication HMG-4* (Pilliod and Wind 2008), and similar future guidance for activities that have the potential to impact known or potential amphibian/reptile habitat.
4132	BR:7.1-7.4	When cleaning or removing sediment from wet reservoirs, where feasible, retain riparian vegetation such as cottonwoods, willows, cattails, sedges, and rushes for wildlife habitat values. Avoid reservoir work during amphibian mating and metamorphosis periods (April – July).
Plants		
4133	BR:8.2 BR:8.3 BR:8.5	Implement conservation measures, terms and conditions, and appropriate BMPs and reasonable and prudent measures within existing state programmatic biological opinions for the Ute ladies'-tresses.
4134	BR:8.1-8.3 BR:8.5	Avoid range improvement projects that may concentrate herbivory within ¼ mile of BLM special status plant species populations unless the project is determined to be beneficial or neutral to the plant species.
4135	BR:8.1-8.3 BR:8.5	On a case-by-case basis, allow placement of forage supplements after considering the location of BLM special status plant species.
4136	BR:8.1-8.3 BR:8.5	Review all federal actions and authorizations for potential impacts to BLM special status plant species. Implement avoidance, mitigation or compensation measures in coordination with surface owners on split-estate.

4000 BIOLOGICAL RESOURCES (BR) – Special Status Species		
Record #	**Goal/Obj.**	**Decisions**
4137	BR:8.2-8.4	Avoid aerial applications of herbicides within ½ mile of BLM special status plant species. Allow vehicle and hand application of herbicides.
4138	BR:8.5	Allow the application of fire suppression chemicals within ¼ mile of known/documented populations of BLM special status plant species with the consent of the authorized officer.

Table 3.14. 4000 BIOLOGICAL RESOURCES (BR) – Wild Horses

4000 BIOLOGICAL RESOURCES (BR) – Wild Horses		
Record #	**Goal/Obj.**	**Decisions**
		GOAL BR:11 Manage and maintain healthy wild horses and herds inside HMAs in a thriving natural ecological balance within the productive capacity of their habitat while preserving multiple use relationships. Objectives: **BR:11.1** Adjust and maintain wild horse numbers and HMAs to comply with federal policies. **BR:11.2** Maintain or enhance herd viability and genetic integrity. **BR:11.3** Provide opportunities for wild horse interpretation, scientific research, and viewing. **BR:11.4** Manage wild horses to comply with local planning documents to the greatest extent practicable.
4139	BR:11.1	The size of the Fifteenmile HMA (Map 3-18) will remain at 70,527 acres of BLM-administered land, out of the original 261,868 acres of BLM-administered land within the Fifteenmile HA.
4140	BR:11.1	The Sand Draw HA is 15,302 acres (total acres in planning area, including BLM-administered, BOR, state, and private lands). The Zimmerman Springs HA is 12,277 acres (total acres in planning area, including BLM-administered, BOR, state, and private lands). The Alkali Spring Creek HA is 5,183 acres (total acres in planning area, including BLM-administered, BOR, state, and private lands). These HAs (Map 3-18) will not be managed for wild horses.
4141	BR:11.1	Manage the Fifteenmile HMA for an initial appropriate management level of 70 to 160 wild horses, not counting foals, in an attempt to maintain a population of 100 adult wild horses adjusted as necessary based upon monitoring.
4142	BR:11.1	Base future adjustments to the appropriate management level on monitoring information and multiple use considerations through development of and/or revisions to HMA Plans. Update HMA plans to include Greater Sage-Grouse objectives.
4143	BR:11.1	Manage BLM-administered land within the Fifteenmile HMA to maintain or enhance conformance with the *Wyoming Standards for Healthy Rangelands*.
4144	BR:11.2	Employ selective removal criteria, in accordance with current national policies, during periodic gathers to increase desired genetic characteristics and avoid genetic depression.
4145	BR:11.1	Consider the use of natural and artificial population control measures as needed to maintain the wild horse populations within the established appropriate management level ranges.
4146	BR:11.1	Conduct all activities in compliance with relevant court orders and agreements as applicable to the management situation.
4147	BR:11.3	Do not actively promote the Fifteenmile HMA to the public and retain the current remote natural characteristics.
4148	BR:11.1	Apply seasonal restrictions from February 1 to July 31 to prevent foal abandonment or jeopardy of wild horse health and welfare, as appropriate, to surface-disturbing and disruptive activities in the Fifteenmile HMA.

4000 BIOLOGICAL RESOURCES (BR) – Wild Horses		
Record #	**Goal/Obj.**	**Decisions**
4149	BR:11.3	Avoid and discourage organized special recreation permits using domestic horses in the Fifteenmile HMA.
4150	BR:11.1	Avoid wild horse gathers 6-weeks before or 6-weeks after peak foaling season. To the extent possible, conduct wild horse gathers in the fall, after peak foaling has occurred and when temperatures are lower to reduce stress on the animals.

Table 3.15. 5000 HERITAGE AND VISUAL RESOURCES (HR) – Cultural Resources

5000 HERITAGE AND VISUAL RESOURCES (HR) – Cultural Resources		
Record #	**Goal/Obj.**	**Decisions**
		GOAL HR:1 Identify, preserve, and protect cultural resources and ensure that they are available for appropriate uses by present and future generations (FLPMA, Section 103(c), 201(a) and (c); National Historic Preservation Act, Section 110(a); Archeological Resources Protection Act, Section 14(a)). **Objectives:** **HR:1.1** Manage each type of cultural resource according to their proper use allocation, and monitor those resources' condition and use. **HR:1.2** Reduce imminent threats to cultural resources from natural or human-caused deterioration. **HR:1.3** Develop and maintain working relationships with those tribes having an interest in the area through regular meetings. Consult with tribal governments regarding proposed land uses having the potential to impact cultural resources identified as having tribal interests or concerns. Determine the types of resources of concern to various tribes, and take tribal views into consideration when making land use allocations or decisions. **HR:1.4** Develop activity plans for special areas or cultural resources identified as high risk for adverse impacts. **GOAL HR:2** Promote stewardship, conservation, and appreciation of cultural resources. **Objectives:** **HR:2.1** Maintain and enhance programs that provide opportunities for scientific research of cultural resources. **HR:2.2** Provide opportunities for public education, interpretation, and scientific research of cultural resources. Continue Project Archeology teaching courses, and continue to conduct public presentations for schools, community organizations, and the public. Provide for appropriate interpretation of sites of high public interest. Provide selected cultural resources for scientific research. **HR:2.3** Coordinate with other BLM programs preplanning measures to prevent potential conflicts before they occur. **GOAL HR:3** Protect important cultural resources while minimizing economic and social impacts to private landowners and local communities. **Objectives:** **HR:3.1** Consult and coordinate with affected landowners and local communities when devising protection measures for cultural resources. **HR:3.2** Consult and coordinate with affected landowners and local communities when devising recreational use plans for cultural resources. **HR:3.3** Preserve and stabilize important cultural resources, especially resources that face immediate threat or are in high public use areas.

5000 HERITAGE AND VISUAL RESOURCES (HR) – Cultural Resources		
Record #	**Goal/Obj.**	**Decisions**
5001	HR:1.2	Investigate all alleged violations of the Archaeological Resources Protection Act.
5002	HR:1.1	Categorize all cultural properties according to six use allocations: scientific use, conservation use, public use, traditional use, experimental use, and discharged from public use. Develop programmatic guidance for the first five categories of use that promote appropriate educational, recreational, and scientific interpretive use. Through the NEPA process, develop appropriate management prescriptions and monitoring plans to protect the identified use.
5003	HR:1.4	Complete emergency site stabilization and long-term protection projects on important sites as appropriate, including the Hanson Site and several rock art occurrences.
5004	HR:1.3	Continue existing relationships and develop new relationships with Native American tribes, in order to identify sites, areas, and resources important to them. Document and keep confidential sites, areas, and resources which are worthy of protection. Incorporate the information obtained from the tribes into the planning system, to identify conflicts in the earliest stages, and to avoid conflicts whenever possible. Manage identified areas of tribal importance to minimize disturbance to them and to ensure continued access.
5005	HR:1.3	Ensure that areas of importance to Native American Tribes are not transferred from federal ownership, physically modified, or affected by management actions in ways that restrict or deny access and/or use.
5006	HR:1.1-1.4 HR:2.3	Appropriately protect sites listed on the NRHP. Protect and manage sites that are eligible for or listed on the NRHP. Manage sites allocated for conservation, traditional use, or public use to avoid adverse effects; manage sites allocated for scientific or experimental use for their research potential. Protect and manage National Historic Landmarks through management of non-compatible uses.
5007	HR:1.4	Identify areas of significant prehistoric cultural resources, which are at high risk from development, as data becomes available.
5008	HR:1.1 HR:2.3	Pursuant to Section 106 of the National Historic Preservation Act of 1966 as amended, the National Programmatic Agreement (BLM, ACHP, and National Conference of SHPO 2012), and the State Protocol (BLM and Wyoming SHPO 2014), case-by-case reviews for specific undertakings require analysis and assessments of effects. Such analysis and assessment may reveal the need for additional restrictions beyond those specifically described in this RMP.
5009	HR:1.1-1.4 HR:2.1-2.3 HR:3.1-3.3	In cooperation with local government and stakeholders, consider the economic and social impacts of protecting cultural resources.
5010	HR:3.1	Coordinate with affected landowners, local communities, and agencies on any decisions that could affect their use or operations. Consistent with cultural resource protection goals and objectives, devise management actions that complement the objectives of private landowners or local communities.
5011	HR:1.3	Inventory potentially sensitive cultural places identified during Native American consultation independent of specific land-use actions. Apply tools (such as site avoidance and SCZ to protect sensitive cultural sites, as necessary.
5012	HR:1.4 HR:2.1-2.3 HR:3.1-3.3	Prepare Activity Plans for important sites as appropriate, including the several rock art occurrences, Ten Sleep Raid, Minick Sheep Camp Raid, and historic trails including the Bridger Trail, and the Fort Washakie to Red Lodge stage route.
5013	HR:1.1-1.4 HR:2.3	Manage the Legend Rock Petroglyph Site for public education in cooperation with the State of Wyoming. Work to acquire the private land portions of the Legend Rock Petroglyph Site from willing landowners, preferably through an exchange.
5014	HR:3.3	Apply an NSO restriction on the Legend Rock Petroglyph Site.

5000 HERITAGE AND VISUAL RESOURCES (HR) – Cultural Resources		
Record #	**Goal/Obj.**	**Decisions**
5015	HR:1.1-1.4 HR:2.1-2.3 HR:3.1-3.3	Surface-disturbing activities associated with the construction and use of sites and facilities are subject to appropriate mitigation developed through implementation of the National Programmatic Agreement (BLM, ACHP, and National Conference of SHPOs 2012) and the State Protocol (BLM and Wyoming SHPO 2014).
5016	HR:1.2	For the protection of important cultural sites, pursue a withdrawal from appropriation under the mining laws on a case-by-case basis.
5017	HR:2.2	Develop additional cultural resource interpretive sites making use of scenic overlooks, signs, and walking trails. Sites could include historic trails such as the Thermopolis to Meeteetse Trail, the Fort Washakie to Red Lodge Trail, the Mexican Pass Trail, and the Bridger Trail.
5018	HR:1.2 HR:3.3	Motorized vehicle use is limited to designated roads and trails in areas containing important cultural and paleontological resources.
5019	HR:1.1-1.4 HR:2.3	Manage rock art, as well as other prehistoric and historic archeological sites and districts associated with specific time periods or cultures, for scientific, public, and socio-cultural use. Manage general areas for research, with emphasis on interpreting former ecosystems. Preserve specific sites or areas for future study and use. Avoid surface-disturbing activities and protect the foreground of important cultural sites (see Glossary for definitions of these terms) up to 3 miles or the visual horizon, whichever is closer (the SCZ), where setting is an important aspect of the integrity for the site. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects.
5020	HR:1.2	Protect the foreground of important cultural sites (see Glossary for definitions of these terms) up to 3 miles or the visual horizon whichever is closer (the SCZ) where setting is an important aspect of the integrity for the site. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects.
5021	HR:1.2	Avoid surface-disturbing activities and protect the foreground of important cultural sites (see Glossary for definitions of these terms) up to 3 miles or the visual horizon, whichever is closer (the SCZ) where setting is an important aspect of the integrity for the site. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects.
5022	HR:1.1 HR:1.3	Avoid surface-disturbing activities and protect the foreground of important cultural sites (see Glossary for definitions of these terms) up to 3 miles or the visual horizon, whichever is closer (the SCZ) where setting is an important aspect of the integrity for the site. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects and manage these areas as renewable energy avoidance areas.
5023	HR:1.1-1.4 HR:2.3	Manage portions of the town of Gebo and adjacent coal mining areas on BLM-administered land for preservation and interpretation of cultural and historic values.
5024	HR:1.1-1.4 HR:2.3	Manage historic resources in oil and gas fields for scientific and public use. Include the following fields: Hamilton Dome, Grass Creek, Little Buffalo Basin, Walker Dome, Enos Creek, Golden Eagle, Gooseberry, Hidden Dome, Little Grass Creek, and Gebo. Include the installation of interpretive signs where fields can be safely viewed.
5025	HR:3.3	Motorized vehicle use is limited to existing roads and trails, except where other resources impose more restrictive conditions, on BLM-administered land along the Bighorn Slope, Bridger, Owl Creek, and Absaroka Foothills to manage (minimize issues such as looting) for cultural and paleontological resources.

Table 3.16. 5000 HERITAGE AND VISUAL RESOURCES (HR) – Paleontological Resources

5000 HERITAGE AND VISUAL RESOURCES (HR) – Paleontological Resources		
Record #	**Goal/Obj.**	**Decisions**
		GOAL HR:4 Manage, preserve, and protect paleontological resources and areas on BLM-administered land in the planning area. **Objectives:** **HR:4.1** Reduce threats to paleontological resources from natural or human-caused deterioration. **HR:4.2** Implement the PFYC as a standard part of review for all surface-disturbing activities in the planning area. **GOAL HR:5** Promote and enhance scientific knowledge of paleontological resources in the planning area. **Objectives:** **HR:5.1** Provide paleontological research opportunities for qualified scientists/academia on public lands within the planning area in conjunction with the Wyoming State Office Paleontologist, implementing the paleontology permitting program. **HR:5.2** Provide opportunities for research projects relative to paleoclimate studies in the planning area. **GOAL HR:6** Promote and implement stewardship, conservation, and appreciation of paleontological resources in the planning area. **Objectives:** **HR:6.1** Provide opportunities for the public to enjoy limited recreational collection of common invertebrate and plant fossils in portions of the planning area. **HR:6.2** Develop interpretive areas relative to paleontological resources.
5026	HR:4.1	Enlist assistance of permittees, consultants, and the interested public in preventing theft, trespass, and vandalism of paleontological resources.
5027	HR:4.2	Protect vertebrate and scientifically significant paleontological resources on BLM-administered land from proposed surface-disturbing activities that could damage or destroy these resources.
5028	HR:4.1	Avoid surface-disturbing activities in areas in the immediate vicinity of scientifically significant paleontological resource sites.
5029	HR:4	Avoid adverse effects on resource values to sites listed in National Park Service inventories of possible National Natural Landmarks.
5030	HR:5.1	Manage scientifically significant paleontological resources for scientific and public use.
5031	HR:4.1	Standard stipulations for paleontological resources permits include protection of cultural resources, human remains, and potential areas of concern to Native Americans.

5000 HERITAGE AND VISUAL RESOURCES (HR) – Paleontological Resources		
Record #	**Goal/Obj.**	**Decisions**
5032	HR:6.1	Provide opportunities for the public to enjoy limited recreational collection of common invertebrate and plant fossils in portions of the planning area.
5033	HR:6.1	Allow for personal casual-use collection of common invertebrate or plant fossils in reasonable quantities on BLM-administered land.
5034	HR:4.1	Close or restrict uses upon discovery of vertebrate or scientifically significant paleontological resources on a case-by-case basis.
5035	HR:5.1	Recommend application of Standard Terms and Conditions (see Glossary) for Paleontological Resources Excavation permits, issued by the State Office, to address: 1. Permit assignment 2. Approved timeframes for the permit 3. Costs 4. Access 5. Ownership of the paleontological resources 6. Removal of stakes, flagging, or other site identification materials 7. Citing in reports 8. Restoration of surface disturbance 9. Reports 10. Stipulations regarding cultural resources, human remains, or areas of religious or cultural concern to Native Americans
Law Enforcement/Protection		
5036	HR:4.1	Protect areas with vertebrate or other scientifically significant paleontological resources that are at risk for damage from illegal activities, including theft and vandalism.
5037	HR:4.2	Implement the PFYC system (Map 3-19) as a standard part of review for all surface-disturbing activities in the planning area (see Glossary).
5038	HR:4.1 HR:4.2	Require an on-the-ground survey prior to approval of a surface-disturbing activity or land-disposal action, and monitor surface-disturbing activities for all PFYC 4 and 5 formations. PFYC 3 formations may or may not require a survey prior to approval of these actions.
5039	HR:4.2	Attach standard Paleontological Resources Protection Stipulations (see Glossary) to authorizations for surface-disturbing activities in all areas, regardless of PFYC (i.e., 1 through 5).
5040	HR:4.1	Within 100 feet of a paleontological discovery, prohibit the resumption of activity until written authorization to proceed is issued by the authorized officer.
5041	HR:4.1	Allow surface-disturbing activities within at least 100 feet of the outer edge of the paleontological locality if the impacts can be adequately mitigated.
5042	HR:4.1	Retain BLM-administered land having vertebrate or other scientifically significant paleontological resources. Pursue opportunities to acquire private lands with vertebrate or other scientifically significant paleontological resources and values adjacent to public lands for protection, via exchange, purchase, or donation on a willing seller, willing buyer basis.
5043	HR:5.1 HR:5.2	Encourage paleontological research opportunities for qualified scientists/academia on BLM-administered land within the planning area in conjunction with the Wyoming State Office Paleontologist implementing the paleontology permitting program.

5000 HERITAGE AND VISUAL RESOURCES (HR) – Paleontological Resources		
Record #	**Goal/Obj.**	**Decisions**
		Education & Interpretation
5044	HR:6.1	Do not specifically identify areas for casual use collection of common invertebrate or plant fossils by the public.
5045	HR:6.2	Consider development of additional paleontological interpretive areas on a case-by-case basis.

Table 3.17. 5000 HERITAGE AND VISUAL RESOURCES (HR) – Visual Resource Management

5000 HERITAGE AND VISUAL RESOURCES (HR) – Visual Resource Management		
Record #	**Goal/Obj.**	**Decisions**
		GOAL HR:7 Maintain the overall scenic (visual) quality of BLM-administered land where consistent with resource values. **Objectives:** **HR:7.1** Class 1 Objective: Preserve the existing character of the landscape. Provide for natural ecological changes; however, preserving the landscape will not preclude very limited management activity. The level of change to the characteristic landscape will be very low and will not attract attention. **HR:7.2** Class 2 Objective: Retain the existing character of the landscape. The level of change to the characteristic landscape will be low. Management activities may be seen, but will not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. **HR:7.3** Class 3 Objective: Partially retain the existing character of the landscape. The level of change to the characteristic landscape will be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes will repeat the basic elements found in the predominant natural features of the characteristic landscape. **HR:7.4** Class 4 Objective: Provide for management activities which require major modification to the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt will be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.
5046	HR:7	Manage visual resources in accordance with VRM class objectives.
5047	HR:7	Meet the VRM objectives before authorizing land uses that may affect the visual character of the landscape.
5048	HR:7	Allow surface-disturbing activities in areas managed as VRM Class II only if the level of change to the landscape from the activities are low, and will not attract the attention of the casual observer, or the project can be mitigated to meet these objectives.
5049	HR:7.1	Manage WSAs under VRM Class I objectives.
5050	HR:7	VRM class allocations for BLM-administered surface lands (Map 3-20) are as follows: ● Class I – 116,434 acres (5.5%) ● Class II – 378,514 acres (18.0%) ● Class III – 484,714 acres (23.1%) ● Class IV – 1,125,414 acres (53.6%)
5051	HR:7.1-7.3	The project proponent must complete VRM contrast rating worksheets for all proposed actions in areas managed as VRM Classes I or II and for all projects with a high degree of visual impact.
5052	HR:7.1-7.3	The project proponent may be required to submit visual simulations on a case-by case-basis.

5000 HERITAGE AND VISUAL RESOURCES (HR) – Visual Resource Management		
Record #	**Goal/Obj.**	**Decisions**
5053	HR:7.1 HR:7.2	Work with willing landowners and partners to pursue conservation easements on lands adjacent to areas managed as VRM Classes I and II on a case-by-case basis.
5054	HR:7	Motorized vehicle use is not limited by VRM Classes.

Table 3.18. 6000 LAND RESOURCES (LR) – Lands and Realty

6000 LAND RESOURCES (LR) – Lands and Realty		
Record #	**Goal/Obj.**	**Decisions**
		GOAL LR:1 Manage the acquisition, disposal, withdrawal, and use of public lands to meet the needs of internal and external customers and to preserve important resource values. Objectives: **LR:1.1** Develop and maintain a land-ownership pattern that will provide access for managing and protecting public lands. **LR:1.2** Use appropriate actions such as disposal and acquisition to resolve issues related to intermixed land-ownership patterns and to acquire non-federal land having high resource/recreation value(s). **LR:1.3** Maintain availability of public lands to meet the habitation, trade, mineral development, recreation, and manufacturing needs of external customers and the general public. **LR:1.4** Utilize withdrawals to meet resource protection needs. **LR:1.5** Effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available.
6001	LR:1.1 LR:1.3	Consider land use authorizations (permits, leases, etc.) on a case-by-case basis consistent with other resource objectives. Do not classify, open, or make available any BLM-administered lands for agricultural leasing or agricultural entry under the Desert Land Act that meet one or more of the following criteria: unsuitable topography, presence of sensitive resources or resource conflicts, lack of water or access, small parcel size, or unsuitable soils.
6002	LR:1.4	When supported by RMP decisions to protect or manage other resources, pursue newly proposed BLM protective withdrawals and other agency withdrawal requests on a case-by-case basis.
6003	LR:1.3 LR:1.4	Retain all public water reserve withdrawals, except where no longer needed.
6004	LR:1.3 LR:1.4	Review of 1,076 acres of BLM-administered power withdrawals and classifications within the planning area.
6005	LR:1.3 LR:1.4	Continue existing classifications/segregations unless no longer needed.
6006	LR:1.1 LR:1.3	Manage lands and/or interests in lands acquired, and former withdrawn lands relinquished, in a manner consistent with adjacent or nearby BLM-administered land including surface and mineral estate management and pursuing withdrawals as appropriate. Subject to further NEPA analysis, where there is a reversionary interest, land may be disposed where the land is not suitable for return to the public domain.
6007	LR:1.1-1.3	Acquire private or state lands or interest in land from willing sellers on a case-by-case basis to consolidate land ownership and enhance the ability to manage important recreation opportunities and wildlife habitats such as migration corridors, crucial big game habitat, and riparian/wetland areas. Except for lands acquired using monies from the Westside Irrigation project conveyance described below, exchange is the preferred method of acquisition.

6000 LAND RESOURCES (LR) – Lands and Realty		
Record #	**Goal/Obj.**	**Decisions**
6008	LR:1.1-1.3	Convey all right, title, and interest (excluding federal mineral interest) in a parcel of public land located in Big Horn County and Washakie County, comprising approximately 16,122 acres, after completion of an environmental analysis under NEPA. Acreage may be added to or subtracted from the land to be conveyed as necessary to satisfy any mitigation requirements under NEPA consistent with resource considerations. Conveyance is to be made to the Westside Irrigation District at current appraised value. Lands within the boundary of the project which are not conveyed under the final decision for this transfer, will be retained in federal ownership, and not available for other disposal actions. Monies paid for Westside Irrigation project lands will be used to acquire lands, also within the Bighorn Basin, with priority purchases defined by BLM in cooperation with stakeholder agencies (WGFD and SHPO).
6009	LR:1.1 LR:1.2	Unauthorized use (trespass) on public land will be investigated and resolved on a priority basis. Resolution may include requiring the trespassing party to remove the trespass and restore public lands. Resolution for inadvertent trespass, and especially for long-term, unknowing trespass, may include the sale or exchange of lands at fair market value to the trespassing party, or by modified competitive sale. In the interim, until a decision is made, continued use may be authorized, if determined to be in the public interest. If disposal is selected to resolve the trespass, and the disposal method is to be a FLPMA sale, the parcel size would be the smallest affected parcel, and in accordance with policy.
6010	LR:1.3	Consider access easements (including acquisition and exchange) across private lands for access to BLM-administered land. See Appendix I, *Land Disposal and Acquisition* (p. 379) for a list of general areas of interest for easement acquisition based on recreation needs.
6011	LR:1.1-1.3	Consider classifications for Recreation and Public Purpose lease and conveyance of BLM-administered land on a case-by-case basis.
6012	LR:1	Retain classification of BLM-administered lands to the south and east of the Worland landfill.
6013	LR:1.1 LR:1.3	Consider R&PP Act applications from qualified applicants on a case-by-case basis. NOTE: The entire planning area is open to applications for conveyances to qualified applicants under the Recreation and Public Purpose Act.
Retention, Disposal, and Acquisition		

6000 LAND RESOURCES (LR) – Lands and Realty		
Record #	**Goal/Obj.**	**Decisions**
6014	LR:1.1 LR:1.2 LR:1.5	Retain approximately 2,048,905 acres of BLM-administered land. 52,080 acres of BLM-administered land are available for disposal by sale, exchange or other means (Map 3-21) (Appendix I, *Land Disposal and Acquisition* (p. 379)). Disposal can include none, some, or all of the mineral estate as allowed by 43 CFR 2720 and FLPMA Section 209(b)(1). A mineral potential report would determine if a surface estate disposal includes none, some, or all of the mineral estate. Lands classified as PHMAs and GHMAs for Greater Sage-Grouse will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will provide a net conservation gain to the Greater Sage-Grouse or (2) the agency can demonstrate that the disposal of the lands, including land exchanges, will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse. Consider exceptions where there is mixed ownership. Allow land exchanges for additional or more contiguous federal ownership patterns within PHMAs. For PHMAs with minority federal ownership, include an additional, effective mitigation agreement for any disposal of federal land. Consider pursuing a permanent conservation easement as a final preservation measure. For lands in GHMAs that are identified for disposal, the BLM will only dispose of such lands consistent with the goals and objectives of this plan, including, but not limited to, the land use plan objective to maintain or increase Greater Sage-Grouse abundance and distribution. Note: All land actions to acquire or dispose of lands would require a site specific analysis under NEPA.
		Land Use Classifications[1]
6015	LR:1.3	Consider DLE applications for unclassified lands on a case-by-case basis subject to DLE criteria (43 CFR §2520).
		Withdrawals
6016	LR:1.4	Withdraw 25,348 acres in the planning area (Map 3-4).

Table 3.19. 6000 LAND RESOURCES (LR) – Renewable Energy

6000 LAND RESOURCES (LR) – Renewable Energy		
Record #	**Goal/Obj.**	**Decisions**
		GOAL LR:2 Manage and provide opportunities for appropriate renewable energy facilities on public lands. **Objectives:** **LR:2.1** Make lands available for renewable energy development consistent with goals and objectives of other resources. **LR:2.2** In cooperation with project proponents, promote and enhance scientific knowledge of renewable energy resources in the planning area (Map 3-22).
6017	LR:2.1 LR:2.2	Programmatic policies and BMPs for wind-energy development are identified in the *Record of Decision for Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments* (BLM 2005b) and IM 2009-043.
6018	LR:2.1	Consider authorization of renewable energy projects consistent with the management of other resource values.
6019	LR:2.1	Initiate government-to-government consultation with the appropriate Tribal governments if it is determined that renewable energy development proposals might directly and substantially affect the Tribe.
6020	LR:2.1	The planning area is open to renewable energy development unless managed as renewable energy or ROW exclusion or avoidance areas to meet other resource objectives (Map 3-23). A total of 805,384 acres is open to renewable energy development. Manage a total of 1,047,113 acres as renewable energy avoidance areas. Manage a total of 248,381 acres as renewable energy exclusion areas. Geothermal resources are discussed in the minerals section.

Table 3.20. 6000 LAND RESOURCES (LR) – Rights-of-Way and Corridors

6000 LAND RESOURCES (LR) – Rights-of-Way and Corridors		
Record #	**Goal/Obj.**	**Decisions**
		GOAL LR:3 Manage public lands to meet transportation and ROW needs consistent with goals and objectives of other resources. **Objectives:** **LR:3.1** Provide opportunities to meet ROW demands while protecting important resources. **LR:3.2** Maintain and acquire appropriate ingress, egress, and access routes across state/private lands to BLM-administered land for recreational opportunities and management of public land resources. **LR:3.3** Maintain a transportation management system in cooperation with appropriate state and local agencies to meet public and resource management needs.
6021	LR:3.1	In accordance with the *Record of Decision for Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States* (DOE and BLM 2008), designate energy corridor 79-216 in the planning area.
6022	LR:3.1	Develop communication site management plans for all communication site concentration areas (Map 3-24).
6023	LR:3.1 LR:3.3	The preferred location of new ROW will be in or adjacent to existing disturbed areas associated with existing ROW or high traffic gravel roads or highways, where possible.
6024	LR:3.1	Avoid ROW authorizations in areas having a 25 percent or greater average slope (Map 3-25).
6025	LR:3.1	Provide reasonable access across BLM-administered land to private land, subject to other resource concerns.
6026	LR:3.1 LR:3.2	Acquire and maintain access easements to BLM-administered land across private/state lands from willing sellers on a case-by-case basis to meet other resource needs.
6027	LR:3.1	Authorize communication site facilities on a case-by-case basis. Encourage development within designated areas. Co-locate new communication sites where possible.

6000 LAND RESOURCES (LR) – Rights-of-Way and Corridors		
Record #	**Goal/Obj.**	**Decisions**
6028	LR:3.1	Designate ROW corridors as shown on Map 3-24. PHMAs are designated as avoidance areas for high voltage transmission line and pipeline ROWs. All authorizations in these areas must comply with the conservation measures outlined in this Approved RMP, including the RDFs and avoidance criteria presented in Appendix C, *Required Design Features and Best Management Practices* (p. 249).. Within PHMAs: **New Transmission Lines (greater than 115 kV):** Allow new transmission lines greater than 115 kV in PHMA only (1) when located within 0.5 miles or less of an existing 115 kV or greater transmission lines constructed prior to 2008; or (2) in designated RMP corridors authorized for aboveground transmission lines. Do not count transmission lines routed using one or more of the two criteria listed above against the DDCT 5 percent disturbance cap. Consider new transmission lines greater than 115 kV proposed outside of these areas where it can be demonstrated that declines in Greater Sage-Grouse populations could be avoided through project design and/or mitigation. These projects will be subject to the density and disturbance restrictions for PHMAs. Incorporate the *Framework for Sage-grouse Impact Analysis for Interstate Transmission Lines* (BLM 2012b) and other appropriate documents into the review of transmission line proposals, consistent with the three routing criteria described above. For new projects within PHMAs that may require future utility lines, including distribution and transmission lines or pipelines, include the proposed utility lines in their DDCT as part of the proposed disturbance. Count lines permitted, but not located in the above mentioned routes or a designated corridor, toward the 5 percent disturbance calculation (line distance is equal to the anticipated construction footprint or construction ROW width multiplied by length and includes all access roads, staging area, and other surface disturbance associated with construction outside of the construction ROW). **New Electric Distribution Lines (less than 115 kV):** Require burial of new electric distribution lines where economically feasible. If not economically feasible, distribution lines may be authorized when effectively designed/mitigated to protect Greater Sage-Grouse and when the authorized officer determines that overhead installation is the action alternative with the fewest adverse impacts while still meeting the project need. Consider agricultural and residential distribution lines to be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 mile from the lek perimeter with appropriate timing constraints and constructed to the latest APLIC standards. These ROW authorizations will be subject to approval by the State Director.

6000 LAND RESOURCES (LR) – Rights-of-Way and Corridors		
Record #	**Goal/Obj.**	**Decisions**
		Pipelines: Allow new pipelines through PHMAs: (1) within an RMP corridor currently authorized for that use or designated through future RMP amendments; or (2) constructed in or adjacent to existing utilities (buried and aboveground) or roads. Pipelines constructed in RMP corridors or adjacent to existing utilities or roads will require completion of a DDCT analysis for baseline data collection, but the project is not required to meet the threshold of 5 percent. However, within 6 months of the completion of construction, the project proponent will provide the authorized officer with as-built drawings so that the total disturbance within PHMAs can be calculated annually.
6029	LR:3.1	Manage 1,767,274 acres as ROW avoidance areas (Map 3-24). Manage PHMAs as ROW avoidance areas for new ROW or SUA permits (799,391 acres). Within PHMAs where new ROWs/SUAs are necessary, locate new ROWs/SUAs within designated RMP corridors or adjacent to existing ROWs/SUAs where technically feasible. Subject to valid existing rights, including non-federal land inholdings, locate new, required ROWs/SUAs adjacent to existing ROWs/SUAs or where impacts to Greater Sage-Grouse are minimized. Work with proponents to design ROW applications to protect Greater Sage-Grouse.
6030	LR:3.1	Manage 13,695 acres as ROW exclusion areas (Map 3-24).
6031	LR:3 LR:3.3	Consider night skies in evaluation of ROW applications and apply BMPs as appropriate.

Table 3.21. 6000 LAND RESOURCES (LR) – Comprehensive Travel and Transportation Management

6000 LAND RESOURCES (LR) – Comprehensive Travel and Transportation Management		
Record #	**Goal/Obj.**	**Decisions**
		GOAL LR:4 Utilize a comprehensive approach to travel planning and management to sustain and enhance use. **Objectives:** **LR:4.1** All BLM-administered lands will be classified as open, limited, or closed to motorized travel in consideration of other resource program goals and objectives, primary travelers, objectives for allowing travel in the area, setting (recreation, visual, archeological) characteristics that are to be maintained, and primary means of travel. **LR:4.2** Integrate concepts of habitat connectivity into OHV planning to minimize habitat fragmentation. **LR:4.3** Manage OHV use by type, season, intensity, distribution, and/or duration to minimize the impact on plant and wildlife habitats. If seasonal closures become appropriate to minimize adverse OHV impact(s) on public lands resources, strive to preserve public access by designating alternative routes. **GOAL LR:5** Manage the use of OHVs in partnership with other land-management agencies, local governments, communities, and stakeholders. **Objectives:** **LR:5.1** Pursue the acquisition of resources for implementing transportation and travel management. **LR:5.2** Coordinate public outreach efforts when implementing travel management decisions. **GOAL LR:6** Utilize adaptive trails and travel management to protect public land natural resources and settings, promote safety for all public land users, and minimize conflicts among OHV users and various other uses of public lands. **Objectives:** **LR:6.1** Promote responsible-use recreational opportunities and experiences, visitor access/safety, and resource conservation and education. **LR:6.2** Promote trail etiquette, environmental ethics, and a responsible-use stewardship ethic (e.g., tread lightly, leave no trace). **LR:6.3** Promote user safety and minimize user conflict.
6032	LR:4.1	Unless otherwise specified in other management actions, motorized vehicle use on BLM-administered land is limited to existing roads and trails on an interim basis until completion of travel management planning. Designation changes from “limited to existing roads and trails” to “limited to designated roads and trails” upon the completion of a travel management plan. Terms “interim existing roads and trails”, or “existing roads and trails” are used throughout the document to identify areas of low travel management planning priority. Interim existing roads and trails may be maintained for continued access until completion of a travel management plan.

6000 LAND RESOURCES (LR) – Comprehensive Travel and Transportation Management		
Record #	**Goal/Obj.**	**Decisions**
6033	LR:4	The following areas are closed to motorized vehicle use: Duck Swamp-Bridger Trail Environmental Education Area, the rifle range west of Worland, Salt Lick Trail, Gooseberry Badlands Interpretive Trail, Paint Rock Trail, Lone Tree Trail, and Canyon Creek Access Trail.
6034	LR:4	Route designation will be through site specific travel management planning, motorized vehicle use is limited to existing roads and trails unless and until route designations are implemented. Subsequent travel management plans will address maintenance of roads, ways, and trails on a site specific basis, in cooperation with stakeholders.
6035	LR:6	Motorized travel use is allowed throughout the planning area for emergency and administrative use, through other authorities, and maintenance and operations as authorized by permit on case-by-case basis.
6036	LR:4	Pedestrian and equestrian travel are not restricted, and use may occur on or off-roads or trails, except for very limited seasonal restrictions that are specifically defined elsewhere in this section, or specifically defined in subsequent travel management plans.
6037	LR:5	Implement the existing travel management plans within the following areas: ● Upper Nowood ● South Brokenback ● Renner (Upper and Lower) Wildlife Habitat Management Units ● Medicine Lodge Wildlife Habitat Management Units ● Paint Rock Area ● Cooperative Management Agreement between Bureau of Land Management, Worland District, LU Sheep Company, the Wyoming Game and Fish Department, and the Wyoming State Board of Land Commissioners (LU Management Agreement)
6038	LR:4 LR:5	Motorized vehicle use (including snowmobile use) is limited to designated roads and trails with a seasonal closure in the following areas: ● Medicine Lodge Wildlife Habitat Management Area (1,791 acres), with a seasonal closure currently December 1 – June 30 in accordance with the travel management plan. ● Upper Renner Wildlife Habitat Management Area (9,184 acres), with a seasonal closure currently December 1 – May 31 in accordance with the travel management plan. Seasonal closure dates may be adjusted to correspond to with big game hunting seasons.
6039	LR:4	Over-snow vehicles are subject to the same requirements and limitations as all other motorized vehicles until activity planning specifically addresses their use or unless precluded by other resource needs.

6000 LAND RESOURCES (LR) – Comprehensive Travel and Transportation Management		
Record #	**Goal/Obj.**	**Decisions**
6040	LR:6.3	Allow temporary closures to motorized vehicle use in areas that pose public health and safety risks, and/or where resource damage is imminent. In PHMAs and GHMAs, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use). Temporary closure or restriction orders under these authorities are enacted at the discretion of the authorized officer to resolve management conflicts and protect persons, property, and public lands and resources. Where an authorized officer determines that off-highway vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR 8341.2) A closure or restriction order should be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders should be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.
6041	LR:4.2 LR:4.3	Canada lynx analysis units are closed to motorized over-snow travel (Map 3-17).
6042	LR:4	Allow off-road motorized (OHV) and mechanized travel up to 300 feet from established roads in areas with limited travel designations to allow direct access for big game retrieval and dispersed campsites, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
Comprehensive Travel Management		
6043	LR:4	To protect resource values, approximately 59,146 acres of BLM-administered land in the planning area are closed to motorized vehicle use (Map 3-26). Areas closed to motorized vehicle use are defined in the corresponding special designation and resource alternatives, and also include: ● Owl Creek WSA, Sheep Mountain WSA, Red Butte WSA, and Bobcat Draw Badlands WSA ● Paint Rock ● Duck Swamp Environmental Education Area ● Spanish Point Karst ACEC
6044	LR:4	To protect resource values until each route is designated as open or closed in a corresponding travel management plan, motorized vehicle use is limited to existing roads and trails on approximately 1,301,277 acres of BLM-administered land in the planning area (Map 3-26).

6000 LAND RESOURCES (LR) – Comprehensive Travel and Transportation Management		
Record #	**Goal/Obj.**	**Decisions**
6045	LR:4 LR:5	To protect resource values, travel management to designate roads and trails is prioritized on approximately 731,225 acres of BLM-administered land in the planning area (Map 3-26). Areas where motorized vehicle use is limited to designated roads and trails are defined in the corresponding special designation and resource alternatives, and also include: ● Essential and recovery habitat for threatened and endangered species ● Areas over important caves or cave passages ● The West Slope of the Big Horn Mountains, Canyon Creek, Middle Fork of the Powder River, Absaroka Mountain Foothills, and Badlands SRMAs ● The Absaroka, Southern Bighorns, and Red Canyon Creek ERMAs ● The Cedar Mountain, Alkali Creek, Medicine Lodge, Trapper Creek, and Honeycombs WSAs ● Absaroka Front Management Area ● The Red Gulch Dinosaur Tracksite and Upper Owl Creek ACECs
6046	LR:4	Approximately 5,465 acres of BLM-administered land in the planning area are open to motorized vehicle use (after an activity plan is developed) (Map 3-26). Areas open to motorized vehicle use are: ● Worland OHV area (1,044 acres) ● Basin Gardens Play Area SRMA (4,421 acres) Additional Open OHV Areas may be pursued through R&PP leases or patent.
Over-Snow Travel		
6047	LR:4	Areas open to over-snow vehicle use are considered on a case-by-case basis.
6048	LR:4	Areas are closed to over-snow vehicle use on a case-by-case-basis.

Table 3.22. 6000 LAND RESOURCES (LR) – Recreation

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
		GOAL LR:7 Respond to distinct recreation customer demand by providing for customer realization of diverse activity, experience, and benefit opportunities. **Objectives:** **LR:7.1** Manage SRMAs for specific: visitors, affected community residents, local governments and private sector businesses, or other constituents and the communities or other places where these customers originate (recreation-tourism market). Manage ERMAs in order to address recreation use, demand or recreation and visitor services program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. **LR:7.2** Manage for outcome focused objectives, recreation setting character conditions, and the administrative, marketing, and monitoring framework. **LR:7.3** Manage subunits, also known as RMZs, within SRMAs using planning tools to establish distinct recreation niches. **LR:7.4** Manage areas outside of RMAs (i.e., not within an SRMA or ERMA) in a custodial manner so as to maintain public health and safety, use and user conflicts, and resource protection. **LR:7.5** Increase awareness understanding and a sense of stewardship in recreational activity participants so their conduct safeguards cultural and natural resources as defined by Wyoming Standards for Public Land and Health or reach specific objectives. **LR:7.6** Ensure visitors are not exposed to unhealthy or unsafe human created conditions. **LR:7.7** Manage the direct indirect and cumulative impacts so as to maintain a minimal level of user conflict. **LR:7.8** Provide public education regarding appropriate use of BLM-administered land. **LR:7.9** Coordinate with other programs to provide opportunities for public visitation, interpretation, education, and appreciation of natural and cultural resources. **LR:7.10** Provide and manage events with special recreation permits that eliminate or minimize resource impacts and user conflicts. **GOAL LR:8** Develop and maintain appropriate recreational facilities, balancing public demand, protection of public land resources, and fiscal responsibility. **Objective:** **LR:8.1** Manage and maintain recreation sites and facilities to acceptable operational standards.
6049	LR:7.1-7.3	Areas allocated as an SRMA or RMZ will continue to allow for all recreation activity types unless otherwise specified in this RMP or subsequent activity level plan (see Appendix J, *Recreation Management* (p. 391)).

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6050	LR:7.4-7.7	Utilize on the ground monitoring to ensure Bighorn Basin wide objectives 7.4-7.7 are achieved. Utilize the minimum necessary remedial actions to achieve the stated objective(s) in areas outside of RMAs.
6051	LR:7.4-7.7 LR:7.10	Issue SRPs to authorize commercial, competitive, and organized recreational use. Evaluate existing BLM outfitter/guide activities for needs to establish future commercial use limitations and related policies (see Appendix J, *Recreation Management* (p. 391)).
6052	LR:7.4-7.7	Manage recreational use to maintain or improve wetland habitat conditions along intensively used streams and reservoirs, consistent with the *Wyoming Standards for Healthy Rangelands* or other guidance (BLM 1997).
6053	LR:7.6 LR:7.7 LR:7.9	Continue a withdrawal from appropriation under the mining laws in the Castle Gardens Recreation Site.
6054	LR:7.4-7.7 LR:8	Design recreational sites, recreation facility development, and recreational access to avoid riparian habitat areas or develop and manage them in a manner that minimizes effects on riparian habitats. Construction of recreation facilities within PHMA must conform with the avoidance and minimization measures of this plan. If it is determined that these conservation measures are inadequate for the conservation of Greater Sage-Grouse, the BLM will require and ensure compensatory mitigation that provides a net conservation gain to the species.
6055	LR:8	Establish new fee sites on a case-by-case basis consistent with the provisions of the Recreation Enhancement Act and as necessary to support management and maintenance of developed sites and related amenities.
6056	LR:7.4-7.7 LR:8	Mitigate surface-disturbing and disruptive activities associated with the construction, maintenance, and use of roads, campgrounds, interpretive sites, and other recreational facilities, as described in Appendix F, *Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities* (p. 349).
6057	LR:7.4-7.7	Apply a 16-day campsite occupancy limit throughout the planning area unless modified by action through the authorized officer.
6058	LR:7.1-7.9	Retain recreational access in the Bighorn River HMP/RAMP area.
Developed Site Management		
6059	LR:7.4-7.7 LR:7.9	Apply an NSO restriction at the time of lease offering on the following: ● Areas within ¼ mile of campgrounds, trailheads, day use areas, and similar recreational sites. At the time of APD submittal, apply a CSU stipulation (site-specific relocation) if the lease does not contain an NSO restriction under other resource management on: ● Developed (and future) recreation sites, ● To mapped (and future) national/regional trails, ● Local system trails that connect communities.
6060	LR:7.3-7.7 LR:7.9	Allow surface-disturbing activities such as geophysical exploration, salable minerals exploration and development, and construction activities in recreational sites and trails on a case-by-case basis if the effects can be avoided, minimized and/or compensated based on site-specific analysis (including those related to development of recreation facilities or wildlife habitat). Recreational sites and trails include areas such as campgrounds, trailheads, day use areas, and river access sites.
6061	LR:7.7	Minimize noise and light pollution in sensitive areas (e.g., developed campgrounds, and river corridors) on a case-by-case basis using best available technology.

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6062	LR:7.4-7.7 LR:7.9	Establish interpretive areas (e.g., geological, wildlife, wild horses, cultural interpretive sites, etc.) making use of scenic overlooks, signs, facilities and amenities, and walking trails on a case-by-case basis.
6063	LR:7.4-7.7	Manage portions of the town of Gebo and adjacent coal mining areas on BLM-administered land for preservation and interpretation of cultural and historic values. Include development of an interpretive road loop or roadside turnout.
6064	LR:7.4-7.7 LR:8	Manage areas within ¼ mile of campgrounds, trailheads, day use areas, and similar recreational sites as ROW avoidance areas, except those related to recreation facility development and maintenance.
		Recreation and Visitor Services Overview (Additional management of SRMAs can be found in Appendix J, *Recreation Management* (p. 391))
6065	LR:7.1-7.3	Administratively recognize the following areas to be managed as SRMAs (Map 3-27; Appendix J, *Recreation Management* (p. 391)): ● **Absaroka Mountain Foothills SRMA** (42,615 acres) – Manage for an undeveloped recreation strategy for the protection of the recreation outcomes and setting prescriptions. ● **Badlands SRMA** (211,555 acres) – Manage for a community recreation strategy for the protection of the recreation outcomes and setting prescriptions. The Badlands SRMA will include the following RMZs: ○ **Tour de Badlands** (111,051 acres) ○ **Wild Badlands** (51,155 acres) ○ **Tatman Mountain** (49,348 acres) ● **Basin Gardens Play Area SRMA** (4,421 acres) – Manage for a community recreation strategy for the protection of the recreation outcomes and setting prescriptions. ● **Canyon Creek SRMA** (3,675 acres) – Manage for a community strategy for the protection of the recreation outcomes and setting prescriptions. ● **Horse Pasture SRMA** (144 acres) – Manage for a community recreation strategy for the protection of the recreation outcomes and setting prescriptions. ● **Middle Fork of the Powder River SRMA** (14,644 acres) – Manage for a destination recreation strategy for the protection of the recreation outcomes and setting prescriptions. ● **West Slope of the Bighorns SRMA** (190,943 acres) – Manage for a destination recreation strategy for the protection of the recreation outcomes and setting prescriptions. The West Slope of the Bighorns SRMA will include the following RMZs: ○ **Canyons RMZ** (141,603 acres) ○ **Brokenback/Logging Road RMZ** (49,325 acres) Additional Recreation Management prescriptions for each SRMA/RMZ appear in Appendix J, *Recreation Management* (p. 391).

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6066	LR:7.3-7.10	Identify the following areas as ERMAs: ● Absaroka ERMA (28,998 acres) ● Bighorn River ERMA (1,522 acres) ● Rattlesnake Ridge ERMA (7,982 acres) ● Red Canyon Creek ERMA (8,435 acres) ● Southern Bighorns ERMA (69,325 acres) BLM lands not managed under ERMA or SRMA objectives are not designated as RMAs and are managed under other multiple-use objectives.
		Absaroka Foothills Area
6067	LR:7.1-7.3	Manage 42,615 acres of the Absaroka foothills as the Absaroka Mountain Foothills SRMA with an undeveloped recreation strategy, and manage 28,998 acres as the Absaroka ERMA.
6068	LR:7.1-7.7	Manage the Absaroka Foothills SRMA for nonmotorized recreationists to engage in hiking, wildlife viewing, and nature viewing so that they realize a "moderate" level of the targeted experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391). Manage the Absaroka ERMA to address resource protection, use and user conflicts, and public health and safety. Manage for desired recreation setting character conditions, experiences, and benefits as listed in Appendix J, *Recreation Management* (p. 391).
6069	LR:7.1-7.7	Apply a CSU stipulation on the Absaroka Mountain Foothills SRMA and Absaroka ERMA.
6070	LR:7.1-7.7	Outside of the Absaroka Front Management Area, allow surface-disturbing activities in the Absaroka Mountain Foothills SRMA and Absaroka ERMA such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.
6071	LR:7.1-7.7	Manage the Absaroka Mountain Foothills SRMA and the Absaroka ERMA as ROW avoidance areas, except to accommodate a demonstrated need if the effects can be adequately mitigated. Evaluate existing ROW on a case-by-case-basis at renewal.
6072	LR:7.1-7.7	Manage the Absaroka Mountain Foothills SRMA and the Absaroka ERMA as renewable energy avoidance areas.
6073	LR:7.1-7.7	Manage the Absaroka Foothills SRMA as VRM Class II. Manage VRM in the Absaroka ERMA consistent with other resource objectives.
6074	LR:7.1-7.7	Motorized vehicle use is limited to designated roads and trails in the Absaroka Mountain Foothills SRMA and the Absaroka ERMA.
		Bighorn River Area
6075	LR:7.1-7.9	Manage the Bighorn River area as an ERMA to address use and user conflicts, public health and safety, resource protection, and to achieve the desired recreation setting character conditions as listed in Appendix J, *Recreation Management* (p. 391).
6076	LR:7.1-7.9 LR:8.1	Manage lands along the Bighorn River for habitat, river heath, and wildlife resources under the Bighorn River HMP/RAMP, including coordination with other land uses and resources. Include the Eggert Tract and any additional river tracts acquired over the life of the plan.
6077	LR:7.1-7.9	Apply an NSO restriction on lands within the Bighorn River ERMA.

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6078	LR:7.1-7.9	Manage the Bighorn River ERMA as ROW avoidance areas. Co-locate ROW whenever possible.
6079	LR:7.1-7.9	Allow surface-disturbing activities within the Bighorn River ERMA such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) on a case-by-case basis if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6080	LR:7.1-7.7	Manage the Bighorn River ERMA as renewable energy avoidance areas.
6081	LR:7.1-7.9	Manage VRM in the Bighorn River ERMA consistent with other resource objectives.
6082	LR:7.1-7.9	Manage motorized vehicle use in the Bighorn River ERMA consistent with underlying resources.
Badlands – Tour de Badlands Area		
6083	LR:7.1-7.7	Manage the Tour de Badlands area as an RMZ (111,051 acres) within the Badlands SRMA (211,555 acres).
6084	LR:7.1-7.7	Manage the Tour de Badlands RMZ for motorized recreationists to engage in motorized sightseeing, touring, wildlife viewing, and nature viewing so that affected community residents report realizing a “moderate” level of recreation experience and benefit from outcomes listed in Appendix J, *Recreation Management* (p. 391).
6085	LR:7.1-7.9	Develop one or more scenic interpretive sites and driving loops in the Tour de Badlands area within the Badlands SRMA to highlight the area's scenic values. These could involve the Fifteenmile Creek and Dorsey Creek roads and the Murphy Draw Road with overlooks at the Painted Canyon of Elk Creek and at Bobcat Draw. Provide for additional interpretive areas in the Tour de Badlands RMZ on a case-by-case basis.
6086	LR:7.1-7.7	Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.
6087	LR:7.1-7.7	Allow surface-disturbing activities in the Tour de Badlands RMZ such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat), on a case-by-case basis.
6088	LR:7.1-7.7	Manage the Tour de Badlands RMZ as a ROW avoidance area and co-locate ROWs whenever possible.
6089	LR:7.1-7.7	Manage the Tour de Badlands RMZ as a renewable energy avoidance area.
6090	LR:7.1-7.7	Manage VRM in the Tour de Badlands RMZ consistent with other resource objectives.
6091	LR:7.1-7.7	Motorized vehicle use is limited to designated roads and trails in the Tour de Badlands RMZ.
Badlands – Wild Badlands Area		
6092	LR:7.1-7.7	Manage the Wild Badlands area as an RMZ (51,155 acres) within the Badlands SRMA.
6093	LR:7.1-7.4	Manage the Wild Badlands RMZ exclusively for nonmotorized recreation opportunities, such as hiking, wildlife viewing, and nature viewing so that affected community residents report realizing a “moderate” level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391). See WSA section for management prescriptions.
Badlands – Tatman Mountain Area		
6094	LR:7.1-7.9	Manage the Tatman Mountain area as an RMZ (49,348 acres) within the Badlands SRMA.
6095	LR:7.1-7.9	Manage the Tatman Mountain RMZ for nonmotorized recreation opportunities such as hiking, mountain biking, and nature viewing so that recreationists report realizing a “moderate” level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391).
6096	LR:7.1-7.9	Emphasize opportunities for recreational access to the Tatman Mountain RMZ.
6097	LR:7.1-7.9	Acquire legal and physical access to maximize recreational opportunities in the Tatman Mountain RMZ.
6098	LR:7.1-7.9	Apply a CSU stipulation on the Tatman Mountain RMZ.

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6099	LR:7.1-7.9	Allow surface-disturbing activities in the Tatman Mountain RMZ, such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat), on a case-by-case basis.
6100	LR:7.1-7.9	Manage the Tatman Mountain RMZ as a ROW avoidance area.
6101	LR:7.1-7.9	Manage the Tatman Mountain RMZ as a renewable energy avoidance area.
6102	LR:7.1-7.9	Manage VRM in the Tatman Mountain RMZ consistent with other resource objectives.
6103	LR:7.1-7.9	Motorized vehicle use is limited to designated roads and trails in the Tatman Mountain RMZ.
West Slope of the Bighorns – Trapper Creek Area		
6104	LR:7.1-7.9	Manage the Trapper Creek area (3,324 acres) as part of the Canyons RMZ (141,603 acres) contained within the West Slope of the Bighorns SRMA (190,943 acres).
6105	LR:7.1-7.9	Manage the Trapper Creek area of the Canyons RMZ for motorized and non-motorized recreation opportunities such as hiking, wildlife viewing, nature viewing, and driving for pleasure so that recreationists report realizing a "moderate" level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391).
6106	LR:7.1-7.9	Consider the acquisition of legal and/or physical access for hunting, fishing, and camping. Consider acquiring areas such as Horse Mountain, Trapper Creek, and White Creek. Acquire legal public access for motorized and/or mechanized vehicle use in the Trapper Creek area of the Canyons RMZ.
6107	LR:7.1-7.9 LR:8.1	Develop facilities necessary for site protection and visitor management at the trailhead in the Trapper Creek area. Facilities may include fire rings, comfort stations, fencing, parking areas, road improvements and vehicle barriers, and trail and bridge repair, depending on the needs of the specific site. Develop the following facilities in the Trapper Creek area of the Canyons RMZ: ● Trailheads for White Creek, Black Mountain areas. ● Trailheads to accommodate mountain bike users. ● Pull-offs along the Red Gulch/Alkali Road National Back Country Byway. ● Designate motorized touring loops within the Trapper Creek area, as well as connecting with the Paint Rock area and the Bighorn National Forest, which may include new construction. ● Other sites will be determined on a case-by-case basis.
6108	LR:7.1-7.9	Apply a CSU stipulation on the Trapper Creek area of the Canyons RMZ.
6109	LR:7.1-7.9	Allow surface-disturbing activities in the Trapper Creek area of the Canyons RMZ such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6110	LR:7.1-7.7	Manage the Trapper Creek area of the Canyons RMZ as a ROW avoidance area.
6111	LR:7.1-7.7	Manage the Trapper Creek area of the Canyons RMZ as a renewable energy avoidance area.
6112	LR:7.1-7.7	Manage the Trapper Creek area of the Canyons RMZ area as VRM Classes I, II, and III.
6113	LR:7.1-7.7	Motorized vehicle use is limited to designated roads and trails in the Trapper Creek area of the Canyons RMZ.
West Slope of the Bighorns – Paint Rock Area		
6114	LR:7.1-7.9	Manage the Paint Rock area as part of the Canyons RMZ (141,603 acres) contained within the West Slope of the Bighorns SRMA.

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6115	LR:7.1-7.9	Manage the Paint Rock area of the Canyons RMZ for motorized and nonmotorized recreation opportunities to engage in hiking, wildlife viewing, nature viewing, and driving for pleasure so that recreationists report realizing a "moderate" level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391).
6116	LR:7.1-7.9	Emphasize opportunities for recreational access, especially in the Laddie Creek and Paint Rock Creek areas and pursue yearlong access to the Paint Rock canyon via the Paint Rock Trail in the Paint Rock area of the Canyons RMZ.
6117	LR:7.1-7.9 LR:8.1	Develop facilities to enhance recreation and visitor services for the following areas in the Paint Rock area of the Canyons RMZ: ● Trailheads/pull-offs along the Red Gulch/Alkali Road National Back Country Byway. ● Upgrade Access route and Trailhead at the Lone Tree Trail. ● Designate motorized touring loops connecting with the Bighorn National Forest, the Trapper Creek area, and the Brokenback/Logging Road RMZ, which may include new construction. ● Other sites, trailheads, and trails will be determined on a case-by-case basis.
6118	LR:7.1-7.9	Apply a CSU stipulation on the Paint Rock area of the Canyons RMZ.
6119	LR:7.1-7.9	Allow surface-disturbing activities in the Paint Rock area of the Canyons RMZ such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6120	LR:7.1-7.7	Manage the Paint Rock area of the Canyons RMZ as a ROW avoidance area.
6121	LR:7.1-7.7	Manage the Paint Rock area of the Canyons RMZ as a renewable energy avoidance area.
6122	LR:7.1-7.7	Manage the Paint Rock area of the Canyons RMZ as VRM Class I and II.
6123	LR:7.1-7.7	Motorized vehicle use is limited to designated roads and trails in the Paint Rock area of the Canyons RMZ.
West Slope of the Bighorns – Brokenback/Logging Road Area		
6124	LR:7.1-7.9	Manage Brokenback/Logging Road as an RMZ (49,325 acres) contained within the West Slope of the Bighorns SRMA.
6125	LR:7.1-7.9	Manage the Brokenback/Logging Road RMZ for motorized and nonmotorized recreation opportunities such as hiking, wildlife viewing, nature viewing, and driving for pleasure so that recreationists report realizing a "moderate" level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391).
6126	LR:7.1-7.9	Emphasize opportunities for recreational access, especially in the Laddie Creek areas of the Brokenback/Logging Road area. Include additional areas within the Brokenback/Logging Road RMZ to be determined on a case-by-case basis.
6127	LR:7.1-7.9	Consider the acquisition of legal and/or physical access for hunting, fishing, boating, and camping in the Brokenback/Logging Road area. Consider areas for acquisition including North and South Brokenback Creek. Consider the acquisition of the following areas in the Brokenback/Logging Road RMZ: ● Luman Creek Road. ● Military Creek Road. ● Dorn Draw Road. ● Other sites will be determined on a case-by-case basis.

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6128	LR:7.1-7.9 LR:8.1	Develop facilities to enhance recreation and visitor services for the following areas in the Brokenback/Logging Road RMZ: ● Trailheads for North and South Brokenback areas, Laddie Creek, and the Hyattville Logging Road. ● Pull-outs along the Hyattville Logging Road. ● Improve Salt Lick Trail and trailhead. ● Designate motorized touring loops within the Brokenback/Logging road RMZ as well as connecting with the Paint Rock area and the Bighorn National Forest, which may include new construction. ● Other sites, trailheads and trails will be determined on a case-by-case basis.
6129	LR:7.1-7.9	Apply a CSU stipulation on the Brokenback/Logging Road RMZ.
6130	LR:7.1-7.7	Allow surface-disturbing activities in the Brokenback/Logging Road RMZ such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6131	LR:7.1-7.7	Manage the Brokenback/Logging Road RMZ as a ROW avoidance area.
6132	LR:7.1-7.7	The Brokenback/Logging Road RMZ is closed to renewable energy development.
6133	LR:7.1-7.7	Manage the Brokenback/Logging Road RMZ as VRM Class II.
6134	LR:7.1-7.7	Motorized vehicle use is limited to designated roads and trails in the Brokenback/Logging Road RMZ.
West Slope of the Bighorns – South Bighorns Area		
6135	LR:7.1-7.9	Manage a portion of the South Bighorns area as the Middle Fork of the Powder River SRMA (14,644 acres) and a portion as the Southern Bighorns ERMA (69,325 acres).
6136	LR:7.1-7.9	Manage the Middle Fork of the Powder River SRMA for motorized and nonmotorized recreation opportunities such as hiking, wildlife viewing, nature viewing, hunting, fishing and driving for pleasure so that recreationists report realizing a "moderate" level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391). Manage the Southern Bighorns ERMA to address use and user conflicts, public health and safety, resource protection, and for desired recreation setting character conditions as listed in Appendix J, *Recreation Management* (p. 391).
6137	LR:7.1-7.9	Emphasize recreational access to maximize recreational opportunities in the Middle Fork of the Powder River SRMA and the Southern Bighorns ERMA.
6138	LR:7.1-7.9	Consider the acquisition of legal and/or physical access for hunting, fishing, boating, and camping in the South Bighorns area. Areas considered for acquisition include Otter Creek, Deep Creek, Little Canyon Creek, and public land tracts along the Nowood River area. Other sites will be determined on a case-by-case basis.
6139	LR:7.1-7.9 LR:8.1	In the Middle Fork of the Powder River SRMA and the Southern Bighorns ERMA, develop facilities necessary to maximize recreational opportunities in the following areas: ● Middle Fork camping area and the Cherry Creek stock driveway crossing of Deep Creek, and in Otter Creek. ● Trailheads for Middle Fork Campground, Mahogany Butte, Deep Creek, and Upper Nowood areas. ● Other areas determined on a case-by-case basis. Facilities may include fire rings, comfort stations, fencing, parking areas, road improvements and vehicle barriers, and trail and bridge repair, depending on the needs of the specific site.

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6140	LR:7.1-7.9	Apply a CSU stipulation on the Middle Fork of the Powder River SRMA. Review mineral leases on a case-by-case basis and apply mitigation through activity level planning in the Southern Bighorns ERMA.
6141	LR:7.1-7.7	Allow surface-disturbing activities in the Middle Fork of the Powder River SRMA such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) if the effects can be avoided, minimized and/or compensated based on site-specific analysis. Allow surface-disturbing activities in the Southern Bighorns ERMA.
6142	LR:7.1-7.7	Manage the Middle Fork of the Powder River SRMA and the Southern Bighorns ERMA as ROW avoidance areas.
6143	LR:7.1-7.7	The South Bighorns ERMA is open to renewable energy development.
6144	LR:7.1-7.7	Manage VRM in the Southern Bighorns ERMA consistent with other resource objectives. Manage the Middle Fork of the Powder River SRMA as VRM Class II.
6145	LR:7.1-7.7	Motorized vehicle use is limited to designated roads and trails in the Middle Fork of the Powder River SRMA and the Southern Bighorns ERMA.
Canyon Creek Area		
6146	LR:7.1-7.9	Manage Canyon Creek area as an SRMA (3,675 acres) with a community recreation strategy for the protection of the recreation outcomes and setting prescriptions (Map 3-27) (Appendix J, *Recreation Management* (p. 391)).
6147	LR:7.1-7.9	Manage the Canyon Creek SRMA for nonmotorized recreation opportunities such as hiking, fishing, nature viewing, and wildlife viewing so that recreationists report realizing a “moderate” level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391).
6148	LR:7.1-7.9	Emphasize opportunities for recreational access to the Canyon Creek SRMA.
6149	LR:7.1-7.9	Acquire legal and physical access to maximize recreational opportunities in the Canyon Creek SRMA.
6150	LR:7.1-7.9 LR:8.1	Develop facilities to enhance recreation and visitor services for the following areas in the Canyon Creek SRMA: ● Looping hiking trails in Canyon Creek and off of Smilo Road. ● Trailhead at Canyon Creek and Smilo Road. ● Other sites will be determined on a case-by-case basis.
6151	LR:7.1-7.9	Apply a CSU stipulation on the Canyon Creek SRMA.
6152	LR:7.1-7.7	Allow surface-disturbing activities in the Canyon Creek SRMA such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6153	LR:7.1-7.7	Manage the Canyon Creek SRMA as a ROW avoidance area.
6154	LR:7.1-7.7	Manage the Canyon Creek SRMA as a renewable energy avoidance area.
6155	LR:7.1-7.7	Manage the Canyon Creek SRMA as VRM Class II.
6156	LR:7.1-7.7	Motorized vehicle use is limited to designated roads and trails in the Canyon Creek SRMA.
Red Canyon Creek Area		
6157	LR:7.1-7.7	Manage the Red Canyon Creek as an ERMA (8,435 acres).

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
6158	LR:7.1-7.7	Manage the Red Canyon Creek ERMA to maximize back country recreational opportunities and to address use and user conflicts, public health and safety, resource protection, and for desired recreation setting character conditions as listed in Appendix J, *Recreation Management* (p. 391).
6159	LR:7.1-7.7 LR:8.1	Consider establishing trailheads in the Red Canyon Creek ERMA consistent with an overall objective to emphasize primitive recreation.
6160	LR:7.4-7.7	Review mineral leases on a case-by-case basis. The Red Canyon Creek ERMA is available for locatable mineral entry. Authorize mineral materials disposal and/or free use permits. Apply mitigation through activity level planning.
6161	LR:7.4-7.7	Allow surface-disturbing activities in the Red Canyon Creek ERMA.
6162	LR:7.4-7.7	Manage the Red Canyon Creek ERMA as a ROW avoidance area.
6163	LR:7.4-7.7	Manage the Red Canyon Creek ERMA as a renewable energy avoidance area.
6164	LR:7.4-7.7	Manage the Red Canyon Creek ERMA as VRM Classes II and III.
6165	LR:7.4-7.7	Motorized vehicle use is limited to designated roads and trails in the Red Canyon Creek ERMA.
Basin Gardens – Basin Gardens Play Area		
6166	LR:7.1-7.7	Manage the Basin Gardens Play Area as a SRMA (4,421 acres) with a community recreation strategy for the protection of the recreation outcomes and setting prescriptions (Map 3-27) (Appendix J, *Recreation Management* (p. 391)).
6167	LR:7.1-7.7	Manage the Basin Gardens Play Area SRMA for motorized recreation opportunities such as all-terrain vehicle, motorbike, mountain bike, and other motorized and mechanized hill climbing activities so that recreationists report realizing a "moderate" level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391).
6168	LR:7.1-7.7	Apply a CSU stipulation on the Basin Gardens Play Area SRMA.
6169	LR:7.1-7.7	Authorize mineral materials disposal in the Basin Gardens Play Area SRMA if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6170	LR:7.1-7.7	Allow surface-disturbing activities in the Basin Gardens Play Area SRMA such as geophysical exploration, and construction activities (including those related to development of recreation facilities or wildlife habitat) if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6171	LR:7.4-7.7	Manage the Basin Gardens Play Area SRMA as a ROW avoidance area.
6172	LR:7.4-7.7	Manage the Basin Gardens Play Area SRMA as a renewable energy avoidance area.
6173	LR:7.4-7.7	Manage VRM in the Basin Gardens Play Area SRMA consistent with other resource objectives.
6174	LR:7.4-7.7	4,421 acres within the Basin Gardens Play Area SRMA are open to motorized vehicle use.
Basin Gardens – Basin Gardens Area		
6175	LR:7.1-7.7	Manage the Basin Gardens area to address use and user conflicts, public health and safety, and resource protection.
6176	LR:7.1-7.7	Review mineral leases on a case-by-case basis and apply mitigation through activity level planning in the Basin Gardens area.
6177	LR:7.1-7.7	Authorize mineral materials disposal in the Basin Gardens area.
6178	LR:7.1-7.7	Allow surface-disturbing activities in the Basin Gardens area such as geophysical exploration and construction activities (including those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.
6179	LR:7.4-7.7	Manage the Basin Gardens area as a ROW avoidance area. Co-locate ROW authorizations whenever possible.
6180	LR:7.4-7.7	The Basin Gardens area is open to renewable energy development.
6181	LR:7.4-7.7	Manage VRM in the Basin Gardens area consistent with other resource objectives.
6182	LR:7.4-7.7	Motorized vehicle use is limited to existing roads and trails in the Basin Gardens area.

6000 LAND RESOURCES (LR) – Recreation		
Record #	**Goal/Obj.**	**Decisions**
		Horse Pasture Area
6183	LR:7.1-7.9	Manage the Horse Pasture area as an SRMA (144 acres) with a community recreation strategy for the protection of the recreation outcomes and setting prescriptions (Map 3-27) (Appendix J, *Recreation Management* (p. 391)).
6184	LR:7.1-7.9	Manage the Horse Pasture SRMA for nonmotorized recreation opportunities such as hiking, photography, hunting, and sightseeing so that recreationists report realizing a "moderate" level of recreation experience and benefit outcomes listed in Appendix J, *Recreation Management* (p. 391). Also manage for habitat and wildlife resources under the Bighorn River HMP/RAMP.
6185	LR:7.1-7.9 LR:8.1	Develop facilities to enhance recreation and visitor services in the Horse Pasture SRMA. Such facilities could include hiking trails, comfort stations, fencing, parking areas, road improvements and vehicle barriers, and trail and bridge repair.
6186	LR:7.1-7.9	Apply a CSU stipulation on the Horse Pasture SRMA.
6187	LR:7.1-7.7	Allow surface-disturbing activities in the Horse Pasture SRMA such as geophysical exploration, salable minerals exploration and development, and construction activities (including those related to development of recreation facilities or wildlife habitat) if the effects can be avoided, minimized and/or compensated based on site-specific analysis.
6188	LR:7.1-7.7	Manage the Horse Pasture SRMA as a ROW avoidance area.
6189	LR:7.1-7.7	Manage the Horse Pasture SRMA as a renewable energy avoidance area.
6190	LR:7.1-7.7	Manage VRM in the Horse Pasture SRMA consistent with other resource objectives.
6191	LR:7.1-7.7	Motorized vehicle use in the Horse Pasture SRMA is limited to designated roads and trails.
		Rattlesnake Ridge Area
6192	LR:7.1-7.7	Manage the Rattlesnake Ridge area as an ERMA (7,982 acres) to maximize recreational opportunities, and to address use and user conflicts, public health and safety, and resource protection.
6193	LR:7.1-7.7	Motorized vehicle use is limited to existing roads and trails in the Rattlesnake Ridge ERMA.

Table 3.23. 6000 LAND RESOURCES (LR) – Lands with Wilderness Characteristics

6000 LAND RESOURCES (LR) – Lands with Wilderness Characteristics		
Record #	**Goal/Obj.**	**Decisions**
		GOAL LR:9 Manage lands with wilderness characteristics as appropriate, considering manageability and the context of competing resource demands.
6194	LR:9.1	Response to wildland fires may vary from full suppression in areas where fire is undesirable, to monitoring fire behavior in areas where fire can be used as a management tool.
6195	LR:9.1	Allow permitted livestock grazing use consistent with other resource objectives and in agreement with the *Wyoming Standards for Healthy Rangelands* (BLM 1997).
6196	LR:9.1	Manage invasive species using Invasive Pest Management strategy.
6197	LR:9.1	No lands with wilderness characteristics are managed to maintain their wilderness characteristics, including naturalness, outstanding opportunities for solitude, and primitive and unconfined recreation. Manage lands with wilderness characteristics consistent with other resource objectives.

Table 3.24. 6000 LAND RESOURCES (LR) – Livestock Grazing Management

6000 LAND RESOURCES (LR) – Livestock Grazing Management		
Record #	**Goal/Obj.**	**Decisions**
		GOAL LR:10 Continue ecosystem benefits of herbivory by providing opportunities for livestock grazing to support and sustain local communities consistent with goals and objectives of other resources and overall land health. **Objectives:** **LR:10.1** Manage livestock grazing consistent with multiple-use needs, sustained yield, and the *Wyoming Standards for Healthy Rangelands* (BLM 1997). Adjust management based on assessments and evaluations. **LR:10.2** Provide for the establishment of voluntary reserve common allotments as opportunities arise within the planning area to facilitate rangeland restoration, recovery, and management objectives (in accordance with existing policy, WO IM 2013-184). **LR:10.3** Manage levels of livestock use in a manner that strives to maintain or restore permitted use based on forage availability consistent with multiple use.
6198	LR:10.1 LR:10.3	In cooperation, consultation, and coordination with permittees/lessees, cooperators, and interested public, develop and implement appropriate livestock grazing management actions to enhance land health, improve forage for livestock, and meet other multiple use objectives by using the *Wyoming Guidelines for Livestock Grazing Management*, other appropriate BMPs (see Appendix C, *Required Design Features and Best Management Practices* (p. 249)), and development of appropriate range improvements. The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMAs. In setting workload priorities, precedence will be given to existing permits/leases in areas not meeting Land Health Standards, with focus on allotments containing riparian areas or wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., wildfire) and legal obligations. The BLM will collaborate with appropriate federal agencies, and the State of Wyoming as contemplated under Governor EO 2013–3 (Wyoming Office of the Governor 2013), to 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site-specific actions to achieve Greater Sage-Grouse conservation objectives within the framework.
6199	LR:10.1 LR:10.3	AMPs remain in effect or are revised as necessary.
6200	LR:10.1	Retain designated stock driveway withdrawals (59,155 acres) and easements, except where no longer needed or provide comparable alternate access and routes. Other land uses within stock driveways will be considered on a case-by-case basis, so long as the proposed use will not interfere with the purpose for the withdrawal. Permit other livestock trailing on a case-by-case basis.
6201	LR:10.1	Maintain current allotment categories shown on Map 3-28 (M, I, and C; see Glossary). Throughout the life of the plan, re-categorize allotments based on assessments and evaluations.

6000 LAND RESOURCES (LR) – Livestock Grazing Management		
Record #	**Goal/Obj.**	**Decisions**
6202	LR:10.1	Utilize a rangeland health assessment, resource monitoring, or analysis to determine if livestock grazing adjustments in amounts, kinds, or season are necessary. The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMAs will include specific management thresholds based on Greater Sage-Grouse Habitat Objectives Table (Table 2.7, "Greater Sage-Grouse Seasonal Habitat Objectives" (p. 22)) and Land Health Standards (43 CFR 4180.2) and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis. Greater Sage-Grouse Habitat Objectives Table (Table 2.7, "Greater Sage-Grouse Seasonal Habitat Objectives" (p. 22)), Land Health Standards (43 CFR 4180.2) and ecological site potential, and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.
6203	LR:10.1 LR:10.3	Forage supplements will be certified weed free and safe/compatible for domestic sheep, wildlife and wild horses based on allotment specific situations.
6204	LR:10.1	Approximately 1,444 acres along the Bighorn River remain closed to livestock grazing, unless grazing is used for specific vegetation management objectives such as habitat improvement or the eradication of invasive weeds (tracts listed in Big Horn River HMP/RAMP and the Eggert Tract).
6205	LR:10.1	Vary the intensity of livestock grazing monitoring, with higher priority given to "I" category allotments and those allotments not meeting land health standards due to livestock grazing.
6206	LR:10.1-10.3	The planning area is open to livestock grazing except in areas specifically closed to grazing, such as: ● Bighorn River tracts (1,444 acres) ● Campgrounds (273 acres) ● Exclosures (113 acres) Manage livestock grazing to support other resource objectives and allow livestock grazing in areas closed to grazing as a tool to maintain or improve resource conditions. Mitigate new resource uses to minimize or avoid conflicts with livestock grazing where appropriate.
6207	LR:10.1 LR:10.3	Apportion additional sustained yield forage, based on monitoring, to satisfy suspended permitted use of permittees/lessees in the allotment and to meet multiple-use objectives where the forage is available.
6208	LR:10.1-10.3	On a case-by-case basis, allow issuance of permits/leases for livestock grazing for parcels that are not included in a grazing allotment. Where such permits/leases are not issued, allocate forage on such parcels to meet other multiple-use objectives.
6209	LR:10.5	Establish and manage future reserve common allotments on abandoned allotments on a case-by-case basis and attempt to utilize each allotment at least every five years. At the time a permittee or lessee voluntarily relinquishes or abandons a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR 4110.2–3.
6210	LR:10.1 LR:10.3	Prohibit the placement of salt, mineral, or forage supplements within ¼ mile of water, wetlands, riparian areas, reclaimed or reforested areas, or as determined by the authorized officer.

6000 LAND RESOURCES (LR) – Livestock Grazing Management		
Record #	**Goal/Obj.**	**Decisions**
6211	LR:10.1-10.3	In cooperation with permittees and the interested public, develop and implement AMPs or grazing management agreements as necessary to meet multiple use objectives.
6212	LR:10.1-10.3	Design range improvement projects, including vegetation treatments, to meet multiple-use objectives, mitigate impacts to other resource values, and meet allotment management objectives.
6213	LR:10.1 LR:10.3	Allow livestock use of produced water, meeting applicable standards on a case-by-case basis.
6214	LR:10.1	Allotments within PHMAs, focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits (Appendix O, *Livestock Grazing* (p. 563)). Field checks could include monitoring for actual use, utilization, and use supervision.

Table 3.25. 7000 SPECIAL DESIGNATIONS (SD) – Areas of Critical Environmental Concern (ACECs)

7000 SPECIAL DESIGNATIONS (SD) – Areas of Critical Environmental Concern (ACECs)		
Record #	**Goal/Obj.**	**Decisions**
		GOAL SD:1 Protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or process, or to protect life and safety from natural hazards. **Objectives:** **SD:1.1** Utilize special designations to meet resource protection needs within appropriate geographical areas. **SD:1.2** Provide for appropriate interpretation of sites of high public interest.
7001	SD:1.1 SD:1.2	A plan of operations for all locatable mineral exploration (except casual use) and development on mining claims is required in ACECs.
7002	SD:1.1 SD:1.2	Allow permitted livestock grazing use, unless otherwise prohibited, in agreement with the *Wyoming Standards for Healthy Rangelands* (BLM 1997).
Big Cedar Ridge ACEC		
7003	SD:1.1 SD:1.2	Manage the Big Cedar Ridge ACEC (Map 3-30; 264 acres).
7004	SD:1.1 SD:1.2	Allow the use of hand tools in the Big Cedar Ridge ACEC to collect plant fossils for research and casual use in the fossil concentration areas. Mechanized collection may be approved on a case-by-case basis.
7005	SD:1.1 SD:1.2	Do not require site-specific surveys for cultural and historic resources for casual use collection of plant fossils in the Big Cedar Ridge ACEC.
7006	SD:1.1 SD:1.2	The Big Cedar Ridge ACEC is open to mineral leasing.
7007	SD:1.1 SD:1.2	Apply an NSO in the Big Cedar Ridge ACEC.
7008	SD:1.1 SD:1.2	The Big Cedar Ridge ACEC is closed to geophysical exploration.
7009	SD:1.1 SD:1.2	Manage the Big Cedar Ridge ACEC as a ROW exclusion area..
7010	SD:1.1 SD:1.2	Motorized vehicle use is limited to existing roads and trails in the Big Cedar Ridge ACEC.
7011	SD:1.1 SD:1.2	The Big Cedar Ridge ACEC is open to consideration for leasing of geothermal resources; prohibit surface-disturbing activities associated with geothermal exploration and development.
7012	SD:1.1 SD:1.2	Pursue a withdrawal from appropriation under the mining laws for the Big Cedar Ridge ACEC.
7013	SD:1.1 SD:1.2	The ACEC is closed to mineral materials disposal and related exploration and development activities.
7014	SD:1.1 SD:1.2	Encourage and expand public education opportunities in the Big Cedar Ridge area. Work with museums in highlighting paleontological resources from the area.

7000 SPECIAL DESIGNATIONS (SD) – Areas of Critical Environmental Concern (ACECs)		
Record #	**Goal/Obj.**	**Decisions**
		Red Gulch Dinosaur Tracksite ACEC
7015	SD:1.1 SD:1.2	Manage the Red Gulch Dinosaur Tracksite ACEC (Map 3-30; 1,798 acres).
7016	SD:1.1 SD:1.2	Motorized vehicle use is limited to designated roads and trails in the Red Gulch Dinosaur Tracksite ACEC.
7017	SD:1.1 SD:1.2	Prohibit surface-disturbing activities within the Red Gulch Dinosaur Tracksite ACEC, except the construction of roads, trails, interpretive signs, and other facilities to enhance public education and recreation, and activities allowed under a paleontological resources use permit.
7018	SD:1.1 SD:1.2	Require all scientific and educational researchers studying the dinosaur tracks or working in that geologic horizon in the Red Gulch Dinosaur Tracksite ACEC to obtain a paleontological resources use permit.
7019	SD:1.1 SD:1.2	Prohibit the use of heavy equipment to construct fire lines and the use of chemical and dye retardants in the Red Gulch Dinosaur Tracksite ACEC.
7020	SD:1.1 SD:1.2	Close the interpretive area of the Red Gulch Dinosaur Tracksite ACEC to livestock grazing.
7021	SD:1.1 SD:1.2	Apply an NSO restriction for mineral leasing, exploration, and development on BLM-administered lands in the Sundance Formation of the Red Gulch Dinosaur Tracksite ACEC.
7022	SD:1.1 SD:1.2	Pursue a withdrawal from appropriation under the mining laws for the Red Gulch Dinosaur Tracksite ACEC.
		Spanish Point Karst ACEC
7023	SD:1.1 SD:1.2	Manage the Spanish Point Karst ACEC (Map 3-30; 6,298 acres).
7024	SD:1.1 SD:1.2	Manage basal vegetative cover in the Spanish Point Karst ACEC to maximize (or maintain) ground cover in good or better ecological condition, commensurate with the potential of the ecological site.
7025	SD:1.1 SD:1.2	Pursue a withdrawal from appropriation under the mining laws for the Spanish Point Karst ACEC. The withdrawal will involve the federal mineral estate under private surface and under federal surface administered by the USFS and the BLM.
7026	SD:1.1 SD:1.2	Pursue ACEC Agreements for the cooperative management of surface activities in watersheds on USFS-administered and private lands within and adjacent to the Spanish Point Karst ACEC. To the extent possible, maintain compatible management prescriptions for these lands and those administered by the BLM.
7027	SD:1.1 SD:1.2	The Spanish Point Karst ACEC is closed to oil and gas leasing.
7028	SD:1.1 SD:1.2	The Spanish Point Karst ACEC is closed to geophysical exploration.
7029	SD:1.1 SD:1.2	Manage the Spanish Point Karst ACEC as a ROW avoidance area.
		Upper Owl Creek ACEC
7030	SD:1.1 SD:1.2	Manage the Upper Owl Creek ACEC (Map 3-30; 13,758 acres).
7031	SD:1.1 SD:1.2	Motorized vehicle use is limited to designated roads and trails in the Upper Owl Creek ACEC.

7000 SPECIAL DESIGNATIONS (SD) – Areas of Critical Environmental Concern (ACECs)		
Record #	**Goal/Obj.**	**Decisions**
7032	SD:1.1 SD:1.2	Limit or prohibit surface-disturbing activities in the Upper Owl Creek ACEC to protect fragile soils, alpine tundra, important wildlife habitat, and scenic values.
7033	SD:1.1 SD:1.2	Pursue withdrawals from appropriation under the mining laws for portions of the ACEC on a case-by-case basis.
7034	SD:1.1 SD:1.2	Require a detailed activity plan before approval of any proposal for major surface-disturbing activity in the Upper Owl Creek ACEC.
7035	SD:1.1 SD:1.2	Manage the Upper Owl Creek ACEC as a ROW avoidance area.
7036	SD:1.1 SD:1.2	Coordinate with local stakeholders in landscape management.
7037	SD:1.1 SD:1.2	The Upper Owl Creek ACEC is closed to oil and gas leasing.

Table 3.26. 7000 SPECIAL DESIGNATIONS (SD) – National Back Country Byways

7000 SPECIAL DESIGNATIONS (SD) – National Back Country Byways		
Record #	**Goal/Obj.**	**Decisions**
		GOAL SD:2 Manage National Back Country Byways to enhance opportunities for the public to see and enjoy public lands. **Objectives:** **SD:2.1** Promote the increased awareness of the historical and cultural values and facilitate a sense of stewardship within the Red Gulch/Alkali Road National Back Country Byway. **SD:2.2** Where appropriate, identify scenic or back country byways and where necessary develop management prescriptions to maintain resource values. **SD:2.3** Through cooperative relationships with volunteer groups, landowners, other agencies, and other interested stakeholders, showcase landscapes, their scenic qualities, multiple uses, and unique character through interpretation.
7038	SD:2	Continue the existing Red Gulch/Alkali Road National Back Country Byway designation. Manage cultural and environmental interpretation and education along the byway under the *Red Gulch/Alkali National Back Country Byway Interpretive Master Plan* (BLM 1994).
7039	SD:2.1 SD:2.3	Develop educational materials and facilities to enhance the knowledge of resources and the unique character of the Red Gulch/Alkali Road National Back Country Byway.
7040	SD:2.2	Consider the designation of new Back Country Byways on a case-by-case basis in cooperation with stakeholders.
7041	SD:2.2 SD:2.3	Consider the development of interpretive facilities (including interpretive pull-outs, parking areas, trailheads, etc.) and public interpretive and educational brochures displaying the multiple users on BLM-administered public lands; the geologic, scenic, and cultural values, and the unique character of newly designated Back Country Byways.

Table 3.27. 7000 SPECIAL DESIGNATIONS (SD) – Historic Trails

7000 SPECIAL DESIGNATIONS (SD) – Regionally Important Prehistoric and Historic Trails		
Record #	**Goal/Obj.**	**Decisions**
		GOAL SD:3 Manage Historic Trails for long-term heritage and educational values and to enhance the public experience. **Objectives:** **SD:3.1** Maintain compatible recreational use with historic trail values. **SD:3.2** Maintain setting for those contributing trail segments where setting is an aspect of integrity by utilizing viewshed management tools. **GOAL SD:4** Enhance public experience through interpretive facilities and support of heritage tourism. **Objectives:** **SD:4.1** Sites associated with historic trails will be interpreted and developed as needed. **SD:4.2** Maximize partnership and cooperative management opportunities (e.g., cooperate with private landowners to install trail markers, provide public access, etc.).
7042	SD:3.1 SD:3.2 SD:4.1 SD:4.2	Avoid surface-disturbing activities and protect the foreground of Historic Trails (defined in Glossary) up to 2 miles or the visual horizon within contributing portions of the trail whichever is closer (the SCZ) where setting is an important aspect of the integrity for the trail. The 2-mile buffer would also apply to areas unevaluated until it is determined that setting is not an important aspect of the integrity of the trail. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects, except within designated utility corridors.
7043	SD:3.1 SD:3.2 SD:4.1 SD:4.2	Protect the foreground of Historic Trails (defined in Glossary) up to 2 miles or the visual horizon within contributing portions of the trail whichever is closer (the SCZ) where setting is an important aspect of the integrity for the trail. The 2-mile buffer would also apply to areas unevaluated until it is determined that setting is not an important aspect of the integrity of the trail. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects.
7044	SD:3.1 SD:3.2 SD:4.1 SD:4.2	Avoid surface-disturbing activities and protect the foreground of Historic Trails (defined in Glossary) up to 2 miles or the visual horizon within contributing portions of the trail whichever is closer (the SCZ) where setting is an important aspect of the integrity for the trail. The 2-mile buffer would also apply to areas unevaluated until it is determined that setting is not an important aspect of the integrity of the trail. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects.
7045	SD:3.1 SD:3.2 SD:4.1 SD:4.2	Motorized vehicle use is managed consistent with other resource objectives (Map 3-26).

Table 3.28. 7000 SPECIAL DESIGNATIONS (SD) – Wild and Scenic Rivers

7000 SPECIAL DESIGNATIONS (SD) – Wild and Scenic Rivers		
Record #	**Goal/Obj.**	**Decisions**
		GOAL SD:5 Protect the free-flowing condition, water quality, tentative classification, and any outstanding remarkable values of suitable river segments until Congress designates the river or releases it for other uses. **Objective:** **SD:5.1** Protect outstanding remarkable values of eligible and suitable WSR segments.
7046	SD:5.1	Manage all WSR-eligible waterways as unsuitable for inclusion in the NWSRS, and release these areas to other uses. Manage BLM-administered lands within these areas consistent with other resource objectives.

Table 3.29. 7000 SPECIAL DESIGNATIONS (SD) – Wilderness Study Areas

7000 SPECIAL DESIGNATIONS (SD) – Wilderness Study Areas		
Record #	**Goal/Obj.**	**Decisions**
		GOAL SD:6 Manage WSAs to maintain their suitability as wilderness. **Objective:** **SD:6.1** Areas managed as WSAs will maintain a high degree of naturalness, outstanding opportunities for solitude, outstanding opportunities for primitive and unconfined recreation.
7047	SD:6	Manage all WSAs under the guidance of BLM Manual 6330, *Management of BLM Wilderness Study Areas* (BLM 2012a), to maintain the non-impairment standard.
7048	SD:6	The following WSAs (Map 3-31) are managed under BLM Manual 6330: ● Alkali Creek (9,475 acres) ● Cedar Mountain (20,425 acres) ● Honeycombs (20,156 acres) ● Medicine Lodge (7,181 acres) ● Trapper Creek (7,475 acres) ● Owl Creek (668 acres) ● Sheep Mountain (23,256 acres) ● Red Butte (10,805 acres) ● Bobcat Draw Badlands (16,969 acres)
7049	SD:6	Manage all WSAs as VRM Class I.
7050	SD:6	Manage WSAs as ROW avoidance areas, as detailed in BLM Manual 6330, Management of Wilderness Study Area.
7051	SD:6	WSAs are closed to renewable energy development.
7052	SD:6	Manage all mineral activities in WSAs in accordance with BLM Manual 6330.
7053	SD:6	WSAs are closed to mineral and geothermal leasing.
7054	SD:6	WSAs are closed to mineral materials disposal.
7055	SD:6	WSAs that are released by Congress from wilderness study will no longer be subject to BLM Manual 6330 and will be managed under general BLM management authorities found in FLPMA (43 U.S.C. 1701 et seq.) and associated regulations and policies, in accordance with the adjacent BLM-administered lands, consistent with other resource objectives.
7056	SD:6	Motorized vehicle use is limited to designated roads and trails within the Cedar Mountain and Honeycombs WSAs, which may include the routes inventoried during the initial assessment.
7057	SD:6	Motorized vehicle use is limited to designated roads and trails in the Trapper Creek, Medicine Lodge, and Alkali Creek WSAs, which may include the routes inventoried during the initial assessment.
7058	SD:6	The Owl Creek, Sheep Mountain, Red Butte, and Bobcat Draw Badlands WSAs are closed to motorized vehicle use, in accordance with their respective travel management plans.
7059	SD:6	Acquire inholdings and/or lands or interest in lands within WSA boundaries in cooperation with willing landowners. Manage acquired inholdings to preserve their wilderness characteristics.

Table 3.30. 8000 SOCIOECONOMIC RESOURCES (SR) – Social and Economic

8000 SOCIOECONOMIC RESOURCES (SR) – Social and Economic		
Record #	**Goal/Obj.**	**Decisions**
		GOAL SR:1 Provide opportunities for economic and social sustainability at the national, regional, and local level. Ensure local and regional economic development and local land use plans are considered. **Objectives:** **SR:1.1** Consider and address the economic impact of BLM decisions on the sectors affected by public land management decisions. Also, coordinate and address the impacts to the social structure of the study region to the extent these same management decisions are expected to produce major changes to the study area's social structure. **SR:1.2** Recognize infrastructure needs, including implementation and maintenance, directly and indirectly associated with BLM actions. **GOAL SR:2** Provide sustainable consumptive economic development opportunities for a diversity of resources and resource uses that are balanced against nonconsumptive uses that affect market and nonmarket values. **Objective:** **SR:2.1** Consider the options to access and utilize resources consistent with a multiple resource management philosophy that provides a sustainable and viable economic, cultural, and social environment at the national, regional, and local levels while also providing a balance between consumptive and nonconsumptive uses. **GOAL SR:3** Manage use conflicts through public education and outreach efforts. **Objective:** **SR:3.1** Work cooperatively with local agencies to foster public awareness, where suitable, through appropriate measures.
8001	SR:1	Ensure BLM actions consider local and regional economic development and land use plans.
8002	SR:2	Incorporate BLM actions that are sensitive to the economic and social health of the affected area.
8003	SR:1	Management refers to available socioeconomic monitoring plans that provide indicators for the economic and social health of an affected area.

8000 SOCIOECONOMIC RESOURCES (SR) – Social and Economic		
Record #	**Goal/Obj.**	**Decisions**
8004	SR:1	Manage in a way that recognizes BLM actions are integrally connected with both socioeconomics and the cultural health of the planning area. BLM's management recognizes and considers local and regional economic development and land use plans. To the extent possible, quantify socioeconomic impacts associated with site-specific and programmatic BLM actions. Share the results with state and local governmental officials for the purpose of promoting collaborative management, where possible, to ensure the affected parties and overlapping jurisdictions are provided that information as required by law.
8005	SR:1	Manage to provide a predictable supply of goods and services within the sustainable limits of the ecosystem, which help meet public demand. Encourage public and private partnerships to achieve the shared economic objectives of providing employment and income to local communities while benefiting ecosystem health.

Table 3.31. 8000 SOCIOECONOMIC RESOURCES (SR) – Health and Safety

8000 SOCIOECONOMIC RESOURCES (SR) – Health and Safety		
Record #	**Goal/Obj.**	**Decisions**
		GOAL SR:4 Manage risks to public health and safety and the environment posed by human-caused hazards and/or natural geologic hazards on the National System of Public Lands. **Objectives:** **SR:4.1** Protect public health and safety and the environment through complying with federal and state laws and regulations governing hazardous substances and the generation of hazardous wastes; maintaining the health of ecosystems though assessment, cleanup, and restoration of contaminated sites; and integrating environmental protection and compliance into all BLM activities. **SR:4.2** Collaborate with Wyoming DEQ through existing or new MOUs to identify and plan for remediation of Abandoned Mine Land sites, including the appropriate level of environmental review prior to on-the-ground work. **SR:4.3** Protect public health and safety through review of geologic hazards and application of appropriate management. **SR:4.4** Manage public exposure to H_2S on public lands. **SR:4.5** Reduce or eliminate hazards to human health and safety and the environment from hazardous substances or hazardous wastes.
8006	SR:4.1 SR:4.5	Manage hazardous substances to reduce human and environmental risk, restore contaminated lands, and carry out emergency response activities.
8007	SR:4.1 SR:4.5	Prepare Environmental Site Assessments on lands acquired or conveyed. Notify the public of conveyance of public lands affected by hazardous substances (CERCLA 120[h]).
8008	SR:4.1	Warn the public of the release of hazardous substances. Work to prevent public exposure to contaminated areas.
8009	SR:4.1 SR:4.5	Manage hazardous materials, including but not limited to hazardous substances, hazardous wastes, and hazardous materials, to reduce the risk to visitors, employees, and the environment, to restore contaminated lands, and to carry out emergency response activities, as per appropriate laws, policies, and regulations.
8010	SR:4.1 SR:4.5	Require public notification by the BLM of the type and quantity of the hazardous substances, as required under CERCLA 120(h), and BLM policy to prepare Environmental Site Assessments for the acquisition and disposal of real property before the sale, exchange, or other transfer of public lands on which storage or disposal of hazardous substances is or has been known to have occurred.
8011	SR:4.3	Develop a geologic hazards database that ranks threats to public health and safety. Inform applicants and project proponents of geologic hazards, and develop mitigation where appropriate.
8012	SR:4.1 SR:4.4	Comply with the requirements of Occupational Safety and Health Administration and Onshore Order #6 relative to H_2S plans for new oil and gas wells.
8013	SR:4.4	Mitigate potential safety concerns of H_2S wells and pipelines through signs, warning sirens, and public education. Safety distances are determined through site-specific H_2S plans.

8000 SOCIOECONOMIC RESOURCES (SR) – Health and Safety		
Record #	**Goal/Obj.**	**Decisions**
8014	SR:4	Consistent with Wyoming DEQ and EPA requirements, require Hazardous Spill Response Plans for all projects involving hazardous materials. Report spills and releases of chemicals, petroleum products, and produced water to Wyoming DEQ in accordance with Wyoming law.
8015	SR:4.2	Inventory AML sites for hazards, and prioritize AML sites for reclamation in coordination with Wyoming DEQ. Identify AML sites with warning signage and consider adding protective fencing around shafts and adits.
8016	SR:4.3 SR:4.5	Allow activities in AML areas if the impacts can be avoided, minimized and/or compensated.
8017	SR:4.3	Provide warnings for geologic hazards. Identify geologic hazards on case-by-case. Allow activities in mitigated (remediated) geologic hazard areas.

[1]Land Use Classification – criteria are based on that found in existing plans.

ACEC Area of Critical Environmental Concern
AML Abandoned Mine Land
AMP Allotment Management Plan
APD Application for Permit to Drill
APHIS Animal and Plant Health Inspection Service
APLIC Avian Powerline Interaction Committee
BLM Bureau of Land Management
BMP Best Management Practice
BOR Bureau of Reclamation
C&MU Classification and Multiple Use
CBNG Coalbed Natural Gas
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
CFR Code of Federal Regulations
COA Conditions of Approval
COT Conservation Objectives Team
CSU Controlled Surface Use
dBA Decibels with an A-weighted scale
DEQ Department of Environmental Quality
DLE Desert Land Entry
DDCT Density and Disturbance Calculation Tool
DOI United States Department of the Interior
DPC Desired Plant Community
EIS Environmental Impact Statement
EO Executive Order
EPA United States Environmental Protection Agency
ERMA Extensive Recreation Management Area
ESD Ecological Site Description
FLPMA Federal Land Policy and Management Act
FMP Fire Management Plan
FRCC Fire Regime Condition Class
GHMA General Habitat Management Area
H_2S Hydrogen Sulfide
HA Herd Area
HMA Herd Management Area
HMG Habitat Management Guidelines
HMP Habitat Management Plan
HUC Hydrologic Unit Code
IM Instruction Memorandum
LRP Limited reclamation potential
MLP Master Leasing Plan
MOU Memorandum of Understanding
NEPA National Environmental Policy Act
NHT National Historic Trail
NOS Notice of Staking
NRHP National Register of Historic Places
NSO No Surface Occupancy
NWSRS National Wild and Scenic River System
OHV Off-Highway Vehicle
PARC Partners in Amphibian and Reptile Conservation
PEIS Programmatic Environmental Impact Statement
PFC Proper Functioning Condition
PFYC Potential Fossil Yield Classification
PHMA Priority Habitat Management Area
PSD Prevention of Significant Deterioration
R&PP Recreation and Public Purposes
RAATS Reduced Agent-Area Treatments
RAMP Recreation Area Management Plan
RMA Recreation Management Area
RMP Resource Management Plan
RMZ Recreation Management Zone
ROD Record of Decision
ROW Rights-of-way
SCZ Setting Consideration Zone
SHPO State Historic Preservation Office
SMA Special Management Area
SRMA Special Recreation Management Area
SRP Special Recreation Permit
SUA Surface Use Agreement
TLS Timing Limitation Stipulation
TMDL Total Maximum Daily Load
TMP Travel Management Plan
USFS United States Forest Service
USFWS United States Fish and Wildlife Service
VRM Visual Resource Management
WGFD Wyoming Game and Fish Department
WHMA Wildlife Habitat Management Area
WO Washington Office
WQD Water Quality Division
WSA Wilderness Study Area
WSR Wild and Scenic River

Chapter 4. Consultation, Coordination, and Public Involvement

This page intentionally
left blank

4.1. Consultation and Coordination

All consultation and coordination efforts to date have been conducted under the auspices of the larger Bighorn Basin Resource Management Plan (RMP) revision project, which encompassed the Worland and Cody Field Offices.

Some of the decisions contained in this document will require preparation of detailed, project-level National Environmental Policy Act (NEPA) analyses prior to implementation. Additional tribal consultation and public involvement opportunities, including further protest or appeal opportunities, may also be conducted. For example, travel management planning decisions typically require extensive analysis and outreach prior to implementation. Priorities identified in the Approved RMP could change following public and cooperating agency and other stakeholder consultation, as well as funding availability.

Cooperating Agency Participation

For the Bighorn Basin RMP and Environmental Impact Statement (EIS), the Bureau of Land Management (BLM) invited local, state, federal, and tribal representatives to participate as cooperating agencies. Cooperating agencies participated in developing the alternatives for the RMP and EIS, provided data and other information related to their agency responsibilities and expertise, commented on administrative drafts of the RMP and EIS, and participated in other meetings and teleconferences regarding the revision process. Chapter 5 and Appendix E in the Proposed RMP and Final EIS (available on the Bighorn Basin RMP website) includes detailed information on cooperating agency engagement and a list of cooperating agencies involved in the Bighorn Basin RMP revision effort.

Endangered Species Act Consultation

On November 13, 2008, in accordance with Section 7 of the Endangered Species Act, the U.S. Fish and Wildlife Service (USFWS) provided a list of threatened and endangered species likely to occur on BLM-administered land in the Bighorn Basin Planning Area. The USFWS commented on draft and supplemental documents during the RMP revision process. The BLM continued consultation with the USFWS regarding the RMP revision through completion of the Final Biological Assessment and Proposed RMP and Final EIS. Copies of the BLM's Draft and Final Biological Assessments were placed on the Bighorn Basin RMP website for public review. The USFWS submitted a programmatic Biological Opinion concurring with the BLM effects determinations (Appendix K, *Biological Opinion* (p. 439)).

Native American Consultation

In accordance with the Federal Land Policy and Management Act (FLPMA), the National Historic Preservation Act, and BLM policy, the BLM performed outreach and engaged with Native American tribal representatives throughout the RMP planning process. Following the scoping process, the BLM sent a letter to Native American tribal representatives requesting specific information to help identify areas of special concern for the tribes and presenting the opportunity for meetings or field trips with tribal representatives. BLM representatives followed these letters with telephone calls to each tribe. On December 17, 2008, the BLM met with tribal representatives in Rapid City, South Dakota to discuss the RMP revision.

On September 19, 2008, the BLM sent letters inviting Native American tribes to be cooperating agencies as part of the RMP revision. The BLM asked Native American tribes to comment on

interests or concerns related to management in the Bighorn Basin Planning Area and asked tribes to identify any places of traditional religious or cultural importance within the Planning Area. In November 2010, May 2011, June 2011, February 2012, May 2012, and June 2012, the BLM met with tribal representatives to discuss the RMP and related tribal concerns. Additional outreach efforts occurred throughout the RMP revision process. Additional inquiries were made of interested tribes who might desire face-to-face opportunities to discuss RMP issues. In January 2010, Field Managers and staff met with the Northern Cheyenne Tribal Historic Preservation Officer to discuss the Tribe's interest in RMP topics. Government-to-government consultation with the tribes continued throughout the RMP process. In 2013, the BLM sent additional consultation letters to the tribes informing them of the need to prepare a Supplement to the Draft RMP and EIS, and welcoming continued feedback.

Comments have not been received from any tribe during the scoping period or the public comment periods on the Draft RMP and Draft EIS, Supplement, or Proposed RMP and Final EIS; however, consultation is an on-going process. The BLM will continue to engage Native American tribes during implementation of the Approved RMP.

Coordination with the Environmental Protection Agency

The BLM coordinated with the Environmental Protection Agency (EPA) throughout the RMP revision process, including during alternatives development. The EPA participated in the RMP revision process as a cooperating agency and provide information related to their responsibilities, goals, policies, and expertise. As a cooperating agency, the EPA provided specific input, including detailed recommendations on ways to ensure adequate air resource and water resource impact analyses and mitigation to address significant impacts. Comments received from the EPA on the Draft RMP and Draft EIS, as well as the Proposed RMP and Final EIS, primarily focused on the NEPA analysis and protection of air resources and water resources. On June 29, 2015, the EPA sent a letter to the BLM acknowledging the changes the BLM made to the Proposed RMP and Final EIS in response to the agency's comments to include additional information on and protections for air and water resources. The letter also recommended specific water resource protections to be included in the Approved RMP.

Governor's Consistency Review

The BLM initiated the Wyoming Governor's Consistency Review required by 43 Code of Federal Regulations (CFR) 1610.3-2(e) by letter from the BLM State Director dated May 29, 2015. The BLM received a letter from the Wyoming Governor dated July 29, 2015. The Governor's Office advised the BLM that the Proposed RMP had a number of inconsistencies and provided recommendations. The recommendations had been raised during public participation and included questions regarding air and water quality and conformance with the Wyoming Governor's Core Area Strategy for Greater Sage-Grouse conservation. The BLM State Director accepted some of the recommendations, did not accept others, and advised the Governor of his decision in writing.

4.2. Public Involvement

Public involvement occurred throughout the RMP revision process beginning with the publication of the Notice of Intent to prepare an EIS on October 17, 2008. The Notice of Intent formally announced the BLM's intent to revise the 1988 Washakie, 1998 Grass Creek, and 1990 Cody RMPs, and prepare an EIS and initiated the scoping process. The BLM hosted six scoping meetings throughout the Bighorn Basin Planning Area in November 2008 and gained input from

interested agencies, organizations, and members of the public on issues that should be addressed in the EIS. The publication of the Notice of Availability of the Draft RMP and EIS on April 22, 2011, initiated a 90-day public comment period during which members of the public could comment on any aspect of the Draft RMP and EIS. The BLM hosted six public meetings during the comment period to inform members of the public about the plan, answer questions, and solicit comments. The comments received on the Draft RMP and EIS and BLM's responses are summarized in Appendix A of the Proposed RMP and Final EIS (available on the Bighorn Basin RMP website), including copies of the comments themselves. In addition to the formal public involvement opportunities, the BLM held open houses, issued periodic planning bulletins, and updated the project website in an effort to keep the public informed about the planning process.

The BLM published the Proposed RMP and Final EIS on May 29, 2015, initiating a 30-day protest period in accordance with 43 Code of Federal Regulations (CFR) Part 1610.5-2. The protest period provided members of the public with standing the opportunity to protest the content of the Proposed RMP and Final EIS. The BLM received 24 protest letters. The protest letters are available on the Bighorn Basin RMP website, along with the BLM Director's protest resolution report.

Protest issues related to management for conservation of Greater Sage-Grouse, inconsistency with state and county plans and orders, including the Wyoming Governor's Executive Orders for Greater Sage-Grouse, violation of valid existing rights and the multiple use provisions of FLPMA, NEPA adequacy due to a lack of an adequate range of alternatives, inadequate response to the public comments on the Draft RMP and Draft EIS, master leasing plans, a lack of public input and comment regarding new information between the Draft EIS and Final EIS, insufficient impact analysis, and that the BLM did not use the best available science.

In accordance with 43 CFR 1610.5-2(b), the decision of the BLM Director is the final decision of the Department of the Interior and there are no further administrative remedies available.

This page intentionally
left blank

Chapter 5. Plan Implementation

This page intentionally
left blank

5.1. Implementing the Plan

Implementation, after a Bureau of Land Management (BLM) Resource Management Plan (RMP) or RMP amendment is approved, is a continuous and active process. Decisions presented as Management Decisions can be characterized as *immediate* or *one-time future* decisions.

Immediate Decisions: These decisions are land use planning decisions that go into effect upon signature of the Record of Decision. These include goals, objectives, allowable uses, and management direction, such as the allocation of lands as open or closed for saleable mineral sales, lands open with stipulations for oil and gas leasing, and off-highway vehicle area designations. These decisions require no additional analysis and guide future land management actions and subsequent site specific implementation decisions in the planning area. Proposals for future actions such as oil and gas leasing, land adjustments, and other allocation-based actions will be reviewed against these land use plan decisions to determine if the proposal is in conformance with the plan.

One-Time Future Decisions: These types of decisions include those that are not implemented until additional decision-making and site-specific analysis is completed. Examples are implementation of the recommendations to withdraw lands from locatable mineral entry or development of travel management plans. Future one-time decisions require additional analysis and decision-making and are prioritized as part of the BLM budget process. Priorities for implementation of "one-time" RMP decisions will be based on several criteria, including:

- current and projected resource needs and demands
- national BLM management direction
- available resources

General Implementation Schedule of "One-Time" Decisions: Future one-time decisions discussed in this Approved RMP will be implemented over a period of years depending on budget and staff availability. After issuing the Record of Decision, the BLM will prepare implementation plans that establish tentative timeframes for completion of "one-time" decisions identified in the Approved RMP. These actions require additional site-specific decision-making and analysis.

This schedule will assist BLM managers and staff in preparing budget requests and in scheduling work. However, the proposed schedule must be considered tentative and will be affected by future funding, changing program priorities, non-discretionary workloads, and cooperation by partners and external publics. Yearly review of the plan will provide consistent tracking of accomplishments and provide information that can be used to develop annual budget requests to continue implementation. Appendix L, *Implementation* (p. 545) further describes the implementation process for the Approved RMP.

5.2. Maintaining the Plan

The Approved RMP can be maintained as necessary to reflect minor changes in data. Plan maintenance is limited to further refining or documenting a previously approved decision incorporated in the plan and/or clarifying previously approved decisions.

The BLM expects that new information gathered from field inventories and assessments, research, other agency studies, and other sources will update baseline data and/or support new management techniques, best management practices, and scientific principles. Where monitoring shows land

use plan actions or best management practices are not effective, plan maintenance or plan amendment may be initiated, as appropriate.

Plan maintenance will be documented in supporting records. Plan maintenance does not require formal public involvement, interagency coordination, or the National Environmental Policy Act (NEPA) analysis required for making new land use plan decisions.

5.3. Changing the Plan

The Approved RMP may be changed, should conditions warrant, through a plan amendment or plan revision process. A plan amendment may become necessary if major changes are needed or to consider a proposal or action that is not in conformance with the plan. The results of monitoring, evaluation of new data, or policy changes and changing public needs might also provide a need for a plan amendment. If several areas of the plan become outdated or otherwise obsolete, a plan revision may become necessary. Plan amendments and revisions are accomplished with public input and the appropriate level of environmental analysis conducted according to the Council on Environmental Quality procedures for implementation of NEPA.

As new information becomes available about Greater Sage-Grouse habitat, including seasonal habitats, in coordination with the state wildlife agency and U.S. Fish and Wildlife Service, and based on best available scientific information, the BLM may revise the Greater Sage-Grouse habitat management area maps and associated management decisions through plan maintenance or plan amendment/revision, as appropriate.

5.4. Plan Evaluation, Adaptive Management, and Monitoring

Plan evaluation is the process by which the plan and monitoring data are reviewed to determine if management goals and objectives are being met and if management direction is sound. Land use plan evaluations determine if decisions are being implemented, whether mitigation measures are satisfactory, whether there are significant changes in the related plans of other entities, whether there is new data of significance to the plan, and if decisions should be modified via amendment or revision. Monitoring data gathered over time is examined and used to draw conclusions on whether management actions are meeting stated objectives, and if not, why. Conclusions are then used to make recommendations on whether to continue current management or to identify what changes need to be made in management practices to meet objectives.

The BLM will use land use plan evaluations to determine if the decisions in the Approved RMP, supported by the accompanying NEPA analysis, are still valid in light of new information and monitoring data. Evaluations will follow the protocols established by the BLM Land Use Planning Handbook (H-1601-1) or other appropriate guidance in effect at the time the evaluation is initiated. The Greater Sage-Grouse Monitoring Framework for this Approved RMP can be found in Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271). Monitoring and evaluation protocols for other resources can be found in Appendix H, *Monitoring and Evaluation* (p. 365)

The Approved RMP also includes an adaptive management strategy that includes soft and hard triggers and responses. These triggers are not specific to any particular project, but identify habitat and population thresholds. Triggers are based on the two key metrics that are being monitored during the life of the Approved RMP (i.e., habitat loss and/or population declines). Soft triggers

represent an intermediate threshold indicating that management changes are needed at the implementation level to address habitat or population losses. If a soft trigger is tripped during the life of the plans, the BLM's response is to apply more conservative or restrictive conservation measures to mitigate for the specific causal factor in the decline of populations and/or habitats, with consideration of local knowledge and conditions. These adjustments will be made to preclude tripping a hard trigger (which signals more severe habitat loss or population declines). Hard triggers represent a threshold indicating that immediate action is necessary to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the Approved RMP.

In the event that new scientific information becomes available demonstrating that the hard wired response would be insufficient to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the Approved RMP, the BLM will implement interim management direction to ensure that conservation options are not foreclosed. The BLM will also undertake any appropriate plan amendments or revision if necessary. More information regarding the Approved RMP's adaptive management strategy can be found in Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271).

This page intentionally
left blank

Chapter 6. References

This page intentionally
left blank

Bibliography

APHIS (Animal and Plant Health Inspection Service) and BLM (Bureau of Land Management). 2003. Memorandum of Understanding Document #03-8100-0870-MU, February 27, 2003.

Baruch-Mordo, S., J.S. Evans, J.P. Severson, D.E. Naugle, J.D. Maestas, J.M. Kiesecker, M.J. Falkowski, C.A. Hagen, and K.P. Reese. 2013. Saving sage-grouse from trees. Biological Conservation: 167: 233-241.

BHBLWG (Big Horn Basin Sage-grouse Local Working Group). 2007. Sage-grouse Conservation Plan for the Big Horn Basin, Wyoming.

BLM (Bureau of Land Management) and DOE (U.S. Department of Energy). 2003. Assessing the Potential for Renewable Energy on Public Lands. February. U.S. Department of the Interior, Bureau of Land Management. U.S. Department of Energy, Energy Efficiency and Renewable Energy.

BLM and USFS (U.S. Forest Service). 2008. Final Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States. Available online: http://www.blm.gov/wo/st/en/prog/energy/geothermal/geothermal_nationwide.html.

BLM and Wyoming SHPO (State Historic Preservation Office). 2014. Programmatic Agreement Among the Bureau of Land Management, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet its Responsibilities Under the National Historic Preservation Act, State Protocol Between the Wyoming Bureau of Land Management and the Wyoming State Historic Preservation Officer. March 3. Available online: http://www.blm.gov/wy/st/en/programs/Cultural_Resources/protocol.html.

BLM, ACHP (Advisory Council on Historic Preservation), and National Conference of SHPOs. 2012. Programmatic Agreement Among the Bureau of Land Management, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet its Responsibilities Under the National Historic Preservation Act. Available online: http://www.blm.gov/wo/st/en/prog/more/CRM/blm_preservation_board/prog_agreement.html.

BLM. 1988. BLM Manual 1613, Areas of Critical Environmental Concern. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.ntc.blm.gov/krc/uploads/360/5_1613_ACEC_Manual%201988.pdf.

BLM. 1994. Red Gulch/Alkali National Backcountry Byway Interpretive Master Plan. U.S. Department of the Interior, Bureau of Land Management. Worland, Wyoming. June.

BLM. 1997. Standards for Healthy Rangelands and Guidelines for Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming. U.S. Department of the Interior, Bureau of Land Management, Wyoming. Available online: http://www.blm.gov/wy/st/en/programs/grazing.html. August.

BLM. 2005a. Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western States. June. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C.

BLM. 2005b. Record of Decision for Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C.

BLM. 2005c. Technical Reference 1734-6 Interpreting Indicators of Rangeland Health. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C. Available online: http://www.blm.gov/nstc/library/pdf/1734-6rev05.pdf.

BLM. 2007a. Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C. Available online: http://www.blm.gov/wo/st/en/prog/more/veg_eis.htm.

BLM. 2007b. Burned Area Emergency Stabilization and Rehabilitation Handbook. H-1742-1. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C. Available online: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.52739.File.dat/h1742-1.pdf.

BLM. 2008. Analysis of the Management Situation. Bighorn Basin Planning Area. Unpublished internal report. Cody Field Office, Worland Field Office. U.S. Department of the Interior, Bureau of Land Management. Worland, Wyoming.

BLM. 2009a. Summary of the Analysis of the Management Situation for the Bighorn Basin Planning Area, U.S. Department of the Interior, Bureau of Land Management, Cody Field Office and Worland Field Office. Available online: http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn/docs.html.

BLM. 2009b. Bighorn Basin Cultural Class I Regional Overview. Cody Field Office, Worland Field Office. U.S. Department of the Interior, Bureau of Land Management. Cody Field Office and Worland Field Office, Wyoming. September.

BLM. 2009c. Proposed Oil Shale and Tar Sands Resource Management Plan Amendments to Address Land Use Allocations in Colorado, Utah and Wyoming and Final Programmatic Environmental Impact Statement. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C.

BLM. 2009d. Solid Mineral Occurrence and Development Potential Report: Bighorn Basin Resource Management Plan Revision Project. U.S. Department of the Interior, Bureau of Land Management, Cody Field Office and Worland Field Office, Wyoming. Available online: http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn/docs.html.

BLM. 2011a. Documentation Forms from BLM Cody and Worland Field Offices Wilderness Characteristics Inventory. U.S. Department of the Interior, Bureau of Land Management. Cody Field Office and Worland Field Office, Wyoming. Available online: http://www.blm.gov/wy/st/en/field_offices/Cody/wild-inv.html and http://www.blm.gov/wy/st/en/field_offices/Worland/wild-inv.html.

BLM. 2011b. BLM Manual 1626, Travel and Transportation Management. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.38105.File.dat/1626.pdf

BLM. 2011c. Instruction Memorandum No. WY-2012-007, Management of Oil and Gas Exploration and Production Pits. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.blm.gov/pgdata/etc/medialib/blm/wy/resources/efoia/IMs/2012.Par.59729.File.dat/wy2012-007.pdf. November 15.

BLM. 2011d. BLM Handbook H-9113-1, Road Design Handbook. Release 9–388. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.5566.File.dat/H-9113-1.pdf.

BLM. 2012a. BLM Manual 6330, Management of Wilderness Study Areas. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.31915.File.dat/6330.pdf

BLM. 2012b. Attachment 3, Framework for Sage-Grouse Impacts Analysis for Interstate Transmission Lines. Addendum to the Draft Environmental Impact Statement for the Gateway West Transmission Line Project, Effects of the Proposed Project on Greater Sage-Grouse. U.S. Department of the Interior, Bureau of Land Management, Wyoming State Office. Cheyenne, Wyoming. Available online: http://www.blm.gov/wy/st/en/info/NEPA/documents/cfo/gateway-west/SGAnalysis.html.

BLM. 2013a. Worland Field Office GIS data files. U.S. Department of the Interior, Bureau of Land Management.

BLM. 2013b. Instruction Memorandum No. 2013-128. Sage-Grouse Conservation in Fire Operations and Fuels Management. U.S. Department of the Interior, Bureau of Land Management, Washington, D.C.

BLM. 2014. Reasonable Foreseeable Development Scenario for Oil and Gas, Bighorn Basin Planning Area, Wyoming. Prepared by Wyoming Reservoir Management Group. U.S. Department of the Interior, Bureau of Land Management.

Cagney J., E. Bainter, B. Budd, T. Christiansen, V. Herren, M. Holloran, B. Rashford, M. Smith, and J. Williams. 2010. Grazing influence, objective development, and management in Wyoming's greater sage-grouse habitat. University of Wyoming College of Agriculture Extension Bulletin B-1203. Laramie.

Chambers, J.C., D.A. Pyke, J.D. Maestas, M. Pellant, C.S. Boyd, S.B. Campbell, S. Espinosa, D.W. Havlina, K.E. Mayer, and A. Wuenschel. 2014. Using resistance and resilience concepts to reduce impacts of invasive annual grasses and altered fire regimes on the sagebrush ecosystem and greater sage-grouse: A strategic multi-scale approach. Gen. Tech. Rep. RMRS-GTR-326. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 73 p.

Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage sage-grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.

Connelly, J.W., K.P. Reese, and M.A. Schroeder. 2003. Monitoring of Greater sage-grouse habitats and populations. University of Idaho College of Natural Resources Experiment Station Bulletin 80. University of Idaho, Moscow, ID.

Connelly, J.W., S.T. Knick, M.A. Schroeder, and S.J. Stiver. 2004. Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats - Western Association of Fish and Wildlife Agencies.

DOE and BLM. 2008. Record of Decision for Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States (DOE/EIS-0386). Available online: http://corridoreis.anl.gov/documents/docs/Energy_Corridors_final_signed_ROD_1_14_2009.pdf

Doherty, K.E. 2008. Sage-grouse and Energy Development: Integrating Science with Conservation Planning to Reduce Impacts. Thesis, University of Montana.

Doherty, K.E., D.E. Naugle, J.D. Tack, B.L Walker, J.M. Graham, and J.L. Beck. 2014. Linking Conservation Actions to Demography: Grass Height Explains Variation in Greater Sage grouse Nest Survival. Wildlife Biology 20(6): 320-325.

DOI (U.S. Department of the Interior). 2006. Scientific Inventory of Onshore Federal Lands Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to their Development - Energy Policy and Conservation Act of 2000. U.S. Department of the Interior. Washington, D.C.

Hagen, C.A., J.W. Connelly, and M.A. Schroeder. 2007. A meta-analysis of greater sage-grouse Centrocercus urophasianus nesting and brood-rearing habitats. Wildlife Biology 13 (Supplement 1):42-50.

Holloran, M.J., and S.H. Anderson. 2005. Spatial Distribution of Greater Sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107(4): 742-752.

Manier, D.J., D.J.A. Wood, Z.H. Bowen, R.M. Donovan, M.J. Holloran, L.M. Juliusson, K.S. Mayne, S.J. Oyler-McCance, F.R. Quamen, D.J. Saher, and A.J. Titolo. 2013. Summary of Science, Activities, Programs and Policies that Influence the Rangewide Conservation of Greater Sage-Grouse (Centrocercus urophasianus). Department of Interior, U.S. Geological Survey. Denver, CO. Available online: http://pubs.usgs.gov/of/2013/1098/.

Manier, D.J., Z.H. Bowen, M.L. Brooks, M.L. Casazza, P.S. Coates, P.A. Deibert, S.E. Hanser, and D.H. Johnson. 2014. Conservation buffer distance estimates for Greater Sage-Grouse—A review: U.S. Geological Survey Open-File Report 2014–1239, 14 p. Available online: http://dx.doi.org/10.3133/ofr20141239.

Miller R.F., J.D. Bates, T.J. Svejcar, F.B. Pierson, L.E. Eddleman. 2005. Biology, Ecology and Management of Western Juniper. Technical Bulletin 152. OSU, Agricultural Experiment Station. Corvallis, OR. Available online: http://juniper.oregonstate.edu/bibliography/documents/phpQ65pOk_tb152.pdf.

Pilliod, D.S. and E. Wind (editors). 2008. Habitat Management Guidelines for Amphibians and Reptiles of the Northwestern U.S. and Canada. PARC Technical Publication HMG-4. Birmingham, Alabama.

Sage-Grouse NTT (National Technical Team). 2011. A Report on National Greater Sage-Grouse Conservation Measures. December.

Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl, eds. 2015. Sage-Grouse Habitat Assessment Framework: A Multiscale Assessment Tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado.

USFS, BLM, BIA (Bureau of Indian Affairs), USFWS (U.S. Fish and Wildlife Service), and NPS (National Park Service). 2009. Guidance for Implementation of Federal Wildland Fire Management Policy.

USFWS. 2010. Federal Register - 12-Month Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered. U.S. Fish and Wildlife Service. March 4.

USFWS. 2013. Greater Sage-Grouse (Centrocercus urophasianus) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service. Denver, CO. February.

USFWS. 2014. Memorandum: Greater Sage-Grouse: Additional Recommendations to Refine Land Use Allocations in Highly Important Landscapes. U.S. Department of the Interior, Fish and Wildlife Service. Washington, D.C. October 27, 2014.

USGS (U.S. Geological Survey). 2008. Assessment of Undiscovered Oil and Gas Resources of the Bighorn Basin Province, Wyoming and Montana, 2008. Fact Sheet 2008-3050, 2 pp. U.S. Geological Survey. Available online: http://pubs.usgs.gov/fs/2008/3050/. Accessed March 3, 2009.

WAFWA (Western Association of Fish and Wildlife Agencies). 2007. Wild Sheep Working Group Initial Subcommittee Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat. June 12. Available online: http://efotg.sc.egov.usda.gov/references/public/NE/WAFWA_Wild_Sheep_Working_Group_Recommendations.pdf.

WGFD (Wyoming Game and Fish Department). 2010a. Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats. Wyoming Game and Fish Department, Cheyenne, Wyoming.

WGFD. 2010b. Wildlife Protection Recommendations for Wind Energy Development in Wyoming (Draft). March. 74 pp.

WGFD. 2011. Protocols for Treating Sagebrush to be Consistent with Wyoming Executive Order 2011–5; Greater Sage-Grouse Core Area Protection. Available online: http://www.blm.gov/style/medialib/blm/wy/resources/efoia/IMs/2012.Par.76500.File.dat/wy2012-019atch6.pdf.

Wyoming DEQ (Department of Environmental Quality). 2013. E. Coli Total Maximum Daily Loads for the Big Horn River Watershed. Topical Report RSI-2289. Available online: http://deq.state.wy.us/wqd/watershed/Program%20Documents/TMDL-Carry%20Over%20to%20New%20Site/2.%20Completed%20Projects/EPA%20Approved%20Big%20Horn%20E%20coli%20TMDL_April%202014.pdf.

Wyoming Interagency Vegetation Committee. 2002. Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management. Wyoming Game and Fish Department and Wyoming BLM. Cheyenne, Wyoming. 53 pp.

Wyoming Office of the Governor. 2011. Executive Order 2011-5, Greater Sage-Grouse Core Area Protection. Available online: http://will.state.wy.us/sis/wydocs/execorders/EO2011-05.pdf.

Wyoming Office of the Governor. 2013. Executive Order 2013-3, Greater Sage-Grouse Core Area - Grazing Adjustments. Available online: http://will.state.wy.us/sis/wydocs/execorders/EO2013-03.pdf.

Wyoming Office of the Governor. 2015. Executive Order 2015-4, Greater Sage-Grouse Core Area Protection. Available online: http://www.wyfb.org/images%5CSGExecutiveOrder2015.pdf.

Wyoming Sage-grouse Working Group. 2003. Wyoming Greater Sage-grouse Conservation Plan. 97 pp. Cheyenne, Wyoming.

Wyoming State-wide Bighorn/Domestic Sheep Interaction Working Group. 2004. Final Report and Recommendations. Available online: http://migrationinitiative.org/sites/migration.wygisc.org/themes/responsive_blog/images/SIWG_FINALREPORT.PDF.

Glossary

Abandoned Mine: An abandoned hardrock mine on or affecting public lands administered by the Bureau of Land Management (BLM), at which exploration, development, mining, reclamation, maintenance, and inspection of facilities and equipment, and other operations ceased as of January 1, 1981 (the effective date of BLM's Surface Management regulations codified at 43 Code of Federal Regulations (CFR) Subpart 3809) with no evidence demonstrating that the miner intends to resume mining. For many abandoned mines, no current claimant of record or viable potentially responsible party exists. Abandoned mines generally include a range of mining impacts, or features that may pose a threat to water quality, public safety, and/or the environment (BLM no date).

Abandoned Mine Land (AML) Program: BLM program that focuses on reclaiming hardrock abandoned mine lands on or affecting public lands administered by BLM. The primary goal of the program is to remediate and reduce actual or potential threats that pose physical safety risks and environmental degradation. BLM applies risk-based criteria and uses the watershed approach to establish project priorities. The program also works to return mine-impacted lands to productive use(s) (BLM No Date).

Active Use: The current authorized livestock grazing use. Active use may constitute a portion, or all, or permitted use. Active use does not include a temporary non-use or suspended use of forage within all or a portion of an allotment.

Additionality: The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project (BLM Manual Section 1794).

Allotment: An area of land where one or more livestock operators graze their livestock. Allotments are BLM lands, but may also include other federally managed, state-owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Allotment Categorization: Grazing allotments and rangeland areas used for livestock grazing are assigned to an allotment category during resource management planning (BLM 1987; BLM 2008). Allotment categorization is used to establish priorities for distributing available funds and personnel during plan implementation to achieve cost-effective improvement of rangeland resources. Categorization is also used to organize allotments into similar groups for purposes of developing multiple use prescriptions, analyzing site-specific and cumulative impacts, and determining trade-offs.

- **Category I (Improve):** The category for allotments where (1) present range condition is unsatisfactory and where range condition is expected to decline further; (2) present grazing

management is not adequate; (3) the allotment has potential for medium to high vegetative production but production is low to moderate; (4) resource conflicts/controversy with livestock grazing are evident; or (5) there is potential for positive economic return on public investment. Additionally, allotments are categorized as Improve where current livestock grazing management or level of use on public land is, or is expected to be, a significant causal factor in the non-achievement of land health standards, or where a change in mandatory terms and conditions in the grazing authorization is or may be necessary. When identifying Category I allotments, review condition of critical habitat, conflicts with Greater Sage-Grouse, and whether projects have been proposed specifically for implementing the Healthy Lands Initiative.

- **Category "M" (Maintain):** The category for allotments where (1) the present range condition an management are satisfactory with good to excellent condition and will be maintained under present management, or fair condition and improving with improvement expected to continue under present management, or opportunities for BLM management are limited because percentage of public land is low or acreage of public lands is small; (2) the allotment has a potential for moderate or high vegetative production and is producing at or near this potential; (3) there are no significant land-use resource conflicts with livestock grazing; (4) land ownership status may or may not limit management opportunities; or (5) opportunities for positive economic return from public investment may exist. Additionally, allotments are categorized as Maintain where land health standards are met or where livestock grazing on public land is not a significant causal factor for not meeting the standards and current livestock management is in conformance with guidelines developed by the State Directors in consultation with Resource Advisory Councils. Allotments where an evaluation of land health standards has not been completed, but existing monitoring data indicates that resource conditions are satisfactory.
- **Category "C" (Custodial):** The category for allotments where (1) present range condition is not in a downward trend; (2) the allotment has a low vegetative production potential and is producing near this level; (3) there may or may not be limited conflicts between livestock grazing and other resources; (4) present management is satisfactory or is the only logical management under existing conditions; and (5) opportunities for a positive economic return on public investments do not exist (BLM 1990). Additionally, allotments are categorized as Custodial where public lands produce less than 10 percent of the forage in the allotment or are less than 10 percent of the land area. An allotment should generally not be designated Category C if the public land in the allotment contains: (1) critical habitat

for a threatened or endangered species or (2) wetlands negatively affected by livestock grazing.

Allotment Management Plan: A written program of livestock grazing management, including supportive measures if required, designed to attain specific management goals in a grazing allotment.

Ambient (noise level): Sometimes called background noise level, reference sound level, or room noise level is the background sound pressure level at a given location, normally specified as a reference level to study a new intrusive sound.

Analysis Area: Any lands, regardless of jurisdiction, for which the BLM synthesizes, analyzes, and interprets data for information that relates to planning for BLM-administered lands.

Animal-unit: Considered to be one mature cow of approximately 1,000 pounds, either dry or with calf up to 6 months of age, or their equivalent, based on a standard amount of forage consumed.

Animal Unit Month (AUM): A standardized measurement of the amount of forage necessary for the sustenance of one cow unit or its equivalent for one month (approximately 800 pounds of forage).

Appropriate Management Level: The number of adult horses or burros (expressed as a range with an upper and lower limit) to be managed within a herd management area. The appropriate management level range is the number of adult wild horses and burros within which herd size will be allowed to fluctuate. The upper limit of the range is the maximum number of wild horses and burros that results in a thriving natural ecological balance and avoids a deterioration of the range; the lower limit of the range is the number that allows the population to grow to the appropriate management level upper limit over 4 to 5 years, without the need for gathers to remove excess wild horse and burros in the interim.

Archeological site: A place that holds evidence of past human activity.

Archeology: A method of the discovery, study, and reconstruction of past human cultures from material remains such as artifacts and sites.

Area of Critical Environmental Concern (ACEC): An area within the public lands designated for special management attention to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. According to 43 CFR 1601.0-5a, “The identification of...[an] ACEC shall not, of itself, change or prevent change of the management or use of public lands.”

Artifact: Any object made, modified, or used by humans, usually but not necessarily portable.

Associated Settings: The geographic extent of the resources, qualities, and values or landscape elements within the surrounding environment that influence the trail experience and contribute to resource protection. Settings associated with a National Scenic or Historic Trail include scenic, historic, cultural, recreation, natural (including biological, geological, and scientific), and other landscape elements (see resources, qualities, and values).

Avoid: A term used to address mitigation of some activity (i.e., resource use). Paraphrasing the Council on Environmental Quality Regulations (40 CFR 1508.20), avoidance means to circumvent, or bypass, an impact altogether by not taking a certain action, or parts of an action. Therefore, the term "avoid" does not necessarily prohibit a proposed activity, but it may require the relocation of an action, or the total redesign of an action to eliminate any potential impacts resulting from it.

Avoidance Areas: Areas where negative routing factors exist. ROWs either will not be granted in these areas, or—if granted—will be subject to stringent terms and conditions. In other words, ROWs would be *restricted* (but not necessarily prohibited) in these avoidance areas.

Avoidance Mitigation: Avoiding the impact altogether by not taking a certain action or parts of an action (40 CFR 1508.20(a)) (e.g., may also include avoiding the impact by moving the proposed action to a different time or location).

Back Country Byway: A component of the national scenic byway system which focuses primarily on corridors along back country roads which have high scenic, historic, archaeologic, or other public interest values. The road may vary from a single track bike trail to a low speed, paved road that traverses back country areas. Segments of back country byways are subdivided into four types based on the characteristics of the roads (BLM 1993).

Basal Area: An area of land that is occupied by the cross-section of tree trunks and stems at their base.

Baseline: The pre-existing condition of a defined area and/or resource that can be quantified by an appropriate metric. During environmental reviews, the baseline is considered the affected environment that exists at the time of the review's initiation, and is used to compare predictions of the effects of the proposed action or a reasonable range of alternatives.

Basin: An extent of land where water from rain or snow melt drains downhill into a body of water, such as a river, lake, reservoir, estuary, wetland, sea, or ocean. The basin includes the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels, and is separated from adjacent basins by a drainage divide.

Best Management Practices (BMP): A suite of techniques that guide, or may be applied to, management actions to aid in achieving desired outcomes. Best management practices are often developed in conjunction with land use plans, but they are not considered a land use plan decision unless the land use plan specifies that they are mandatory. They may be updated or modified without a plan amendment if they are not mandatory.

Big Game Crucial Winter Range: Winter habitat on which a wildlife species depends for survival. Because of severe weather conditions or other limiting factors, no alternative habitat would be available.

Biologically Significant Unit: In Wyoming, the Biologically Significant Unit for Greater Sage-Grouse is the Priority Habitat Management Areas (PHMAs), regardless of whether the PHMAs cross multiple planning boundaries.

Casual Collecting: The collecting of a reasonable amount of common invertebrate and plant paleontological resources for non-commercial personal use, either by surface collection or the use of non-powered hand tools resulting in only negligible disturbance to the Earth's surface and other resources.

Category (see *Allotment Categorization*): The criteria used for the placement of the allotments into categories based on resource potential, resource use conflicts or controversy, opportunity of positive economic return on public investments, and the present management situation (BLM 1990).

Cattleguard: A device or structure, at points where roads or railroads cross a fence line, that is designed so vehicular travel is uninterrupted, but crossing by all kinds of livestock is restricted.

Causal: Relating to a cause or causes; relating to a cause of effect.

C Category (Custodial): See *Allotment Categorization*.

Cheatgrass (*Bromus tectorum*): An annual grass that forms tufts up to 2 feet tall. The leaves and sheaths are covered in short, soft hairs. The flowers occur as drooping, open, terminal clusters that can have a greenish, red, or purple hue. Flowering occurs in the early summer. These annual plants will germinate in fall or spring (fall is more common), and senescence usually occurs in summer. Cheatgrass invades rangelands, pastures, prairies, and other open areas. Cheatgrass has the potential to completely alter the ecosystems it invades. It can completely replace native vegetation and change fire regimes and is most problematic in areas of the western United States with lower precipitation levels.

Closed: Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs.

Commercial Forestland: Capable of producing 20 cubic feet of wood fiber from commercial species per acre per year and has not been withdrawn from forest product harvest by law or statute.

Communication Site Management Plan: A plan that provides for effective administration of a communications site. The site plan defines the principles and technical standards adopted in the site designation. The site plan provides direction for the day-to-day operations of the site in connection with the lease. The site plan delineates the types of uses that are appropriate at the site and the technical and administrative requirements for management of the site. The site plan should reflect the complexity of the current situation and the anticipated demand for the site.

Community: (1) An assemblage of populations of plants and/or animals in a common spatial arrangement. (2) An assemblage of plants occurring together at any point in time, while denoting no particular ecological status. (3) A unit of vegetation.

Community Phase: A unique assemblage of plants and associated dynamic soil property levels that can occur within a state (Caudle et al. 2013).

Compensatory Mitigation: Compensating for the (residual) impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Compensatory Mitigation Projects: Specific, on-the-ground actions to improve and/or protect habitats (e.g., chemical vegetation treatments, land acquisitions, conservation easements).

Compensatory Mitigation Sites: The durable areas where compensatory mitigation projects will occur.

Contrast: Opposition or unlikeness of different forms, lines, colors, or texture in a landscape.

Controlled Surface Use (CSU): Surface occupancy or use will be restricted or prohibited unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts. Identified resource values require special operational constraints that may modify the lease rights. CSU is used for operating guidance, not as a substitute for the no surface occupancy (NSO) or timing limitations.

Cool-Season Plant: A plant which generally makes the major portion of its growth during the late fall, winter, and early spring. Cool-season species generally exhibit the C3 photosynthetic pathway.

Core Habitat: Greater Sage-Grouse core habitat (as defined in the State of Wyoming Executive Order 2015-4) is one of two components of Greater Sage-Grouse Priority Habitat Management Areas. Core habitats are state-designated areas identified as the most important for Greater Sage-Grouse and include breeding, late brood-rearing,

and wintering seasonal habitat. It does not include known migration or connectivity corridors.

Cover: (1) The plants or plant parts living or dead, on the surface of the ground. Vegetative cover or herbage cover is composed of living plants and litter cover of dead parts of plants. (2) The area of ground cover by plants of one or more species.

Critical Growing Season (Growth Period): A specified period of time in which plants need to develop sufficient carbohydrate reservoir and produce seed. This period of time varies by growth form. For example: Cool season bunchgrasses: May 1 – July 15; Warm season perennial grasses: June 1 – July 30; Riparian vegetation: July 1 through August 30.

Cultivation: The process of preparing the land and caring for growing crops.

Cultural Resources Setting Consideration Zones (SCZ): Zones of view shed management of "X" distance or the visual horizon, whichever is closer, from the external site boundaries, created to reduce visual and acoustic impacts to cultural resources for which the elements of setting and association are important. Where the vegetation, rock formations, open space, and bodies of water that made up the environmental setting during the periods of prehistoric or historic occupation or use are intact, management actions will be modified to maintain the long term integrity of those features. The current integrity of environmental features or factors related to the location, use, formation, or preservation of the site will be the important factors for determining appropriate management actions.

Culture: The customs, beliefs, and ways of life of a group of people.

dB (decibel): A unit of measurement of the loudness or strength of a signal. One decibel is considered the smallest difference in sound level that the human ear can discern. Decibels are a relative measurement derived from two signal levels: a reference input level and an observed output level. A decibel is the logarithm of the ratio of the two levels. One Bel is when the output signal is 10 times that of the input and one decibel is 1/10 of a Bel.

Deferment: Delay of livestock grazing on an area for an adequate period of time to provide for plant reproduction, establishment of new plants, or restoration of vigor of existing plants.

Deferred Grazing: The use of deferment in grazing management of a management unit, but not in a systematic rotation including other units.

Deferred-rotation: Any grazing system which provides for a systematic rotation of the deferment among pastures.

Designated Roads and Trails: A network of roads and trails specifically identified as the official travel and transportation network for a given area on which some type of motorized vehicle use is allowed either seasonally or

year-long. Designated roads and trails are identified on maps, by signs in the field, and may be assigned road numbers for inventory and identification purposes. This may include routes on the official BLM transportation plan that are routinely maintained as well as routes that were user-created and which receive no regular maintenance. Vehicle travel is permitted only on roads and vehicle routes designated by the BLM. In areas where no formal travel management plan has been implemented, motorized use is limited to existing roads and trails on an interim basis.

Desired Future Condition: A portrayal of the land or resource conditions which are expected to result if goals and objectives are fully achieved.

Desired Future Condition for Riparian and Wetlands (after 20-40 years of management):

- Proper functioning conditions on all riparian and wetland habitats.
- Riparian and wetland vegetation supports proper functioning condition of biologic, hydrologic, and physical components of streams and wetlands.
- Systems are vertically stable (no downcutting).
- Floodplain connectivity.
- Herbaceous plant communities are composed of functional and structural plant groups that are dominated by deep-rooted native species that support streambank and shoreline stability, floodplain development, water quality, and nutrient cycling. Also includes woody species and cottonwoods within the site's potential.
- Management of invasive, noxious, and undesirable species.
- Provide "Yellow, Red, and Blue Ribbon" streams on those systems with fish habitat potential.

Desired Plant Community (DPC): Of the several plant communities that may occupy a site, the DPC is the community that has been identified through a management plan to best meet the plan's objectives for the site. At a minimum, it must protect the site.

Destination Recreation-Tourism Market: National or regional recreation-tourism visitors and other constituents who value public lands as recreation-tourism destinations. Major investments in facilities and visitor assistance are authorized within special recreation management areas (SRMAs) where the BLM's strategy is to target demonstrated destination recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand for specific activity, experience, and benefit opportunities. These opportunities are produced through maintenance of prescribed natural resource setting character and by structuring and implementing management, marketing, monitoring, and administrative actions accordingly.

Determination (BLM Rangeland Health Standards): Document recording the authorized officer's finding that existing grazing management practices or levels of grazing use on public lands either are or are not significant factors in failing to achieve the standards and conform with the guidelines within a specified geographic area (preferably watershed or a group of contiguous watersheds) (BLM 2001).

Disruptive Activity: Those activities that disrupt or alter wildlife actions at key times, during important activities, or in important areas (feeding, breeding, nesting, herd movement, winter habitat). Disruptive activities are those which can result in reductions of energy reserves, health, reproductive success, or population. Some examples of disruptive activities include geophysical (seismic), well plugging or work-over operations that last 24 to 48 hours or longer, road reclamation, and wild horse grazing and management. Emergency activities, rangeland monitoring, recreational activities, livestock grazing and management, and other field activities are not considered disruptive activities.

Domestic: An animal that has been tamed or made usable for humans.

Durability (protective and ecological): The maintenance of the effectiveness of a mitigation project for the duration of the associated impacts, which includes resource, administrative/legal, and financial considerations (adopted and modified from BLM Manual Section 1794).

Ecological Site: A distinctive kind of land with specific soil and other physical characteristics that differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its ability to respond to management actions and natural disturbances.

Ecological Site Description (ESD): The official documentation of an ecological site describing the distinctive properties and characteristics, the abiotic and biotic relationships, and the ecological dynamics of the site. In addition, an ESD provides interpretations about land uses and ecosystem services that a particular ecological site can support and management alternatives for achieving land management objectives.

Ecological Status: Ecological status is the present state of vegetation of a range site in relation to the potential natural community for that site. It is an expression of the relative degree to which the kinds, proportions and amounts of plants in a plant community resemble that of the potential natural plant community for the site. Four classes are used to express the degree to which the production or composition of the present plant community reflects that of the potential natural community (climax).

Ecosystem: A complete, interacting system of living organisms and the land and water that make up their environment; the home places of all living things, including humans.

Eligible River: An eligible river segment found through administrative study to meet the criteria for designation as a component of the National Wild and Scenic Rivers System, as specified in Section 4(a) of the Wild and Scenic Rivers Act.

Endangered Species: A plant or animal species whose prospects for survival and reproduction are in immediate jeopardy, as designated by the Secretary of the Interior, and as is further defined by the Endangered Species Act.

Enhanced Recovery: The use of artificial means to increase the amount of hydrocarbons that can be recovered from a reservoir. A reservoir depleted by normal extraction usually can be restored by secondary or tertiary methods of enhanced recovery.

Environment: The conditions around an area that affect it. These include geography, soil, climate, plants, and animals.

Ephemeral Stream: A stream that flows only in direct response to precipitation, and whose channel is at all times above the water table. Confusion over the distinction between intermittent and ephemeral streams may be minimized by applying Meinzer's suggestion that the term "ephemeral" be arbitrarily restricted to streams that do not flow continuously for at least 30 days (Prichard et al. 1998). Ephemeral streams support riparian areas when streamside vegetation reflects the presence of permanent subsurface water.

Evaluation (BLM Rangeland Health Standards): An evaluation is conducted to arrive at two outcomes. Firstly, an evaluation conducts an analysis and interpretation of the findings resulting from the assessment, relative to land health standards, to evaluate the degree of achievement of land health standards. Secondly, an evaluation conducts an analysis and interpretation of information--be it observations or data from inventories and monitoring--on the causal factors for not achieving a land health standard. An evaluation of the causal factors provides the foundation for a determination (see *Determination*) (BLM 2001).

Evidence: Data that are used to prove a point, or that clearly indicate a situation.

Excavation (Archeological): Carefully removing layers of dirt or sediment to find objects or features made by people from long ago.

Exceedance: An event in which measurements of ambient air quality are above the National Ambient Air Quality Standard (NAAQS) or Wyoming Department of Environmental Quality (DEQ) standard set for a particular pollutant. For example, an annual average nitrogen dioxide value of 110 micrograms per cubic meter ($\mu g/m^3$) is an exceedance of both the NAAQS and Wyoming DEQ annual average standard for nitrogen dioxide of 100 µg/m3.

Exclusion Areas: Areas with sensitive resource values where rights-of-way (ROWs) and 302 permits, leases, and easements would not be authorized.

Existing Roads and Trails (interim existing roads and trails): Defined as routes existing prior to the date the OHV designation is announced in the Federal Register (FR). These routes may have been constructed and maintained or may be two-track routes created and maintained by the passage of motor vehicles and which receive regular use. Roads and trails may be added, modified, or deleted by the BLM from the inventory through authorizations as needs arise. Recent Comprehensive Travel and Transportation Management guidance (BLM Handbook 8342-1) directed the BLM to manage all BLM-administered public lands under "Designated Roads and Trails." Existing roads and trails are to be used on an interim basis until a Travel Management Plan designates each individual route as open or closed for motorized use. The terms "interim existing roads and trails" or "existing roads and trails" are used to identify areas of low priority for travel management planning.

Extensive Recreation Management Areas (ERMA): See *Recreation Management Areas*.

Extinction: Bring to an end, wiping out, or destruction.

Facility (Energy and Mining): Human constructed assets designed and created to serve a particular convenience or service that is affixed to specific locations, such as oil and gas well pads and associated infrastructure.

Fire Management Plan: Identifies appropriate strategies to achieve resource objectives. Identifies fire policy, objectives, and prescribed actions; may include maps, charts, tables, and statistical data.

Fire Regime Condition Class: A classification of the amount of departure from the natural fire regime. The departure results in changes to one or more of the following ecological components: vegetation characteristics (e.g., species composition, structural stages, stand age, canopy closure,mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbance (e.g., insect and disease mortality, grazing, drought). The three condition classes are listed below:

Condition Class 1:

- The historic disturbance regime is largely intact and functioning (e.g., has not missed a fire return interval)
- Potential intensity and severity of fire within historic range
- Effects of disease and insects within historic range
- Hydrologic functions within normal historic range
- Vegetation composition and structure resilient to disturbances
- Nonnative species currently not present or to a limited extent
- Low risk of loss for key ecosystem components.

Condition Class 2:

- Moderate alterations to historic disturbance regime evident (e.g., missed one or more fire return intervals)
- Effects of disease and insects pose an increased risk of loss of key community components
- Riparian areas and associated hydrologic function show measurable signs of adverse departure from historic conditions
- Vegetation composition and structure shifted toward conditions less resilient to disturbances
- Populations of nonnative species may have increased, increasing the risk of further increases following disturbance.

Condition Class 3:

- Historic disturbance regime significantly altered; historic disturbance processes and impacts may be precluded (e.g., missed several fire return intervals)
- Effects of disturbance (fire, insects, and disease) may cause significant or complete loss of key community components
- Hydrologic functions may be adversely altered; high potential for increased sedimentation and reduced streamflows
- Invasive, nonnative species may be common and in some cases the dominant species on the landscape; disturbance will likely increase both the dominance and geographic extent of these invasive species
- Highly altered vegetation composition and structure predisposes community to disturbance events outside the range of historic availability; disturbance may have effects not observed or measured before.

Flaring/Venting: The controlled burning (flare) or release (vent) of natural gas that cannot be processed for sale or use because of technical or economic reasons.

Floristic Province: Areas of ecological and biological issues similarity (Stiver et al. 2006).

Fluid Mineral Leasing Categories: BLM land use plans identify the following leasing decisions for fluid leasable minerals consistent with the goals and objectives for natural resources within the planning area:

- **Closed:** Areas closed to oil and gas leasing are areas where it has been determined that other land uses or resource values cannot be adequately protected with even the most restrictive oil and gas leasing stipulations; appropriate protection can be ensured only by closing the areas to oil and gas leasing for the life of the plan. Lands currently under lease would remain leased for the life of the leases. After expiration of these leases, no lands would be available for lease.
- **Open with Major Constraints:** Any stipulations or conditions of approval which may restrict the timing or placement of oil and gas developments and may result in an operator dropping the

development proposal. Major constraints include NSOs, areas of overlapping TLS that last more than 6 months, areas closed to surface-disturbing activity, areas where surface-disturbing activity is prohibited, and VRM Class I areas. Leaseholders have the right to explore, develop, and produce mineral resources from any valid, existing lease, even if the area containing the lease was proposed to be closed to future leasing.

- **Open with Moderate Constraints**: Any stipulations or conditions of approval which may restrict the timing or placement of oil and gas development, but would not otherwise restrict the overall development. Moderate constraints include all timing restrictions (TLS), CSUs, areas where surface-disturbing activity is avoided, and VRM Class II areas.
- **Open:** Areas open to leasing, subject to existing laws, regulations, and formal orders; and the terms and conditions of the standard lease form.

Flushing Livestock: Flushing livestock is the holding of livestock in an invasive, nonnative plant species (INPS) seed-free area where they are fed an INPS seed-free ration for 72 hours, thus flushing INPS seed from the animals' digestive systems.

Foothill: A low hill near the base of a mountain or range of mountains.

Forage: Browse and herbage that are available and may provide food for grazing animals or be harvested for feeding. To search for or consume forage.

Foreground Zone: An area that can be seen from a travel route for a distance of three miles (foreground) where management activities might be viewed.

Forestland: Capable of producing 20 cubic feet of wood fiber from commercial species per acre per year.

Fossil: Fossils are any naturally occurring evidence of life older than 10,000 years.

Fundamentals of Rangeland Health: Overarching principles of rangeland health, listed at 43 CFR § 4180.1, which establish BLM policy of managing for healthy rangelands (60 FR at 9954). State or regional standards and guidelines must provide for conformance with the Fundamentals of Rangeland Health (43 CFR § 4180.2(b)) (BLM 2001).

Geographic Information System (GIS): A computer system capable of storing, analyzing, and displaying data and describing places on the earth's surface.

Goal: A broad statement of a desired outcome. Goals are usually not quantifiable and may not have established timeframes for achievement.

Goal Interference: Recreationist pursuing desired beneficial outcomes is not able to realize the positive aspects of a visit because of the behavior of someone else.

Graze: (1) The consumption of standing forage by livestock or wildlife. (2) To put livestock to feed on standing forage.

Grazing: To graze.

Grazing License or Permit: Official written permission to graze a specific number, kind, and class of livestock for a specified period on a defined allotment or management area.

Grazing Management: The manipulation of grazing and browsing animals to accomplish a desired result.

Grazing Management Plan: A program of action designed to secure the best practicable use of the forage resource with grazing or browsing animals.

Grazing Period: The length of time that animals are allowed to graze on a specific area.

Grazing Permit: A document that authorizes grazing use of the public lands under Section 3 of the Taylor Grazing Act. A grazing permit specifies terms and conditions under which permittees use lands for grazing during the term of the permit. Terms and conditions include the area authorized for grazing use, the number of livestock, period of use, and amount of use in AUMs and others.

Grazing Relinquishment: The voluntary and permanent surrender by an existing permittee or lessee (with concurrence of any base property lienholder(s)) of their priority (preference) to use a livestock forage allocation on public land as well as their permission to use this forage. Relinquishments do not require the consent or approval by BLM. The BLM's receipt of a relinquishment is not a decision to close areas to livestock grazing.

Grazing Season: (1) On public lands, and established period for which grazing permits are issued. May be established on private land in a grazing management plan. (2) The time interval when animals are allowed to utilize a certain area.

Grazing System: A specialization of grazing management which defines the periods of grazing and non-grazing.

Greenhouse Gas (GHG): The gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. This property causes the greenhouse effect. Water vapor (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), and ozone (O_3) are the primary greenhouse gases in the Earth's atmosphere.

Growing Season: In temperate climates, that portion of the year when temperature and moisture permit plant growth.

Guidelines: Actions or management practices that may be used to achieve desired outcomes, sometimes expressed as best management practices. Guidelines may be identified during the land use planning process, but they are not considered a land use plan decision unless the plan specifies that they are mandatory.

Habitat: The natural abode of a plant or animal, including all biotic, climatic, and edaphic factors affecting life.

Habitat Management Area (HMA): An area containing a specific habitat type(s) that is managed for the maintenance or recovery of a particular species.

Habitat Management Plan (HMP): A written and approved activity plan for a geographical area of public lands that identifies wildlife habitat management actions to be implemented in achieving specific objectives related to RMP planning document decisions.

Hazard Fuels: A fuel complex defined by kind, arrangement, volume, condition, and location that presents a threat of ignition and resistance to control.

Hazardous Material: A substance or combination of substances that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either: (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating, illness, or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Heavy Equipment Use: This phrase is used in fire management and is relative to limiting fire suppression tactics. In this context it refers to not using dozers, skidders, or graders in areas where important resource values are in need of protection. Fire engines and water tenders used during suppression activities would be allowed.

High Potential Historic Site: Historic sites related to the route or sites in close proximity thereto which provide opportunity to interpret the historic significance of the trail during the period of its major use. The criteria for consideration of sites as high potential historic sites include historic significance, presence of visible historic remnants, scenic quality, and relative freedom from intrusion. High potential historic sites are assumed to contain remnants, artifacts, and other properties eligible for the National Register of Historic Places, pending evaluation. Under the National Trails System Act, high potential historic sites located on federal land are referred to as Federal Protection Components.

High Potential Route Segment: Segments of a trail which would afford a high-quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route. National Historic Trail high potential route segments are assumed to contain remnants, artifacts, and other properties eligible for the National Register of Historic Places, pending evaluation. Under the National Trails System Act, high potential route segments located on federal land are referred to as Federal Protection Components.

Historic: Referring to the time after written records or after the Europeans first came to and wrote about the people and events in America.

Historic Trails: Generally those routes utilized during the initial exploration and settlement of an area. These routes are known from maps and other documents and may also retain physical integrity on the ground (see also *National Historic Trails).*

History: The study of past events and times through use of written and recorded sources. In some cases, oral sources may also be available.

I Category (Improve): See *Allotment Categorization*.

Important Cultural Resources: All historic properties allocated to Conservation for Future, Scientific, and Traditional use categories. Additionally, on a case-by-case basis some historic properties assigned to Experimental, and Public use categories may be determined to be included in this class of resource.

Important Cultural Sites: See *Important Cultural Resources*.

Indicator: A component of a system whose characteristics (for example, presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles. An indicator can be evaluated at a site- or species-specific level. Monitoring of an indicator must be able to show change within timeframes acceptable to management and to show how the health of the ecosystem is changing in response to specific management actions. Selection of the appropriate indicators to be observed, measured, or monitored in a particular allotment is a critical aspect of early communication among the interests involved on-the-ground. The most useful indicators are those for which change or trend can be easily quantified and for which agreement as to the significance of the indicator is broad based.

Infestation: The inhabitation of a host by large numbers of pests, such as bark beetles on pine trees. Invasion by large numbers of parasites or pests.

Infiltration: The downward entry of water into the soil or other material.

Integrated Weed Management: The use of all appropriate weed control measures, including fire, as well as mechanical, chemical, biological, and cultural techniques, in an organized and coordinated manner on a site-specific basis.

Interested Public: An individual, group, or organization that has: (1)(i) Submitted a written request to BLM to be provided an opportunity to be involved in the decision making process as to a specific allotment, and (ii) Followed up that request by submitting written comment as to management of a specific allotment, or otherwise participating in the decision making process as to a specific allotment, if BLM has provided them an opportunity for comment or other participation; or (2) Submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment (CFR 4100.0-5).

Interim Management Policy (IMP): The policy and guidelines under which the BLM manages lands under wilderness review (known as Wilderness Study Areas). This policy is referred to as the "interim" management policy because it applies to specific areas of the public lands for a limited amount of time, depending upon various stages and schedules of the review process (BLM Manual 8550).

Intermittent Stream: A stream that flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow in mountainous areas. Confusion over the distinction between intermittent and ephemeral streams may be minimized by applying Meinzer's suggestion that the term "intermittent" be arbitrarily restricted to streams that flow continuously for periods of at least 30 days (Prichard et al. 1998).

Invasive Species: According to Executive Order 13112, an invasive species is an alien species whose introduction causes or is likely to cause economic or environmental harm or harm to human health. The executive summary of the National Invasive Species Management Plan further clarifies and defines an invasive species as a species that is nonnative to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Inventory: Gathering of baseline information (including quantitative data, cultural knowledge, and qualitative observations) about condition of resources. Examples of inventory are Ecological Site Inventory, and Population Counts of Threatened or Endangered Species (BLM 2001).

Karst Region: Karst topography is a landscape shaped by the dissolution of a layer or layers of soluble bedrock, usually carbonate rock such as limestone or dolomite. Due to subterranean drainage, there may be very limited surface water, even to the absence of all rivers and lakes. Many karst regions display distinctive surface features, with sinkholes or dolines being the most common. However,

distinctive karst surface features may be completely absent where the soluble rock is mantled, such as by glacial debris, or confined by a superimposed non-soluble rock strata. Some karst regions include thousands of caves, even though evidence of caves that are big enough for human exploration is not a required characteristic of karst.

Kinds of Livestock (animal): An animal species or species group such as sheep, cattle, goats, deer, horses, elk, antelope, etc.

Land: The total natural and cultural environment within which production takes place; a broader term than soil. In addition to soil, its attributes include other physical conditions, such as mineral deposits, climate, and water supply; location in relation to centers of commerce, populations, and other land; the size of the individual tracts or holdings; and existing plant cover, works of improvement, and the like.

Land Health: Degree to which the integrity of the soil and the ecological processes of ecosystems are sustained (BLM 2001).

Landscape Character: The arrangement of a particular landscape as formed by the variety and intensity of the landscape features and the four basic elements of form, line, color, and texture. These factors give the area a distinctive quality that distinguishes it from its immediate surroundings.

Lands with Wilderness Characteristics: Lands that have been inventoried and found to contain wilderness characteristics as defined in Section 2(c) of the Wilderness Act of 1964.

Land Tenure: To improve the manageability of BLM lands and improve their usefulness to the public, the BLM has numerous authorities for "repositioning" lands into a more consolidated pattern, disposing of lands, and entering into cooperative management agreements. These land-pattern improvements are completed primarily through the use of land exchanges, but also through land sales, jurisdictional transfers to other agencies, and the use of cooperative management agreements and leases. These ownership or jurisdictional changes are referred to as "Land Tenure Adjustments."

Leasable Minerals: Those minerals or materials subject to lease by the federal government under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium, and sodium minerals, oil and gas, as well as geothermal resources.

Lease: (1) A legal document that conveys to an operator the right to drill for oil and gas; (2) the tract of land, on which a lease has been obtained, where producing wells and production equipment are located. Contractual instruments granting rights to use specific managed public lands, with certain conditions, for specific purposes

such as livestock grazing, timber harvesting, and energy or mineral development.

Lease Notice or Information Notice: Provides more detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. A Lease Notice also addresses special items the lessee should consider when planning operations, but does not impose new or additional restrictions (Uniform Format for Oil and Gas Lease Stipulations, March 1989. Rocky Mountain Regional Coordinating Committee). An information notice has no legal consequences, except to give notice of existing requirements, and may be attached to a lease by the authorized officer at the time of lease issuance to convey certain operational, procedural or administrative requirements relative to lease management within the terms and conditions of the standard lease form. Information notices shall not be a basis for denial of lease operations (43 CFR 3101.1-3).

Lease Stipulation: A provision that modifies standard lease rights and is attached to and made a part of the lease (Uniform Format for Oil and Gas Lease Stipulations, March 1989. Rocky Mountain Regional Coordinating Committee). The authorized officer may require stipulations as conditions of lease issuance. "Stipulations shall become part of the lease and shall supersede inconsistent provisions of the standard lease form. Any party submitting a bid… shall be deemed to have agreed to stipulations applicable to the specific parcel…" (43 CFR 3101.1-3).

Lek: A traditional courtship display area attended by male Greater Sage-Grouse in or adjacent to sagebrush-dominated habitat. A lek is designated based on observations of two or more male Greater Sage-Grouse engaged in courtship displays. Before adding the suspected lek to the database, it must be confirmed by an additional observation made during the appropriate time of day, during the strutting season. Sign of strutting activity (tracks, droppings, feathers) can also be used to confirm a suspected lek. Sub-dominant males may display on itinerant (temporary) strutting areas during population peaks. Such areas usually fail to become established leks. Therefore, a site where small numbers of males (less than five) are observed strutting should be confirmed active for two years before adding the site to the lek database.

Lek Annual Status: Lek status is assessed annually based on the following definitions (BLM 2012):

- **Active** – Any lek that has been attended by male Greater Sage-Grouse during the strutting season.
- **Inactive** – Any lek where sufficient data suggests that there was no strutting activity throughout a strutting season.

- **Unknown** – Leks for which status as active or inactive has not been documented during the course of a strutting season. Except for those leks not scheduled for checks in a particular year, use of this status should be rare.

Lek Count: A census technique that documents the actual number of male Greater Sage-Grouse observed attending a lek complex (BLM 2012).

Lek Management Status: Based on its annual status, a lek is assigned to one of the following categories for management purposes (BLM 2012):

- **Occupied lek –** A lek that has been active during at least one strutting season within the prior 10 years. Occupied leks are protected through prescribed management actions during surface-disturbing activities.
- Unoccupied lek – There are two types of unoccupied leks, "destroyed" and "abandoned." Unoccupied leks are not protected during surface-disturbing activities.
  - **Destroyed lek –** A formerly active lek site and surrounding sagebrush habitat that has been destroyed and is no longer suitable for Greater Sage-Grouse breeding. A lek site that has been strip-mined, paved, converted to cropland or undergone other long-term habitat type conversion is considered destroyed. Destroyed leks are not monitored unless the site has been reclaimed to suitable Greater Sage-Grouse habitat.
  - **Abandoned lek –** A lek in otherwise suitable habitat that has not been active during a period of 10 consecutive years. To be designated abandoned, a lek must be "inactive" (see *Lek Annual Status*) in at least four non-consecutive strutting seasons spanning the 10 years. The site of an "abandoned" lek should be surveyed at least once every 10 years to determine whether it has been re-occupied by Greater Sage-Grouse.
  - **Undetermined lek –** Any lek that has not been documented active in the last 10 years, but survey information is insufficient to designate the lek as unoccupied. Undetermined leks are not protected through prescribed management actions during surface-disturbing activities until sufficient documentation is obtained to confirm the lek is occupied. Use of this status should be rare (see *Lek Annual Status*).

Lek Perimeter: The outer perimeter of a lek and any associated small leks within about 500 meters. Perimeters may vary over time as population levels or habitat and weather conditions change (BLM 2012).

Lentic: Standing water riparian/wetland areas such as lakes, ponds, seeps, bogs, and meadows (University of Arizona No Date).

Limited Area: An area restricted, at certain times, in certain areas, and/or to certain vehicle use. These restrictions may be of any type, but can generally be accommodated within the following types of categories: number of vehicles, type of vehicles, time of season of vehicle use, permitted or licensed use only, use on existing roads and trails, use on designated roads and trails, and other restrictions.

Livestock: Domestic animals.

Livestock Management: Application of technical principles and business methods to livestock production.

Locatable Minerals: Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of metallic minerals such as gold, silver, and other uncommon materials not subject to lease or sale.

Lotic: Running water riparian/wetland areas such as rivers, streams, and springs (University of Arizona No Date).

Major Constraints (Oil and Gas): See *Fluid Mineral Leasing Categories*.

Management Plan: A program of action designed to reach a given set of objectives.

Management Zone (Greater Sage-Grouse): Biologically based management areas determined using Greater Sage-Grouse populations and sub-populations identified within distinct floristic provinces. Management Zones reflect ecological and biological issues and similarities, not political boundaries. In addition, the vegetation communities found in the floristic provinces, as well as the management challenges within a given Management Zone, are similar and Greater Sage-Grouse and their habitats are likely responding similarly to environmental factors and management actions (Stiver et al. 2006).

M Category (Maintain): See *Allotment Categorization*.

Measureable Targeted Outcomes: A quantitative scale used to measure explicitly stated targeted experience and benefit outcomes as prescribed in each Recreation Management Area (SRMA, RMZ, separate ERMA) through monitoring methods such as on site surveys, focus groups, or other means appropriate and as funding allows to sample and collect data. Measurable targeted outcomes range on a probability scale where 1=not at all, 2=somewhat, 3=neutral, 4=moderate, and 5=total realization.

Mechanized Use: Use of public lands by human-powered vehicles (such as mountain bicycles).

Mesic: Related to conditions of moderate moisture or water supply. Used to describe organisms occupying moist habitats.

Mineral Materials (Salables): Materials such as common varieties of sand, stone, gravel, pumice, pumicite, and clay that are not obtainable under the mining or leasing laws, but can be acquired under the Mineral Materials Act of 1947, as amended.

Mineral Withdrawal: A formal order that withholds federal lands and minerals from entry under the Mining Law of 1872, as amended, and closes the area to mineral location (i.e., staking mining claims) and development.

Minimization Mitigation: Minimizing impacts by limiting the degree or magnitude of the action and its implementation (40 CFR 1508.20 [b]).

Minimum Impact Suppression Techniques: The application of strategy and tactics that effectively meet suppression and resource objectives with the least environmental, cultural, and social impacts.

Mining Claim: A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law and local laws and rules. A mining claim may contain as many adjoining locations as the locator may make or buy. There are four categories of mining claims: lode, placer, mill site, and tunnel site.

Mitigation:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

Mitigation Measures: Methods or procedures designed to reduce or lessen the adverse impacts caused by management activities.

Moderate (recreation outcomes): See *Measurable Targeted Outcomes*.

Moderate Constraints (Oil and Gas): See *Fluid Mineral Leasing Categories*.

Monitoring: The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives.

National Historic Trails: A protected area designation containing historic trails and surrounding areas authorized under the National Trails System Act of 1968. National Historic Trails may only be designated by an act of Congress.

National Register of Historic Places: The official list of the Nation's historic places worthy of preservation. Properties listed or eligible for listing are associated: with events, activities, or developments that were important in the past; with the lives of people who were important in the past; with significant architectural history, landscape history, or engineering achievements; or have already, or have the potential, to yield important information through investigation about our past. These may include districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association as appropriate.

National Trail Management Corridor: Allocation established through the land use planning process, pursuant to Section 202 of Federal Land Policy and Management Act and Section 7(a)(2) of the National Trails System Act ("rights-of-way") for a public land area of sufficient width within which to encompass National Trail resources, qualities, values, and associated settings and the primary use or uses that are present or to be restored.

National Wild and Scenic Rivers System: A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams:

1. Recreation – rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past;
2. Scenic – rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads; and
3. Wild – rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shorelines essentially primitive and waters unpolluted.

Native American: The people living in North and South America prior to European exploration. Many groups of people today are Native Americans and have ancestors who lived on these continents for thousands of years before Columbus came. They are also called American Indian, First American, Alaska Native, and Native People.

Native Species: A species that is a part of the original fauna or flora of a given area in question.

Natural Fire Regime: The general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995).

Nature and Purposes: The term used to describe the character, characteristics, and congressional intent for a designated National Trail, including the resources, qualities, values, and associated settings of the areas through which such trails may pass; the primary use or uses of a National Trail; and activities promoting the preservation of, public access to, travel within, and enjoyment and appreciation of National Trails.

Net Conservation Gain: The actual benefit or gain above baseline conditions.

Nonconsumptive Use: A use that does not reduce supply. For example, wildlife viewing does not reduce supply of wildlife as opposed to big game hunting, which reduces the supply of big game.

Nonmarket Values: These values are not revealed through market transactions that establish market prices. For example, clean air, open space, preservation of critical wildlife habitat, etc., are not traded in the market place and therefore there is no market price for them. Nonetheless, there is a value for these resources that can be measured based on how much people would be willing to pay for them.

No Surface Occupancy (NSO): Used to prohibit the physical presence of oil and gas operations and associated facilities on the surface of Public Lands in a specified area to protect sensitive surface resource values. The NSO provision is reserved for use in fluid mineral land use planning and allocation decisions and lease stipulations. Other terms, such as restricted area, avoidance area, exclusion area, etc., are used with non-fluid mineral functions.

Noxious Weeds: Weeds, seeds, or other plant parts that are considered detrimental, destructive, injurious, or poisonous, either by virtue of their direct effect or as carriers of diseases or parasites that exist within this state, and are on the designated list.

Objective: A description of a desired condition for a resource. Objectives can be quantified and measured and, where possible, have established timeframes for achievement.

Occupied Lek: See *Lek Management Status*.

Off-Highway Vehicle (OHV): Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding (1) any nonamphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used in times of national defense emergencies.

Off-Highway Vehicle (OHV) Management Designations:

All public lands are required to have off-highway vehicle area designations. Areas must be classified as open, limited, or closed to motorized travel activities. Travel by over-snow vehicles is subject to the same requirements and limitations as all other vehicles unless specifically addressed otherwise in activity plans.

- **Closed:** Vehicle travel is prohibited in the area. Access by means other than motorized vehicle is usually permitted. This designation is used if closure to all vehicular use is necessary to protect resources, to ensure visitor safety, or to reduce conflicts. Use of vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer.

- **Open:** All types of vehicle use is permitted at all times anywhere in the area. However, motor vehicles may not be operated in a manner causing or likely to cause significant, undue damage to or disturbance of the soil, wildlife, wildlife habitat, improvements, cultural or vegetative resources or other authorized uses of the public lands (see 43 CFR 8340.0-5) (Manual 1626 Travel and Transportation Management). Accordingly, in "Open" areas, driving off-road to perform necessary tasks, for recreational activities, or any other purpose, is allowed. The experience in the western United States suggests that "Open" designations encourage route proliferation and unlimited cross-country driving and is causing degradation of the lands and resources. It is the policy of the BLM in Wyoming to limit the use of "Open" designations to areas suitable for unlimited off-road driving such as sand dune areas that are essentially devoid of vegetation.

- **Limited:** (a) Vehicle travel is permitted only on roads and vehicle routes which were in existence prior to the date of publication in the FR. Vehicle travel off of existing vehicle routes is permitted only to accomplish necessary tasks and only if such travel does not result in resource damage. Random travel from existing vehicle routes is not allowed. Creation of new routes or extensions and (or) widening of existing routes are not allowed without prior written agency approval.

  (b) Vehicle travel is permitted only on roads and vehicle routes designated by the BLM. Vehicle travel off of designated vehicle routes is permitted only to accomplish necessary tasks and only if such travel does not result in resource damage. Random travel from designated vehicle routes is not allowed. In areas where final designation has not been completed, vehicle travel is limited to existing roads and vehicle routes as described above. Designations may include, but are not limited to, the following:

  1. Vehicle route is open to vehicular travel.
  2. Vehicle route is closed to vehicular travel.

3. Vehicle travel is limited by number or type of vehicle such as:
   - Vehicle route limited to four-wheel drive vehicles only.
   - Vehicle route limited to motorbikes only.
4. Vehicle route limited to all terrain vehicles only.
5. Area is closed to over-snow vehicles.
6. Vehicle travel is limited to licensed or permitted use.
7. Vehicle travel is limited to time or season of use.

Where specialized restrictions are necessary to meet resource management objectives, other limitations also may be developed. The BLM may place other limitations, as necessary, to protect other resources, particularly in areas that motorized OHV enthusiasts use intensely or where they participate in competitive or group events.

Oil and Gas Management Area: Intensively developed existing fields to be managed primarily for oil and gas exploration and development.

Old-Growth Forest: Ecosystem distinguished by old trees and related structural features. Old growth encompasses the later stages of stand development that typically differ from earlier stages in several ways, including tree size, accumulation of large dead woody material, number of canopy layers, species composition, and ecosystem function. Old-growth forest is typically distinguished by the following:

- Large-sized trees of specific species
- Wide variation in age classes and stocking levels
- Accumulations of large-sized dead standing and fallen trees
- Decadence in the form of broken or deformed tops and boles
- Multiple canopy layers
- Canopy interspaces and understory patchiness.

Open: Generally denotes that an area is available for a particular use or uses. Refer to specific program definitions found in law, regulations, or policy guidance for application to individual programs.

Open (Oil and Gas): See *Fluid Mineral Leasing Categories*.

Operator: Any person who has taken formal responsibility for the operations conducted on the leased lands.

Outstandingly Remarkable Values: Values among those listed in Section 1(b) of the Wild and Scenic Rivers Act: "scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values." Other values that may be considered include, but are not limited to, ecological, biological or botanical, paleontological, hydrological, traditional cultural uses, water quality, and scientific values. The Wild and Scenic Rivers Act does not further define outstandingly remarkable values. Agency resource professionals develop and interpret criteria in evaluating river values (unique, rare, or exemplary) based on professional

judgment on a regional, physiographic, or geographic comparative basis.

Over-snow Vehicle: A motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow.

Paleocene Eocene Thermal Maximum (PETM): The Paleocene-Eocene Thermal Maximum (PETM) is one of the most intense and abrupt intervals of global warming in the geological record. It occurred around 56 million years ago, at the boundary between the Paleocene and Eocene epochs and lasted about 200,000 years. This warming has been linked to a similarly rapid increase in the concentration of greenhouse gases in Earth's atmosphere, which acted to trap heat and drive up global temperatures by more than 5 degrees Celsius in just a few thousand years. The fossil record gives us the means of understanding how life was affected by the PETM, and so provides an excellent opportunity to study the relationships between evolution, extinction, migration and climate change. See http://www.palaeontologyonline.com/articles/2011/the-paleocene-eocene-thermal-maximum/.

Paleoclimate Change: Changing climatic conditions during past geologic ages.

Paleontological Locality: A geographic point or area where a fossil or associated fossils are found in a related geological context. A paleontological locality is confined to a discrete stratigraphic layer, structural feature, or physiographic area.

Paleontological Resources Protection Stipulations:

- **Collecting:** The project proponent/operator is responsible for informing all persons associated with this project including employees, contractors, and subcontractors under their direction that they shall be subject to prosecution for damaging, altering, excavating, or removing any vertebrate fossils or other scientifically significant paleontological resources from the project area. Collection of vertebrate fossils (bones, teeth, turtle shells) or other scientifically significant paleontological resources is prohibited without a permit. Unlawful removal, damage, or vandalism of paleontological resources will be prosecuted by federal law enforcement personnel.
- **Discovery:** If vertebrate or scientifically significant paleontological resources are discovered on BLM-administered land during operations, the operator shall suspend operations that could disturb the materials, and immediately contact the BLM Worland Field Manager. The BLM will arrange for evaluation of the find by an appropriate BLM paleontologist, Paleontological Coordinator, or Paleontological Use Permittee within an agreed to timeframe. The BLM will determine the need for any mitigation actions that may be necessary. Any mitigation would be developed in consultation with the operator, who would be responsible for the cost of site evaluation and mitigation of

project effects to the paleontological resources. Depending on site evaluation, operations within 100 feet of a paleontological discovery will not be resumed until written authorization to proceed is issued by the Field Manager.

- **Avoidance:** All vertebrate or scientifically significant paleontological resources found as a result of the project/action will be avoided during operations. Avoidance in this case means "no action or disturbance within a distance of at least 100 feet of the outer edge of the paleontological locality."

Paleontology: The study of ancient life, particularly the fossil record.

Pasture: (1) A grazing area enclosed and separated from other areas by fencing or other barriers; the management unit for grazing land. (2) Forage plants used as food for grazing animals. (3) Any area devoted to the production of forage, native or introduced, and harvested by grazing. (4) A group of subunits grazed within a rotational grazing system.

Perennial Stream: A stream that flows continuously. Perennial streams generally are associated with a water table in the localities through which they flow (Prichard et al. 1998).

Permit: Contractual instruments granting rights to use specific managed public lands, with certain conditions, for specific purposes such as livestock grazing, timber harvesting, paleontology, and energy or mineral development.

Permitted Use: (1) The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease, expressed in AUMs. (2) A paleontologist must have a valid paleontological resource use permit before collecting or disturbing fossil resources on BLM-administered lands. Permitted uses for paleontology include activities related to paleontological surveys, excavation and consulting.

Permittee: One who holds a permit to graze livestock on state, federal, or certain privately-owned lands.

Pest: With the exception of vascular plants classified as invasive nonnative plant species, a pest can be any biological life form that poses a threat to human or ecological health and welfare. For the purposes of this planning effort, an "animal pest" is any vertebrate or invertebrate animal subject to control by Animal and Plant Health Inspection Service (APHIS). APHIS is currently the BLM's authorized agent for controlling "animal pests." For this reason, "animal pests" is considered a subset of pest. An annoying or troublesome animal or thing; nuisance.

Petroglyph: Pictures created on rock faces by removing a portion of the rock by pecking, abrading, incising, or scratching.

Planning Area: A geographic area for which land use and resource management plans are developed and maintained.

Play Area (OHV): An area where on- or off-route OHV use is nearly unrestricted. Often attracting many riders, such areas may be on dunes, in sand and gravel pits, and in other areas that present challenges to OHV users. Structured recreation management is applied to these areas so as to appropriately manage for health and safety, resource protection, and use and user conflicts. Play areas are designated on OHV "Open" Areas. See *Off-Highway Vehicle Management Designations*.

Potential Fossil Yield Classification (PFYC): Occurrences of paleontological resources are closely tied to the geologic units that contain them. The probability for finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. Using the PFYC system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils, with a higher class number indicating a higher potential. The classification uses a ranking of 1 through 5, with Class 5 assigned to units with a very high potential for paleontological resources. The classifications are described below.

- **Class 1 – Very Low.** Igneous or metamorphic geologic units, or other units not likely to contain recognizable fossil remains. Management concern is very low or negligible. Assessment or mitigation is usually unnecessary except in very rare or isolated occurrence.
- **Class 2 – Low.** Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant invertebrate and pant fossils. Management concern for paleontological resources is generally low. Assessment or mitigation is usually unnecessary except in rare or isolated occurrences.
- **Class 3 – Moderate or Unknown.** Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential. Management concern may extend across the entire range of management. PFYC 3 (Moderate) units may require field surveys for determination of appropriate course of actions. Mitigation may be necessary before and/or during these actions. Avoidance or non-site monitoring may be necessary during project activities. Justification required for survey decisions on PFYC 3 (Moderate) formations (i.e., whether a survey is required or not). PFYC 3 (Unknown) units will require pre-disturbance field surveys prior to surface-disturbing activities or land tenure adjustments. Mitigation may be necessary before and/or during these actions. Avoidance or non-site monitoring may be necessary during project activities.
- **Class 4 – High.** Geologic units containing a high occurrence of vertebrate fossils or scientifically significant invertebrate or

plant fossils, but may vary in occurrences and predictability. Surface-disturbing activities may adversely affect paleontological resources in many cases. Management concern for paleontological resources is high, depending on the proposed action. Pre-disturbance field surveys are usually necessary prior to surface-disturbing activities or land tenure adjustments. Mitigation will often be necessary before and/or during these actions. Avoidance or non-site monitoring may often be necessary during project activities.

- **Class 5 – Very High.** Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils. Paleontological resources are highly susceptible to adverse impacts from surface-disturbing activities. Management concern for paleontological resources is very high. Pre-disturbance field surveys are usually necessary prior to surface-disturbing activities or land tenure adjustments. Mitigation will often be necessary before and/or during these actions. Avoidance or non-site monitoring may often be necessary during project activities. Special management designations may be appropriate for protection or interpretation. These units are often the focus of illegal collecting activities.

Potential Natural Community (PNC): The biotic community that would become established if all successional sequences were completed without interference by humans under the present environmental conditions. Natural disturbances are inherent in development. PNCs can include naturalized nonnative species.

Prairie Dog "Complex": Defined as a cluster of two or more prairie dog towns within 3 kilometers of each other (Clark and Stromberg 1987; Luce 2003) and bounded by either natural or artificial barriers (Whicker and Detling 1998), which effectively isolate one cluster of colonies from interacting/interchanging with another. Prairie dogs may commonly move among colonies of a cluster, and thereby foster reproductive/genetic viability, but exhibit little emigration/immigration between clusters. A cluster may include some currently unoccupied, though physically suitable (e.g., vegetation, soils, topography), land immediately adjacent to occupied colonies that support other prairie dog-associated (ecosystem function), obligate or facultative species (e.g., swift fox, mountain plover, burrowing owl).

Prehistory/Prehistoric: Information about past events prior to the recording of events in writing. The period of prehistory differs around the world depending upon when written records became common in a region.

Prescribed Burning: Controlled application of fire to wildland fuels in either their natural or modified state under specified environmental conditions that allow the fire to be confined to a predetermined area and at the

same time to produce the fire intensity and rate of spread required to attain planned resource management objectives.

Prescribed Fire: Any fire intentionally ignited by managed under an approved plan to meet specific objectives.

Produced Water: Groundwater removed to facilitate the extraction of minerals, such as coal, oil, or gas.

Proper Functioning Condition: See *Riparian*.

Proper Grazing: The practice of managing forage use by grazing animals at a sustainable level that maintains rangeland health. Proper grazing will maintain or increase plant cover, including residue, which acts to slow down or reduce runoff, increase water infiltration, and keep erosion and sedimentation at or above acceptable levels within the potential of ecological sites within a given geographic area (e.g., watershed, grazing allotment).

Public Land: Land or interest in land owned by the United States and administered by the Secretary of the Interior through the BLM, except lands located on the Outer Continental Shelf, and land held for the benefit of Indians, Aleuts, and Eskimos.

Range: Any land supporting vegetation suitable for grazing including rangeland, grazable woodland, and shrubland. Modifies resources, products, activities, practices, and phenomena pertaining to rangeland.

Range Improvement Project: A structural improvement requiring placement or construction to facilitate management or control distribution and movement of grazing or browsing animals. Such improvements may include, but are not limited to, fences, wells, troughs, reservoirs, water catchments, pipelines, and cattleguards. The project also may include a practice or treatment that improves rangeland condition and/or resource production for multiple use. Nonstructural types of projects may include, but are not limited to, seeding and plant control through chemical, mechanical, and biological means or prescribed burning.

Rangeland: Land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing. This includes lands re-vegetated naturally or artificially when routine management of that vegetation is accomplished mainly through manipulation of grazing. Rangelands include natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

Rangeland Health: The degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained.

Range Management: A distinct discipline founded on ecological principles and dealing with the use of rangelands and range resources for a variety of purposes. These purposes include use as watersheds, wildlife habitat, grazing by livestock, recreation and aesthetics, as well as other associated uses.

Raptor: Bird of prey with sharp talons and a strongly curved beak, such as hawks, falcons, owls, vultures, and eagles.

Reasonable Access: For lands not involving Wilderness Study Areas (WSAs), reasonable access means access determined on a case-by-case basis using site specific NEPA analysis. Access to private land across public land in a WSA is addressed in the Wilderness Interim Management Policy (IMP) for Lands under Wilderness Review.

Recreation and Public Purposes Act (R&PP): The Recreation and Public Purposes Act (43 USC 869 et. seq.) authorizes the sale or lease of public lands for recreational or public purposes to state and local governments and to qualified nonprofit organizations. Examples of typical uses under the act are historic monument sites, campgrounds, schools, fire houses, law enforcement facilities, municipal facilities, landfills, hospitals, parks, and fairgrounds.

Recreation Area Management Plan (RAMP): An officially approved document for a specific area of public land that identifies the management actions to be implemented to achieve recreation related decisions made in a management framework of a resource management plan. The Recreation Area Management Plan is the link between the allocation of land for recreation uses in the multiple-use planning process and the actions necessary to implement such allocations.

Recreation Experiences: Psychological outcomes realized either by recreation-tourism participants as a direct result of their on-site leisure engagements and recreation-tourism activity participation or by nonparticipating community residents as a result of their interaction with visitors and guests within their community or interaction with the BLM and other public and private recreation-tourism providers and their actions.

Recreation Management Areas: Units within a planning area guiding recreation management on public lands having similar recreation related issues and concerns. There are two types of recreation management areas:

- **Extensive Recreation Management Area (ERMA):** Identified areas where recreation is planned for and actively managed on an interdisciplinary-basis in concert with other resources/resource programs. ERMAs offer recreation opportunities that facilitate visitors' freedom to pursue a variety of outdoor recreation activities and attain a variety of outcomes. They include all lands that are not designated as an SRMA or closed to public use. Recreation management actions within an ERMA are limited to

only those of a custodial nature and address visitor health and safety, resource protection and use and user conflicts.

- **Special Recreation Management Area (SRMA):** A public land unit identified in land use plans to direct recreation funding and personnel to fulfill commitments made to provide specific, structured recreation opportunities (i.e., activity, experience, and benefit opportunities). Both land use plan decisions and subsequent implementing actions for recreation in each SRMA are geared to a strategically identified primary recreation-tourism market – destination, community, or undeveloped, as well as a corresponding and distinguishing recreation management strategy. Recreation setting conditions are prescribed as part of the land-use allocation decision. Subsequent implementing actions, as identified in the activity planning framework, are proactive and address management, marketing and visitor information, and monitoring and administration.
    - **Recreation Management Zones (RMZ):** Subunits within an SRMA managed for distinctly different recreation products. Recreation products are composed of recreation opportunities, the natural resource and community settings within which they occur, and the administrative and service environment created by all affecting recreation-tourism providers, within which recreation participation occurs.

Recreation Niche: The place or position within the strategically targeted recreation-tourism market for each SRMA that is most suitable (i.e., capable of producing certain specific kinds of recreation opportunities) and appropriate (i.e., most responsive to identified visitor or resident customers), given available supply and current demand, for the production of specific recreation opportunities and the sustainable maintenance of accompanying natural resource or community setting character.

Recreation Opportunities: Favorable circumstances enabling visitors' engagement in a leisure activity to realize immediate psychological experiences and attain more lasting, value-added beneficial outcomes from the combination of recreation settings, activities, and experiences provided by the area.

Recreation Setting Characteristics (RSC): RSCs are derived from the Recreation Opportunity Spectrum, a continuum divided into a spectrum of classes from primitive to urban recreation settings. The continuum of classes is characterized by three components; physical, social, and operational.

Recreation Settings: The collective distinguishing attributes of landscapes that influence and sometimes actually determine what kinds of recreation opportunities are produced.

Recreation-Tourism Market: Recreation and tourism visitors and local residents who affect local governments and private sector businesses and the communities

or other places where these customers originate (local, regional, national, or international). Based on analysis of supply and demand, land use plans strategically identify primary recreation-tourism markets for each special recreation management area—destination, community, or undeveloped.

Rehabilitation Area: Change is needed or change may add acceptable visual variety to an area. This class applies to areas where the naturalistic character has been disturbed to a point at which rehabilitation is needed to bring it back into character with the surrounding landscape. This class would apply to areas identified in the scenic evaluation where the quality class has been reduced because of unacceptable cultural modification. The contrast is inharmonious with the characteristic landscape. It may also be applied to areas that have the potential for enhancement; i.e., add acceptable visual variety to an area or site. It should be considered an interim or short-term classification until one of the other VRM class objectives can be reached through rehabilitation or enhancement. The desired VRM class should be identified.

Renewable Energy: Energy generated from renewable resources such as sunlight, wind, and biomass.

Required Design Features (RDFs): Required for certain activities in all priority Greater Sage-Grouse habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the NEPA analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable;
- An alternative RDF, a state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for Greater Sage-Grouse or its habitat; or
- A specific RDF will provide no additional protection to Greater Sage-Grouse or its habitat.

Reserve Common Allotment: A reserve common allotment is an area which is designated in the land use plan as available for livestock grazing but reserved as an area available for use as an alternative to grazing in another allotment in order to facilitate rangeland restoration treatments and recovery from natural disturbances such as drought or wildfire. The

reserve common allotment would provide needed flexibility that would help the agency apply temporary rest from grazing where vegetation treatments and/or management would be most effective.

Residual Impacts: Impacts from an authorized land use that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Resource Management Plan: A land use plan as prescribed by the Federal Land Policy and Management Act which establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Resources, Qualities, and Values: The significant scenic, historic, cultural, recreation, natural (including biological, geological, and scientific), and other landscape areas through which such trails may pass as identified in the National Trails System Act (see associated settings).

Resource Uses: Activities that utilize resources, such as minerals development, livestock grazing, forestry, OHV use, and recreation.

Rest: Leaving an area ungrazed, thereby foregoing grazing of one forage crop. Normally rest implies absence of grazing for a full growing season or during a critical portion of plant development; i.e., seed production.

Rest-Rotation: A grazing-management scheme in which rest periods, usually for a full growing season, for individual grazing units are incorporated into a grazing rotation.

Right-of-Way (ROW) Corridor: Public land where rights-of-way are concentrated and where the placement of future rights-of-way would be favored over lands that are currently unaffected by these disturbances. The designation of right-of-way corridors would be used to facilitate the regional development of major rights-of-way, by linking right-of-way concentration areas between planning areas. Major rights-of-ways are defined as ROW authorizations for pipelines 24 inches in diameter or greater or high voltage transmission lines greater than 115 kilovolts.

Rights-of-Way (ROW): An authorization to use a specific piece of public land for a specific project, such as roads, pipelines, transmission lines, and communication sites. The grant authorizes rights and privileges for a specific use of the land for a specific period of time.

Riparian: A form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable

water levels are typical riparian areas (See BLM Manual 1737). Included are ephemeral streams that have vegetation dependent upon free water in the soil. All other ephemeral streams are excluded.

Functional-At-Risk: Riparian/wetland areas that are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

Proper Functioning Condition (PFC): A riparian or wetland area is considered to be in proper functioning condition when adequate vegetation, landform, or large woody debris is present to do the following:

- Dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality
- Filter sediment, capture bedload, and aid floodplain development
- Improve floodwater retention and groundwater recharge
- Develop root masses that stabilize streambanks against cutting action
- Develop diverse ponding and channel characteristics to provide the habitats and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses
- Support greater biodiversity

Non-functional: Riparian or wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, and so on, as listed above. The absence of certain physical attributes, such as a floodplain where one should be, is an indicator of nonfunctioning conditions.

Unknown: Riparian or wetland areas that the BLM lacks sufficient information on to make any form of determination.

Rotation Grazing: A grazing scheme where animals are moved from one grazing unit in the same group of grazing units to another without regard to specific grazing rest periods or levels of plant defoliation.

Salable Minerals: Common variety of minerals on public lands, such as sand and gravel, used mainly for construction. Salable minerals are disposed of by sales to the public or free-use permits to government agencies or nonprofit organizations.

Scenic Area: An area whose landscape character exhibits a high degree of variety and harmony among the basic elements which results in a pleasant landscape to view.

Scenic Byways: A component of the national scenic byway system which focuses on scenic corridors along major secondary and primary highways. A scenic byway has roadside corridors of special aesthetic, cultural,

or historic value. An essential part of this road is its scenic corridor. The corridor may contain outstanding scenic vistas, unusual geologic or other elements – all providing enjoyment for the highway traveler (BLM 1993).

Scenic Quality: The relative worth of a landscape from a visual perception point of view. Scenic quality is rated as Class A (high), Class B (medium), or Class C (low).

Seasonal Grazing: Grazing use throughout a specific season.

Section 106 of the National Historic Preservation Act: "The head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking in any state and the head of any federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking" (16 U.S.C. 47 df).

Sensitive Species: As designated by the BLM State Director, includes species that are under status review, have small or declining populations, live in unique habitats, or require special management. BLM Manual 6840 provides policy and guidance for special status species management. The BLM Wyoming Sensitive Species Policy and List are provided in a memorandum updated annually. Primary goals of the BLM Wyoming policy include maintaining vulnerable species and habitat components in functional BLM ecosystems and preventing a need for species listing under the Endangered Species Act.

Setting: The physical environment of a historic property and how the property evokes a sense of feeling and association with past events. Accordingly, setting refers to the character of the place in which the property played its historic role. It involves how, not just where, the property is situated and its relationship to surrounding features and open space. These features and their relationships should be considered not only within the exact boundaries of the property, but also between the property and its surroundings.

Significant Paleontological Resource: Any paleontological resource that is considered to be of scientific interest, including most vertebrate fossil remains and traces, and certain rare or unusual invertebrate and plant fossils.

Site: A location, place. A term used by archeologists for places that prehistoric and historic people lived in or used. Sites are places where humans left things behind.

Slope: A slant or incline of the land surface, measured in degrees from the horizontal, or in percent (defined as the number of feet or meters change in elevation per 100 of the same units of horizontal distance); may be further characterized by direction (exposure).

Special Recreation Management Area (SRMA): See *Recreation Management Areas*.

Special Status Species: Species proposed or candidates for listing, or officially listed as threatened or endangered under the provisions of the endangered species act; those listed by a state in a category such as threatened or endangered implying potential endangerment or extinction; and those designated by the State Director as sensitive (BLM 6840 Manual 2001). Special status species may include wildlife (including fish and invertebrate) or plant species.

Species: A taxon or rank species; in the hierarchy or biological classification, the category below genus.

Species Diversity: The number, different kinds of, and relative abundances of species present in a given area.

Split-Estate: Surface land and mineral estate of a given area under different ownerships. Surface land and mineral estate of a given area under different ownerships. Frequently, the surface rights are in private ownership and the rights to development of the mineral resources are publically held and managed by the federal government.

Spring: Flowing water originating from an underground source.

Stakeholder: Federal, state, or local governments and agencies, or other entities where a Memorandum of Understanding, Cooperative Agreement, Interagency Agreement, or other such agreement has been executed with the BLM, or an applicant for a BLM authorization or permit.

Standard: A description of the physical and biological conditions or degree of function required for healthy, sustainable lands (e.g., land health standards).

Stand Basal Area: The sum of the cross-sectional area of all living trees in a stand, measured at "breast height" or 4.5 feet high on the uphill side of the trees.

Stand Vigor: General term that refers to the current growth and health of the stand. Live crown ratio is a measure of stand vigor. For example, most stands with an average live crown ratio of 50% or more have vigorous growth. Most stands with an average of less than 20% live crown ratio have poor vigor.

Stipulations: Requirements that are part of the terms of a mineral lease. Some stipulations are standard on all federal leases. Other stipulations

may be applied to the lease at the discretion of the surface management agency to protect valuable surface resources and uses.

Stock Driveway: A strip of land specifically designated for the controlled movement of livestock.

Stock Trail: A trail constructed across a natural barrier to permit movement of livestock to otherwise inaccessible areas.

Suitable River: An eligible river segment found through administrative study to meet the criteria for designation as a component of the National Wild and Scenic Rivers System, as specified in Section 4(a) of the Wild and Scenic Rivers Act.

Surface-Disturbing Activities: An action that alters the vegetation, surface/near surface soil resources, and/or surface geologic features, beyond natural site conditions and on a scale that affects other public land values. Examples of surface-disturbing activities may include: operation of heavy equipment to construct well pads, roads, pits, and reservoirs; installation of pipelines and power lines; and the conduct of several types of vegetation treatments (e.g., prescribed fire). Surface-disturbing activities may be either authorized or prohibited. (Information Bulletin WY 2007-029).

Suspension: The temporary withholding from active use, through a decision issued by the authorized officer or by agreement, of part or all of the permitted use in a grazing permit or lease (43 CFR Part 4100). These AUMs could potentially be re-authorized for use if range conditions improve.

Sustainability: The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Tank: A reservoir of any construction for water storage.

Technical/Economically Feasible: Actions that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. It is the BLM's sole responsibility to determine what actions are technically and economically feasible. The BLM will consider whether implementation of the proposed action is likely given past and current practice and technology; this consideration does not necessarily require a cost-benefit analysis or speculation about an applicant's costs and profit. (Modified from the Council on Environmental Quality's 40 Most Asked Questions and BLM NEPA Handbook, Section 6.6.3)

Tentative Classification: The process where rivers are segmented according to the criteria and classes established in Section 2(b) of the Wild and Scenic Rivers Act. These classifications are based on an analysis of the present level of development within the stream corridor at the time

the inventory was completed. These classifications also control the level of development that may occur within a stream corridor, once a stream is determined eligible or suitable and a classification is assigned. The classifications are:

1. **Recreational:** rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past.
2. **Scenic:** rivers or sections of rivers free of impoundments, with shorelines or watersheds still largely undeveloped but accessible in places by roads.
3. **Wild:** rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shorelines essentially primitive and waters unpolluted.

Threatened Species: Any plant or animal species defined under the Endangered Species Act as likely to become endangered within the foreseeable future throughout all or a significant portion of its range; listings are published in the FR.

Timeliness: The lack of a time lag between impacts and the achievement of compensatory mitigation goals and objectives (BLM Manual Section 1794).

Timing Limitation Stipulation (TLS): Prohibits surface use during specified time periods to protect identified resource values.

Trail: A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high clearance vehicles.

Transfer of Grazing Preference: The BLM's approval of an application to transfer grazing preference from one party to another or from one base property to another, or both. Grazing preference means a superior or priority position against others for the purposes of receiving a grazing permit or lease. This priority is attached to base property owned or controlled by the permittee or lessee.

Trend: The direction of change in ecological status or resource value rating observed over time. Trend in ecological status should be described as toward, or away from the potential natural community, or as not apparent. Trend in resource value rating for a specific use should be described as up, down, or not apparent. Trends in resource value rating for several uses on the same site at a given time may be in different directions, and there is no necessary correlation between trends in resource value rating and trend in ecological status.

Two-track Vehicle Trails: A two-track is where perennial vegetation is devoid or scarce, or where wheel tracks are continuous depressions in the soil yet evident to the casual observer and are vegetated.

Undeveloped Recreation-Tourism Market: National, regional, or local recreation-tourism visitors, communities, or other constituents who value public lands for the distinctive kinds of dispersed recreation produced by the vast size and largely open, undeveloped character of their recreation settings. Major investments in facilities are excluded within special recreation management areas where the BLM's strategy is to target demonstrated undeveloped recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand to sustain distinctive recreation setting characteristics; however, major investments in visitor services are authorized both to sustain those distinctive setting characteristics and to maintain visitor freedom to choose where to go and what to do—all in response to demonstrated demand for undeveloped recreation.

Unnecessary or Undue Degradation: Conditions, activities, or practices that: (1) Fail to comply with one or more of the following: the performance standards in 43 CFR §3809.420, the terms and conditions of an approved plan of operations, operations described in a complete notice, and other federal and state laws related to environmental protection and protection of cultural resources; (2) Are not "reasonably incident" to prospecting, mining, or processing operations as defined in 43 CFR §3715. 0–5 of this chapter; or (3) Fail to attain a stated level of protection or reclamation required by specific laws in areas such as the California Desert Conservation Area, Wild and Scenic Rivers, BLM-administered portions of the National Wilderness System, and BLM-administered National Monuments and National Conservation Areas.

Uplands: Lands at higher elevations than alluvial plains or low stream terraces; all lands outside the riparian-wetland and aquatic zones.

Use/Utilization: (1) The proportion of the current years forage production that is consumed or destroyed by animals (including insects), generally expressed as a percentage. May refer either to a single species or to the vegetation as a whole. (2) Utilization of range for a purpose such as grazing, bedding, shelter, trailing, watering, watershed, recreation, forestry, etc.

Valid Existing Rights: Documented, legal rights or interests in the land that allow a person or entity to use said land for a specific purpose and that are still in effect. Such rights include, but are not limited to, fee title ownership, mineral rights, rights-of-way, easements, permits, and licenses. Such rights may have been reserved, acquired, leased, granted, permitted, or otherwise authorized over time.

Vegetation: Plants in general, or the sum total of the plant live above and below ground in an area.

Vegetation Treatment: Mechanical Treatment: Use of vehicles such as wheeled tractors, crawler type tractors, or specially designed vehicles with attached

implements designed to cut, uproot, or chop existing vegetation. Includes manual treatments involving hand tools, and hand-operated power tools to cut, clear, or prune herbaceous and woody species.

Biological Treatments: Intentional use of domestic animals, insects, nematodes, mites, or pathogens that weaken or destroy vegetation.

Chemical Treatments: Use of chemicals (herbicides) to kill or injure plants.

Vegetative Diversity: The variety of vegetative types in an area, including species, the genetic differences among species and populations, the communities and ecosystems in which vegetation types occur, and the structure and seral stage of these communities. Vegetative diversity includes rare as well as common vegetative types, and typically supports a diverse array of animal species and communities.

Viewshed: Term used in Visual Resource Management (VRM) to describe "…landscape that can be seen under favorable atmospheric conditions from a viewpoint (key observation point) or along a transportation corridor" (BLM 1984).

Visual Resource Management (VRM) Classes:

- **Class I:** The objective of this class is to maintain a landscape setting that appears unaltered by humans. It is applied to wilderness areas, some natural areas, wild portions of wild and scenic rivers, and other similar situations in which management activities are to be restricted.
- **Class II:** The objective of this class is to design proposed alterations so as to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- **Class III:** The objective of this class is to design proposed alterations so as to partially retain the existing character of the landscape. Contrasts to the basic elements (form, line, color, and texture) caused by a management activity may be evident and begin to attract attention in the characteristic landscape; however, the changes should remain subordinate to the existing characteristic landscape.
- **Class IV:** The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. Contrasts may attract attention and be a dominant feature of the landscape in terms of scale; however, changes should repeat the basic elements (form, line, color, and texture) inherent in the characteristic landscape.

Visual Resources: The visible physical features of a landscape (topography, water, vegetation, animals, structures, and other features) that constitute the scenery of an area.

Watershed: See *Basin*.

Weed: Any undesirable or troublesome plant, especially one that grows profusely where it is not wanted. Weeds can be native or nonnative, invasive or noninvasive, and noxious or not noxious.

Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone Greater Sage-Grouse Conservation Teams: WAFWA management zones will be used to identify and address cross-state issues, such as regional mitigation and adaptive management monitoring and response, through WAFWA Management Zone Greater Sage-Grouse Conservation Teams (Teams). These Teams will convene and respond to issues at the appropriate scale, and will utilize existing coordination and management structures to the extent possible.

Wetlands: Areas that are inundated or saturated by surface or groundwater often and long enough to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wilderness: A congressionally designated area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, that is protected and managed to preserve its natural conditions and that: (1) generally appears to have been affected mainly by the forces of nature, with human imprints substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres or is large enough to make practical its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historic value. The definition is contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891) (from H-6310-1, Wilderness Inventory and Study Procedures).

Wilderness Characteristics: Wilderness characteristics include size, the appearance of naturalness, outstanding opportunities for solitude, or a primitive and unconfined type of recreation. They may also include ecological, geological, or other features of scientific, educational, scenic, or historical value. However Section 2(c) of the Wilderness Act of 1964 has been updated by IM-2003-195, dated June 20, 2003. Indicators of an area's naturalness include the extent of landscape modifications, the presence of native vegetation communities, and the connectivity of habitats. Outstanding opportunities for solitude or primitive and unconfined types of recreation may be experienced when the sights, sounds, and evidence of other people are rare or infrequent, in locations where visitors can be isolated, alone or secluded from others, where the use of the area is through nonmotorized, non-mechanical means, and where no or minimal developed recreation facilities are encountered.

Wilderness Study Area: A roadless area or island that has been inventoried and found to have wilderness characteristics as described in Section 603 of FLPMA and Section 2 (c) of the Wilderness Act of 1964 (78 Stat. 891).

Wildfire: Unplanned ignition caused by lightning, volcanoes, unauthorized and accidental human-caused fires and escaped prescribed fires.

Wildland Fire: A general term describing any non-structure fire that occurs in vegetation and/or natural fuels.

Wildland Industrial Interface: The area where industrial development meets or intermingles with undeveloped wildland.

Wildland Urban Interface (WUI): The Healthy Forest Recreation Act 2003 defines wildland urban interface (WUI) (section 101) as an area within or adjacent to an at-risk community that has been identified by a community in its wildfire protection plan or, for areas that do not have such a plan, an area extending (1) ½ mile from the boundary of an at risk community, or (2) 1½ miles when other criteria are met (e.g., a sustained steep slope or a geographic feature aiding in creating an effective fire break or is condition class III land), or (3) is adjacent to an evacuation route.

Wildlife-Disturbing Activity: BLM-authorized activities other than routine maintenance that may cause displacement of or excessive stress to wildlife during critical life stages. Wildlife-disturbing activities include human presence, noise, and activities using motorized vehicles or equipment.

Wildlife Habitat Management Area (WHMA): Special management areas that are designed to protect or preserve certain qualities or uses for wildlife and plant species. The environment in these areas is unique in some respects, and it is therefore desirable to apply different management prescriptions to these areas from those of the surrounding public lands. The integration of different land management goals, objectives, and actions will be implemented to ensure that the integrity of these areas will be maintained. They will be directed toward habitat management rather than species management and encompass featured species and species diversity to ensure compliance with existing laws, prevent species from becoming threatened or endangered, and provide values and uses for the public. The BLM will implement site-specific management actions in coordination with other agencies to maintain and/or improve these unique wildlife habitat management areas.

Wildlife Security Area: A geographic location or area that typically provides for some, if not all, of the wildlife species cover and forage needs and where wildlife are free from human-caused disturbance and/or disruption.

Winter Concentration Area: Greater Sage-Grouse winter habitats which are occupied annually by Greater Sage-Grouse and provide sufficient sagebrush cover and food to support birds throughout the entire winter (especially

periods with above average snow cover). Many of these areas support several different breeding populations of Greater Sage-Grouse. Greater Sage-Grouse typically show high fidelity for these areas, and loss or fragmentation can result in significant population impacts.

Withdrawal: Removal or withholding of public lands, by statute or Secretarial order, from operation of some or all of the public land laws. A mineral withdrawal includes public lands potentially valuable for leasable minerals, precluding the disposal of the lands except with a mineral reservation clause, unless the lands are found not to contain a valuable deposit of minerals. A mineral withdrawal is the closing of an area to mineral location and development activities.

Woodlands: Not capable of producing 20 cubic feet of wood fiber from commercial species per acre per year.

REFERENCES

Agee, J.K. 1993. Fire ecology of Pacific Northwest Forests. Island Press, Wash. DC.

BLM. No Date. Glossary of AML Terms. Available online: http://www.blm.gov/wo/st/en/prog/more/Abandoned_Mine_Lands/About_AML/aml_glossary_and_acronyms.html.

BLM. 1984. Visual Resource Management. BLM Manual 8400.

BLM. 1987. BLM Handbook 1740-1, Renewable Resource Improvement and Treatment Guidelines and Procedures. U.S. Department of the Interior, Bureau of Land Management.

BLM. 1993. Handbook 8357-1-Byways. Release 8-64. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C. Available online: http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.52520.File.dat/h8357-1.pdf.

BLM. 2001. BLM Handbook H-4180-1, Rangeland Health Standards. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.61484.File.dat/h4180-1.pdf.

BLM. 2008. Washington Office Instruction Memorandum No. 2009-018. Process for Setting Priorities for Issuing Grazing Permits and Leases. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C. Available online: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-018.html.

BLM. 2012. Washington Office Instruction Memorandum No. 2012-019, Greater Sage-Grouse Habitat Management Policy on Wyoming BLM-administered Public Lands Including the Federal Mineral Estate. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.blm.gov/pgdata/etc/medialib/blm/wy/resources/efoia/IMs/2012.Par.56874.File.dat/wy2012-019.pdf.

Brown, J.K. 1995. Fire regimes and their relevance to ecosystem management. Pages 171-178 In Proceedings of Society of American Foresters National Convention, Sept. 18-22, 1994, Anchorage, AK. Society of American Foresters, Washington D.C.

Caudle, C., J. DiBenedetto, M. Karl, H. Sanchez, and C. Talbot. 2013. Interagency Ecological Site Handbook for Rangelands. Available online: http://jornada.nmsu.edu/files/InteragencyEcolSiteHandbook.pdf.

Clark, T.W. and M.R. Stromberg. 1987. Mammals in Wyoming. University of Kansas – Museum of Natural History. Lawrence, Kansas. Pages. 108-111.

Luce, R. 2003. Personal communication with Dave Roberts (USDI-BLM, Wyoming) regarding prairie dog "complexes." Sierra Vista, AZ.

Prichard, D., J. Anderson, C. Correll, J. Fogg, K. Gebhardt, R. Krapf, S. Leonard, B. Mitchell, and J. Staats. 1998. Riparian Area Management: A User Guide to Assessing Proper Functioning Condition and Supporting Science for Lotic Areas. U.S. Department of the Interior, Bureau of Land Management, U.S. Department of Agriculture, Forest Service, and Natural Resources Conservation Service Technical Reference 1737-15.

Stiver, S.J., A.D. Apa, J.R. Bohne, S.D. Bunnell, P.A. Deibert, S.C. Gardner, M.A. Hilliard, C.W. McCarthy, and M.A. Schroeder. 2006. Greater Sage-Grouse Comprehensive Conservation Strategy. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, WY.

University of Arizona. No Date. Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, Glossary. Available online: http://www.blm.gov/style/medialib/blm/az/pdfs/3809.Par.41426.File.dat/AZS_n_G.pdf.

Whicker, A. and J.K. Detling. 1988. Ecological Consequences of Prairie Dog Disturbances. Bioscience 38(11): 778-785.

Appendix A. Maps

Greater Sage-Grouse Habitat Management Maps

Map 1-1. Worland Planning Area, Surface Management and Sub-Surface Estate

Map 1-2. Worland Planning Area, Greater Sage Grouse Habitat Management Areas across All Jurisdictions

Map 1-3. Worland Decision Area, Greater Sage Grouse Habitat Management Areas for BLM Administered Lands

Map 2-1. Worland Habitat Management Areas

Map 2-2. Worland Livestock Grazing

Map 2-3. Worland Fluid Minerals (Oil and Gas)

Map 2-4. Worland Locatable Minerals

Map 2-5. Worland Salable Minerals (Mineral Materials)

Map 2-6. Worland Wind Energy

Map 2-7. Worland Designated Utility Corridors

Map 2-8. Worland Rights-of-Way

Map 2-9. Worland Land Tenure

Map 2-10. Worland Trails & Travel Management (OHV)

Worland Field Office Approved Resource Management Plan Maps

Map 1-4. Surface Ownership within the Worland Field Office

Map 1-5. Mineral Ownership within the Worland Field Office

Map 3-1. Physical Resources – Water – Worland Field Office

Map 3-2. Mineral Resources – Locatable – Bentonite-Bearing Strata

Map 3-3. Mineral Resources – Locatable – Gypsum-Bearing Strata

Map 3-4. Mineral Resources – Locatable

Map 3-5. Mineral Resources – Leasable – Coal-Bearing Strata

Map 3-6. Mineral Resources – Leasable – Geothermal

Map 3-7. Mineral Resources – Leasable – Existing Oil and Gas Leases

Map 3-8. Mineral Resources – Leasable – Oil and Gas

Map 3-9. Mineral Resources – Leasable – Oil and Gas Management Areas

Map 3-10. Mineral Resources – Leasable – Producing Oil and Gas Fields

Map 3-11. Mineral Resources – Salable – Mineral Materials Sites

Map 3-12. Mineral Resources – Salable

Map 3-13. Mineral Resources – Master Leasing Plan

Map 3-14. Biological Resources – Wildlife Management Areas

Map 3-15. Biological Resources – Vegetation

Map 3-16. Biological Resources – Fish and Wildlife Resources

Map 3-17. Biological Resources – Special Status Species – Wildlife

Map 3-18. Biological Resources – Wild Horses

Map 3-19. Heritage and Visual Resources – Paleontological Resources

Map 3-20. Heritage and Visual Resources – Visual Resource Management

Map 3-21. Land Resources – Lands and Realty Retention, Disposal, and Acquisition

Map 3-22. Land Resources – Renewable Energy Potential

Map 3-23. Land Resources – Renewable Energy

Map 3-24. Land Resources – Rights-of-Way and Corridors

Map 3-25. Physical Resources – Soil Slope and Erosion Hazard

Map 3-26. Land Resources – Travel Management Designations

Map 3-27. Land Resources – Recreation

Map 3-28. Land Resources – Livestock Grazing – Allotment Categories

Map 3-29. Land Resources – Livestock Grazing – Closures

Map 3-30. Special Designations – Areas of Critical Environmental Concern and other Management Areas

Map 3-31. Special Designations – Wilderness Study Areas

Map 3-32. Special Designations – Historic Trails

Map 3-33. Socioeconomic Resources – Health and Safety

This page intentionally
left blank

Appendix B. Oil and Gas Lease Notices and Lease Stipulations, including Exception, Modification, and Waiver Criteria

B.1. Lease Notices

A lease notice provides more detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. A Lease Notice also addresses special items the lessee should consider when planning operations, but does not impose new or additional restrictions (Uniform Format for Oil and Gas Lease Stipulations, March 1989. Rocky Mountain Regional Coordinating Committee). "An information [lease] notice has no legal consequences, except to give notice of existing requirements, and may be attached to a lease by the authorized officer at the time of lease issuance to convey certain operational, procedural or administrative requirements relative to lease management within the terms and conditions of the standard lease form. Information [lease] notices shall not be a basis for denial of lease operations." (43 Code of Federal Regulations [CFR] 3101.1-3). There are four standard lease notices that are attached to every lease issued by the Bureau of Land Management (BLM) within Wyoming (three numbered, and one unnumbered lease notice).

LEASE NOTICE NO. 1

Under Regulation 43 CFR 3101.1 2 and terms of the lease (BLM Form 3100 11), the authorized officer may require reasonable measures to minimize adverse impacts to other resource values, land uses, and users not addressed in lease stipulations at the time operations are proposed. Such reasonable measures may include, but are not limited to, modification of siting or design of facilities, timing of operations, and specification of interim and final reclamation measures, which may require relocating proposed operations up to 200 meters, but not off the leasehold, and prohibiting surface-disturbing activities for up to 60 days.

The lands within this lease may include areas not specifically addressed by lease stipulations that may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled or, if absolutely necessary, prohibited. Appropriate modifications to imposed restrictions will be made for the maintenance and operation of producing wells.

1. Slopes in excess of 25 percent.
2. Within 500 feet of surface water and/or riparian areas
3. Construction with frozen material or during periods when the soil materials is saturated or when watershed damage is likely to occur.
4. Within 500 feet of Interstate highways and 200 feet of other existing rights-of-way (i.e., United States and State highways, roads, railroads, pipelines, power lines).
5. Within $^1/_4$ mile of occupied dwellings.
6. Material sites.

Guidance

The intent of this notice is to inform interested parties (potential lessees, permittees, operators) that when one or more of the above conditions exist, surface-disturbing activities will be

prohibited unless or until the permittee or the designated representative and the surface management agency arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development and become a condition for approval when authorizing the action. Specific threshold criteria (e.g., 500 feet from water) have been established based upon the best information available. However, geographical areas and time periods of concern must be delineated at the field level (i.e., "surface water and/or riparian areas" may include both intermittent and ephemeral water sources or may be limited to perennial surface water). The referenced oil and gas leases on these lands are hereby made subject to the stipulation that the exploration or drilling activities will not interfere materially with the use of the area as a materials site/free use permit. At the time operations on the above lands are commenced, notification will be made to the appropriate agency. The name of the appropriate agency may be obtained from the proper BLM Field Office.

THIS NOTICE APPLIES TO ALL PARCELS.

LEASE NOTICE NO. 2

Background
The BLM, by including National Historic Trails (NHTs) within its National Landscape Conservation System, has recognized these trails as national treasures. The BLM's responsibility is to review the strategy for management, protection, and preservation of these trails. The NHTs in Wyoming, which include the Oregon, California, Mormon Pioneer, and Pony Express Trails, as well as the Nez Perce Trail, were designated by Congress through the National Trails System Act (Public Law (Pub. L.) 90-543; 16 United States Code [U.S.C.] 1241-1251) as amended through Pub. L. 106-509 dated November 13, 2000.

Protection of the NHTs is normally considered under the National Historic Preservation Act (NHPA) (Pub. L. 89- 665; 16 U.S.C. 470 et seq.) as amended through 1992 and the National Trails System Act. Additionally, Executive Order 13195, "Trails for America in the 21st Century," signed January 18, 2001, states in Section 1: "Federal agencies will...protect, connect, promote, and assist trails of all types throughout the United States. This will be accomplished by…(b) Protecting the trail corridors associated with national scenic trails and the high priority potential sites and segments of national historic trails to the degrees necessary to ensure that the values for which each trail was established remain intact." Therefore, the BLM will be considering all impacts and intrusions to the NHTs, their associated historic landscapes, and all associated features, such as trail traces, grave sites, historic encampments, inscriptions, natural features frequently commented on by emigrants in journals, letters and diaries, or any other feature contributing to the historic significance of the trails. Additional NHTs will likely be designated amending the National Trails System Act. When these amendments occur, this notice will apply to those newly designated NHTs as well.

Strategy
The BLM will proceed in this objective by conducting a viewshed analysis on either side of the designated centerline of the NHTs in Wyoming for the purpose of identifying and evaluating potential impacts to the trails, their associated historic landscapes, and their associated historic features. Subject to the viewshed analysis and archeological inventory, reasonable mitigation measures may be applied. These may include, but are not limited to, modification of siting or design of facilities to camouflage or otherwise hide the proposed operations within the viewshed. Additionally, specification of interim and final reclamation measures may require relocating the proposed operations within the leasehold. Surface-disturbing activities will be analyzed in

accordance with the National Environmental Policy Act (NEPA) of 1969 (Pub. L. 91-190; 42 U.S.C. 4321-4347) as amended through Pub. L. 94-52, July 3, 1975 and Pub. L. 94-83, August 9, 1975, and the NHPA, supra, to determine if any design, siting, timing, or reclamation requirements are necessary). This strategy is necessary until the BLM determines that, based on the results of the completed viewshed analysis and archeological inventory, the existing land use plans (Resource Management Plans [RMP]) have to be amended.

The use of this lease notice is a predecisional action, necessary until final decisions regarding surface-disturbing restrictions are made. Final decisions regarding surface-disturbing restrictions will take place with full public disclosure and public involvement over the next several years if BLM determines that it is necessary to amend existing land use plans.

Guidance
The intent of this notice is to inform interested parties (potential lessees, permittees, operators) that when any oil and gas lease contains remnants of NHTs, or is located within the viewshed of a NHTs' designated centerline, surface-disturbing activities will require the lessee, permittee, operator or their designated representative, and the surface management agency to arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development and become a condition for approval when authorizing the action.

THIS NOTICE APPLIES TO ALL PARCELS.

LEASE NOTICE NO. 3

Greater Sage-Grouse Habitat: The lease may in part, or in total, contain important Greater Sage-Grouse habitats as identified by the BLM, either currently or prospectively. The operator may be required to implement specific measures to reduce impacts of oil and gas operations on the Greater Sage-Grouse populations and habitat quality. Such measures shall be developed during the Application for Permit to Drill (APD) on-site and environmental review process and will be consistent with the lease rights granted.

THIS NOTICE APPLIES TO ALL PARCELS.

UNNUMBERED LEASE NOTICE

Provisions of the Mineral Leasing Act of 1920, as amended by the Federal Coal Leasing Amendments Act of 1976, affect an entity's qualifications to obtain an oil and gas lease. Section 2(a)(2)(A) of the Mineral Leasing Act, 30 U.S.C. 201 (a)(2)(A), requires that any entity that holds and has held a federal coal lease for 10 years beginning on or after August 4, 1976, and who is not producing coal in commercial quantities from each such lease, cannot qualify for the issuance of any other lease granted under the Mineral Leasing Act. Compliance by coal lessees with Section 2(a)(2)(A) is explained in 43 CFR 3472.

In accordance with the terms of this oil and gas lease, with respect to compliance by the initial lessee with qualifications concerning federal coal lease holdings, all assignees and transferees are hereby notified that this oil and gas lease is subject to cancellation if: (1) the initial lessee as assignor or as transferor has falsely certified compliance with Section 2(a)(2)(A), or (2) because of a denial or disapproval by a State Office of a pending coal action, i.e., arms-length assignment, relinquishment, or logical mining unit, the initial lessee as assignor or as transferor is no longer in compliance with Section 2(a)(2)(A). The assignee, sublessee or transferee does not qualify as a bona fide purchaser and, thus, has no rights to bona fide purchaser protection in the event of

cancellation of this lease due to noncompliance with Section 2(a)(2)(A). Information regarding assignor, sublessor or transferor compliance with Section 2(a)(2)(A) is contained in the lease case file as well as in other BLM records available through the State Office issuing this lease.

ATTACHMENT TO EACH LEASE

B.2. Lease Stipulations

The RMP determines which areas of the planning area are open to fluid mineral leasing, including the constraints or conditions open areas are subject to, and which areas are closed to fluid mineral leasing. The RMP closes the following areas to mineral leasing: Wilderness Study Areas, cave and karst areas, and certain Areas of Critical Environmental Concern.

In areas open to leasing, the BLM may impose lease stipulations. A lease stipulation is a condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations, or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. These resource values and land uses generally include air, wildlife, soil, water, recreation, visual, and cultural resources. A stipulation is an enforceable term of the lease contract, which supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the BLM's regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process. "The authorized officer may require stipulations as conditions of lease issuance. Stipulations shall become part of the lease and shall supersede inconsistent provisions of the standard lease form. Any party submitting a bid… shall be deemed to have agreed to stipulations applicable to the specific parcel…" (43 CFR 3101.1-3).

Exceptions, waivers, and modifications provide an effective means of applying "Adaptive Management" techniques to oil and gas leases and associated permitting activities to meet changing circumstances. The criteria for approval of exceptions, waivers, and modifications should be supported by NEPA analysis, either through the land use planning process or site-specific environmental review.

This appendix identifies fluid mineral lease stipulations and addresses the procedure for providing exceptions, modifications, and waivers of lease stipulations and the conditions under which they may be granted. Procedures for changing Conditions of Approval (COAs) placed on surface disturbance and disruptive activity authorizations to protect resource values are the same. The BLM cannot apply a no surface occupancy (NSO) restriction after lease issuance. The BLM can apply timing limitation stipulation (TLS) and controlled surface use (CSU) restrictions, as COAs on an Application for Permit to Drill (APD) consistent with lease rights. The criteria for exceptions to COAs on APDs is the same as that for leasing in Table B.1, "Oil and Gas Lease Stipulations — Worland Field Office Planning Area" (p. 216). Additionally, COAs on APDs do not apply to other portions of the lease such as maintenance and operation of existing facilities.

Definitions

The three types of surface stipulations the BLM applies are: (1) NSO, (2) TLS, and (3) CSU.

- **NSO:** Use or occupancy of the land surface for fluid mineral exploration or development is prohibited in order to protect identified resource values. The minerals under NSO lands may

potentially be developed by directionally or horizontally drilling from nearby lands that do not have the NSO limitation.
- **TLS:** Prohibits surface use during a specified time period to protect identified resource values. (Seasonal restriction).
- **CSU:** Use and occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify lease rights.

Surface use rights are described in more detail at 43 CFR 3101.1-2.

An applicant may request an exception, modification, or waiver of a stipulation or restriction included in a lease or applied as a COA.
- **Exception:** A one-time exemption to a lease stipulation or COA determined on a case-by-case basis.
- **Modification:** A change to the provisions of a lease stipulation, either temporarily or for the term of the lease.
- **Waiver:** A permanent exemption to a lease stipulation.

Standard Stipulations

The following three stipulations are applied to all BLM-administered fluid mineral leases within Wyoming.

LEASE STIPULATION NO. 1: CULTURAL RESOURCES

This lease may be found to contain historic properties and/or resources protected under the NHPA, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Officer and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

LEASE STIPULATION NO. 2: ENDANGERED SPECIES ACT SECTION 7 CONSULTATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation.

LEASE STIPULATION NO. 3: MULTIPLE MINERAL DEVELOPMENT

Operations will not be approved that, in the opinion of the authorized officer, would unreasonably interfere with the orderly development and/or production from a valid existing mineral lease issued prior to this one for the same lands.

Worland Planning Area Stipulations

Table B.1, "Oil and Gas Lease Stipulations — Worland Field Office Planning Area" (p. 216) lists RMP leasing stipulations applicable under the BLM Worland Field Office Approved RMP (see Chapter 3, *Approved Resource Management Plan* (p. 45)) and possible exceptions, modifications, and waivers to those stipulations. Provided with each stipulation is the text of the Decision, the Decision record number, and the criteria for considering exceptions, modifications, and waivers.

Table B.1. Oil and Gas Lease Stipulations — Worland Field Office Planning Area

Record Number	**1041**
Protected Resource	**Water**
Decision Text	Authorize new activities resulting in the surface discharge of produced water where compatible with other resource objectives and in consultation with stakeholders. Require water monitoring plans for new activities resulting in surface discharges of water to track changes in receiving channels and to minimize adverse impacts to watershed health. If adverse impacts to receiving channels or watershed health occur, require development and implementation of water management plans which include reclamation strategies and mitigation to address impacts. Avoid or mitigate BLM-authorized activities and infrastructure such as unlined impoundment ponds/pits, reserve pits, and evaporation ponds that could result in the contamination of sensitive water resources, including Source Water Protection Areas identified in Wellhead or Source Water Protection Plans approved local governing bodies and "High" and "Moderately High" sensitivity aquifer systems identified through the use of the Wyoming Groundwater Vulnerability Assessment Handbook or similar document as updated over time, on a case-by-case basis. BMPs appropriate for consideration to mitigate potential water quality impacts are listed in Appendix C, *Required Design Features and Best Management Practices* (p. 249).
Stipulation Type	**Lease Notice**
RMP Acres Affected	**N/A**
Stipulation Description	Lease Notice. Require water monitoring plans for new activities resulting in surface discharges of water to track changes in receiving channels and to minimize adverse impacts to watershed health. If adverse impacts to receiving channels or watershed health occur, require development and implementation of water management plans which include reclamation strategies and mitigation to address impacts. Avoid BLM-authorized activities and infrastructure such as unlined impoundment ponds/pits, reserve pits, and evaporation ponds that could result in the contamination of sensitive water resources, including Source Water Protection Areas identified in Wellhead or Source Water Protection Plans approved local governing bodies and "High" and "Moderately High" sensitivity aquifer systems identified through the use of the Wyoming Groundwater Vulnerability Assessment Handbook or similar document as updated over time to the maximum extent possible. Where such activities or infrastructure cannot be avoided, apply mitigation to reduce potential impacts on a case-by-case basis. BMPs appropriate for consideration to mitigate potential water quality impacts are listed in Appendix C, *Required Design Features and Best Management Practices* (p. 249).
Record Number	**1042**
Protected Resource	Public Water Supply Areas

Decision Text	Avoid activities that could negatively affect water resources within a ¼ mile area around public water supply wells, and an area including ¼ mile on both sides of a river or stream, for 10 miles upstream of the public water supply intake, within the watershed. For lakes and reservoirs, this would include a ¼ mile area around the waterbody. For unavoidable activities in these areas, site specific mitigation will be included to minimize risk of adverse impacts.
Stipulation Type	CSU
RMP Acres Affected	986 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use is restricted within ¼ mile of water resources, public water supply wells and up to 10 miles upstream of public water supply intake areas. (1) Prior to surface disturbance within ¼ mile of water resources, public water supply wells and up to 10 miles upstream of public water supply intake areas, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● Reserve pits are eliminated through the use of closed loop drilling techniques, unless a pit is needed for critical safety reasons. Any necessary pits should be designed to prevent possible contamination of soil and groundwater. ● Evaporation ponds are not sited within this area. ● All oil and gas related infrastructure is set back a minimum of 500 feet from a public water supply well or intake area. ● Drill pad sites should be designed to disperse storm water runoff onto upland sites using proper erosion and sediment control techniques. ● Design drilling programs for water resource and public water supply protection. (2) as mapped by the WDEQ or Worland Field Office GIS database; (3) to protect water resources and public water supplies. **Exception:** The BLM authorized officer may grant an exception if it is determined that the action is of a scale, sited in a location, or otherwise designed so that the proposed action would not result in a risk to public water supplies. **Modification:** The BLM authorized officer may grant a modification if it is determined that a portion of the lease is no longer located within ¼ mile of public water supply resources. **Waiver:** This stipulation may be waived if the BLM authorized officer determines that the entire leasehold is not located within ¼ mile of public water supply wells or public water supply intake areas.
Record Number	**2034**
Protected Resource	Absaroka Front MLP analysis area: Wildlife habitat inside elk crucial winter range
Decision Text	Zone 3 – Areas inside elk crucial winter range are subject to CSU. Oil and gas-related surface disturbances are restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 64 acres. A minimum lease size of 1,280 noncontiguous acres of federal mineral estate is required inside elk crucial winter range. Smaller parcels may be leased only when 1,280 acres of federal mineral estate are not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. ● Allow additional disturbance pending acceptable final reclamation. ● Co-locate new disturbance where technically feasible. ● Utilize unitization to minimize surface disturbance in elk crucial winter range.
Stipulation Type	CSU

RMP Acres Affected	19,499 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within Zones 1 and 3 inside elk crucial winter range of the Absaroka Front MLP analysis area (1) Surface occupancy or use will be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 64 acres; (2) as mapped by in the Worland Field Office GIS database; (3) protecting elk crucial winter range within Zone 3 of the Absaroka Front MLP analysis area. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of elk. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Modification:** The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the elk. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the lease is no longer within elk crucial winter range or is no longer located within the Absaroka Front MLP analysis area. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.
Record Number	**2035**
Protected Resource	Absaroka Front MLP analysis area: Wildlife habitat
Decision Text	Zone 3 – Apply a CSU to avoid locating new surface disturbance within forest type vegetation in areas identified as habitat for big game crucial winter range (Map 3-14).
Stipulation Type	CSU
RMP Acres Affected	7,068 acres

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within Zone 3 of the Absaroka Front MLP analysis area within forest type vegetation also identified as big game crucial winter range (1) Prior to surface disturbance within Zone 3 forest type vegetation, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: Design oil and gas development to avoid or reduce unnecessary disturbances to forest type vegetation. (2) as mapped in Worland Field Office GIS database; (3) to protect forest type vegetation identified as big game crucial winter range within Zone 3 of the Absaroka Front MLP analysis area. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of big game. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Modification:** The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of big game. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the lease is no longer considered in the land use plan to be within big game crucial winter range comprised of forest type vegetation, or within the Absaroka Front MLP analysis area. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes in accordance with the land use plan and/or the regulatory provisions for such changes.
Record Number	**2036**
Protected Resource	Absaroka Front MLP analysis area: Recreation
Decision Text	Zone 3 – Apply a TLS for surface-disturbing or disruptive activity from September 1-November 15 to maintain recreational settings for hunting within the Absaroka Mountain Foothills SRMA.
Stipulation Type	TLS
RMP Acres Affected	10,584 acres

Stipulation Description	Timing Limitation Stipulation (TLS). Avoid surface-disturbing and disruptive activities within Absaroka Mountain Foothills SRMA (1) September 1 to November 15; (2) as mapped on the Worland Field Office GIS database; (3) protecting recreational settings. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resource use, considering health and safety. **Modification:** This stipulation may be modified if a portion of the lease is determined by the BLM authorized officer to not be located within the Absaroka Mountain Foothills SRMA. **Waiver:** This stipulation may be waived if the BLM authorized officer determines that the entire lease is no longer managed for recreational settings for hunting or is not located within the Absaroka Mountain Foothills SRMA.
Record Number	**2038**
Protected Resource	Fifteen Mile MLP analysis area: Recreation, conserve geologic features, LRP soils
Decision Text	Apply a CSU restriction within the Fifteenmile MLP Analysis Area. Allow no more than 1 surface disturbance per lease, to include 1 well pad and ancillary facilities, to maintain recreational settings, and conserve geologic features, LRP soils, allow no more than 1 surface disturbance per lease. Total surface disturbance per lease will not exceed 32 acres. A minimum lease size of 640 acres of federal mineral estate would be applied within the analysis area. The lease can consist of noncontiguous parcels. Smaller parcels may be leased only when 640 acres of federal mineral estate are not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. ● Allow additional disturbance pending acceptable final reclamation. ● Co-locate new disturbance where technically feasible. ● Utilize unitization to control the pace and density of development.
Stipulation Type	CSU
RMP Acres Affected	230,869 acres (total Fifteen Mile MLP analysis area)

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Fifteen Mile MLP analysis area (1) Surface occupancy or use will be restricted to no more than 1 surface disturbance per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 32 acres; (2) as mapped on the Worland Field Office GIS database; (3) protecting recreational setting, LRP soils, and geologic features within the Fifteen Mile MLP Analysis Area. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for geologic features or LRP soils. The BLM can and does grant exceptions if the BLM determines that granting an exception would not adversely impact the resource being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Modification:** The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the resource. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** This stipulation may be waived over the entire lease if it is determined that the lease is no longer considered in the land use plan to be within the Fifteen Mile MLP analysis area. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.
Record Number	**2039**
Protected Resource	Fifteen Mile MLP analysis area: Recreation, conserve geologic features, LRP soils
Decision Text	Apply a lease notice to restrict surface disturbance on LRP soils and unique geologic features unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts, which may include, but not be limited to include an Erosion, Revegetation and Restoration Plan. The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● The disturbed area will be stabilized with no evidence of accelerated erosion features. ● The disturbed area shall be managed to ensure soil characteristics approximate an appropriate reference site with regard to erosional features to maintain soil productivity and sustainability. ● Slope stability is maintained preventing slope failure and erosion. ● Sufficient viable topsoil is maintained for ensuring successful final reclamation. At locations where interim reclamation will be completed, this will be accomplished by respreading all salvaged topsoil over the areas of interim reclamation. ● The original landform and site productivity will be partially restored during interim reclamation and fully restored as a result of final reclamation.
Stipulation Type	Lease Notice
RMP Acres Affected	230,869 acres (total Fifteen Mile MLP analysis area)

Stipulation Description	Lease Notice. Surface occupancy or use will be restricted or prohibited within the Fifteen Mile MLP analysis area (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts, which may include, but not be limited to include an Erosion, Revegetation and Restoration Plan. Prior to surface disturbance on limited reclamation potential areas a site-specific construction, stabilization, and reclamation plan (Plan) must be submitted to the BLM by the applicant as a component of the APD (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The Plan must include designs approved and stamped by a licensed engineer. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer has approved the Plan (with conditions, as appropriate).
Record Number	**2040**
Protected Resource	Fifteen Mile MLP analysis area: Recreation, conserve geologic features, LRP soils
Decision Text	Limit off-road vehicular use for NOS level casual use actions within the Fifteenmile MLP Analysis Area. Allow OHV and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
Stipulation Type	Lease Notice
RMP Acres Affected	230,869 acres (total Fifteen Mile MLP analysis area)
Stipulation Description	Limit off-road vehicular use for NOS level casual use actions within the Fifteenmile MLP Analysis Area. Allow OHV and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
Record Number	**2042 and 4078**
Protected Resource	Big Horn Front MLP analysis area: Wildlife migration corridors
Decision Text	Apply an NSO restriction: Prohibit surface-disturbing activities within ½ mile of big game migration corridors within the Big Horn Front MLP Analysis Area.
Stipulation Type	NSO
RMP Acres Affected	12,890 acres

Stipulation Description	No surface occupancy (NSO). No surface occupancy is permitted (1) within ½ mile of big game migration corridors within the Big Horn Front MLP analysis area; (2) as mapped on the Worland Field Office GIS database. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of big game. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Modification:** The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of big game migration. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, if it is determined that the entire leasehold is greater than ½ mile from big game migration corridors within the Big Horn Front MLP Analysis Area or if there are no big game migration corridors within the lease boundary. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.
Record Number	**2043**
Protected Resource	Big Horn Front MLP analysis area: Wildlife habitat inside elk crucial winter range
Decision Text	Apply a CSU: Within elk crucial winter range, oil and gas-related surface disturbances would be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. A minimum lease size of 1,280 acres of federal mineral estate would be required. The lease can consist of noncontiguous parcels. Total surface disturbance per lease will not exceed 64 acres. Smaller parcels may be leased only when 1,280 acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. ● Allow additional disturbance pending acceptable final reclamation. ● Co-locate new disturbance where technically feasible. ● Utilize unitization to minimize surface disturbance in crucial winter range.
Stipulation Type	CSU
RMP Acres Affected	59,245 acres

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited inside elk crucial winter range within the Big Horn Front MLP analysis area (1) Surface occupancy or use will be restricted to no more than 1 location per lease, to include 1 well pad and ancillary facilities. Total surface disturbance per lease will not exceed 64 acres; (2) as mapped on the Worland Field Office GIS database; (3) protecting elk crucial winter range within the Big Horn Front MLP analysis area. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of elk. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Modification:** The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the elk. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the lease is no longer within elk crucial winter range or located within the Big Horn Front MLP analysis area.
Record Number	**2043**
Protected Resource	Big Horn Front MLP analysis area – Big game winter range
Decision Text	Apply a TLS to avoid surface-disturbing and disruptive activities within big game crucial winter range from November 15 through April 30. In addition, apply a TLS to avoid surface-disturbing and disruptive activities within elk winter range from November 15 through April 30 within the Big Horn Front MLP Analysis Area.
Stipulation Type	TLS
RMP Acres Affected	59,245 acres
Stipulation Description	Timing Limitation Stipulation (TLS). Avoid surface-disturbing and disruptive activities within big game winter range (1) from Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game winter range. **Exception:** The BLM authorized officer may grant an exception if the operator demonstrates that the big game winter range areas are not occupied during the period of concern, subject to confirmation by the BLM, in coordination with WGFD. **Modification:** The BLM authorized officer may modify the area subject to the stipulations based upon BLM evaluation in coordination with WGFD to determine that the big game winter range is not present or boundaries of the subject winter range areas have been refined. The BLM authorized officer may modify the area subject to the stipulations based upon BLM evaluation in coordination with WGFD to determine that big game winter range is not present or boundaries of the subject winter range areas have been refined. **Waiver:** The BLM authorized officer may grant a waiver if it is determined that the entire lease area is no longer within big game winter range, in coordination with WGFD.
Record Number	**2044**
Protected Resource	Big Horn Front MLP analysis area: Recreational settings

Decision Text	Limit off-road vehicular use for NOS level casual use actions within the Big Horn Front MLP Analysis Area. Allow OHV and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
Stipulation Type	Lease Notice
RMP Acres Affected	236,261 acres
Stipulation Description	Limit off-road vehicular use for NOS level casual use actions within the Big Horn Front MLP Analysis Area. Allow OHV and mechanized (mountain bike) travel up to 300 feet from established roads in areas with limited travel designations to allow for staking activities, provided that: 1) no resource damage occurs; 2) no new routes are created; and 3) such access is not otherwise prohibited by the BLM authorized officer.
Record Number	**4035**
Protected Resource	Water, Riparian/Wetland: Within 500 feet perennial surface water, and riparian/wetland areas
Decision Text	Prohibit surface-disturbing activities within 500 feet of surface water and riparian/wetland areas (61,009 acres) except when such activities are necessary and when their impacts can be mitigated.
Stipulation Type	NSO
RMP Acres Affected	61,009 acres
Stipulation Description	No surface occupancy (NSO). No surface occupancy (1) within 500 feet of perennial surface water, riparian/wetland areas, and playas; (2) as mapped on the Worland Field Office GIS database. **Exception:** The authorized officer may grant an exception if, based upon an evaluation by the BLM, it is determined that the proposal would not adversely affect perennial surface waters, riparian/wetland areas and/or playas. **Modification:** The authorized officer may modify the area subject to the stipulation if, based upon an evaluation by the BLM, it is determined that portion of the lease is not located within 500 feet of perennial surface waters, riparian/wetland areas and/or playas or if impacts can be adequately mitigated. **Waiver:** The authorized officer may grant a waiver if it is determined that the entire lease area is not within 500 feet of perennial surface waters, riparian/wetland areas and/or playas. This determination will be based upon an evaluation by the BLM.
Record Number	**4053**
Protected Resource	Water, Riparian/Wetland, Fish and Wildlife
Decision Text	Apply an NSO restriction and prohibit surface-disturbing activities within 500 feet and apply a CSU and avoid surface-disturbing activities within ¼ mile of any waters rated by the WGFD as Blue Ribbon or Red Ribbon (trout streams of national or statewide importance).
Stipulation Type	NSO, CSU
RMP Acres Affected	NSO: 136,953 acres CSU: 237,125 acres

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use is restricted within ¼ mile of waters rated by the WGFD as Class 1 or 2 fisheries. (1) Prior to surface disturbance within ¼ mile of waters rated by the WGFD as Class 1 or 2 fisheries, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● Reserve pits should be designed to prevent possible contamination of soil and groundwater. ● Drill pad sites should be designed to disperse storm water runoff onto upland sites using proper erosion and sediment control techniques. ● Design road crossing of streams to allow fish passage at all flows. ● Design crossings such that they do not destabilize the channel or increase water velocity. ● Limit surface-disturbing activities within water channels during spring and fall spawning periods. (2) as mapped on the Worland Field Office GIS database; (3) to protect designated Blue Ribbon and Red Ribbon fisheries habitat and fish populations. **Exception:** The BLM authorized officer may grant an exception if it is determined that the action is of a scale, sited in a location, or otherwise designed so that the proposed action would not result in a decline in fish abundance or range. **Modification:** The BLM authorized officer may grant a modification if it is determined that a portion of the lease is no longer located within ¼ mile of WGFD-designated Blue or Red Ribbon fisheries. **Waiver:** This stipulation may be waived if the BLM authorized officer determines that the entire leasehold is not located within ¼ mile of WGFD-designated Blue or Red Ribbon fisheries.
Record Number	**4060**
Protected Resource	Fish and Wildlife: Bighorn River HMP/RAMP tracts
Decision Text	Prohibit surface-disturbing and disruptive activities in the Bighorn River HMP/RAMP tracts and apply an NSO restriction as appropriate. Exceptions include casual use and uses related to the development of recreation facilities or wildlife habitat, including vegetation treatments.
Stipulation Type	NSO
RMP Acres Affected	15,945 acres
Stipulation Description	No surface occupancy (NSO). No surface occupancy is permitted (1) within Bighorn River HMP/RAMP tracts (2) protecting fish and wildlife resources. **Exception:** The BLM authorized officer may grant an exception if, in coordination with the WGFD, it is determined that the action as proposed or conditioned would meet the HMP/RAMP management objectives. **Modification:** The BLM authorized officer may modify the area subject to the stipulation or surface occupancy criteria if, in coordination with the WGFD, it is determined that a portion of the lease is not located within the Bighorn River HMP/RAMP tracts. **Waiver:** The BLM authorized officer may grant a waiver if, in coordination with the WGFD, it is determined that the entire lease area is no longer located within the Bighorn River HMP/RAMP tracts.
Record Number	**4074**

Protected Resource	Fish and Wildlife: Big game crucial winter range habitat outside of Oil and Gas Management Areas
Decision Text	Apply a TLS to avoid surface-disturbing and disruptive activities within big game crucial winter range (1,458,712 acres) from November 15 through April 30, except exempt Oil and Gas Management Areas (Map 3-9) from discretionary big game seasonal stipulations.
Stipulation Type	TLS
RMP Acres Affected	1,458,712 acres
Stipulation Description	Timing Limitation Stipulation (TLS). No surface use is allowed during the following time periods. (1) Nov 15 to Apr 30; (2) as mapped on the Worland Field Office GIS database; (3) protecting big game on crucial winter range. **Exception:** The BLM authorized officer may grant an exception if the operator demonstrates that the crucial winter range areas are not occupied during the period of concern. This determination shall be based upon a BLM evaluation of the area in coordination with WGFD. **Modification:** The BLM authorized officer may modify the area subject to the stipulations based upon a BLM evaluation of the area, in coordination with WGFD, to determine any change in boundary/status of big game crucial winter range(s). **Waiver:** The BLM authorized officer may grant a waiver if it is determined that the entire lease area is no longer supports crucial winter range. This determination shall be based upon a BLM evaluation of the area in coordination with WGFD.
Record Number	**4075**
Protected Resource	Fish and Wildlife: Federal mineral estate within the Absaroka Front Management Area
Decision Text	Absaroka Front Management Area (51,739 acres of BLM-administered surface land; 98,852 acres of federal mineral estate): ● a mix of **CSU (31,996 acres)**, NSO (41,215 acres), and closed to leasing (17,184 acres) on the federal mineral estate (Map 3-14) ● areas available for leasing are open to geophysical exploration with specific resource protection ● manage as a renewable energy avoidance area ● manage as a ROW avoidance area ● partially closed to motorized vehicle use and limited to designated roads and trails on the rest of the area Allow and seasonally stipulate, where feasible, vegetative/silviculture treatments; invasive, nonnative pest species control; fuels management; and maintenance of existing facilities.
Stipulation Type	CSU
RMP Acres Affected	31,996 acres

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use is restricted within the Absaroka Front Management Area. (1) Prior to surface disturbance within big game crucial habitat, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● Design oil and gas development to avoid or reduce unnecessary disturbances, wildlife conflicts, and habitat impacts. ● Plan the pattern and rate of development to avoid the most important habitats and generally reduce the extent and severity of impacts. ● Cluster drill pads, roads and facilities in specific, "low-impact" areas, if geologically feasible. ● Consider "liquid gathering systems" (LGS) to eliminate surface storage tanks and reduce truck trips for removal of liquids. ● To the extent practicable, place infrastructure within or near previously disturbed locations. ● Minimize infrastructure development and operational activity during life of field by using consolidation (e.g., "unitized") development techniques. (2) as mapped on the Worland Field Office GIS database; (3) to protect big game crucial habitat. **Exception:** An exception may be granted by the authorized officer if, in coordination with the WGFD, the operator submits a plan that demonstrates that impacts from the proposed action can be fully mitigated or there are not practical alternatives. **Modification:** The authorized officer may, in coordination with the WGFD, modify the boundaries of the stipulation area if (1) a portion of the area is not being used as protected range by the identified species, (2) habitat outside of stipulation boundaries is being used and needs to be protected, or (3) the migration patterns have changed causing a difference in the season of use. **Waiver:** This stipulation may be waived, if the authorized officer determines, in coordination with the WGFD, that the entire leasehold can be occupied without adversely affecting the resources or if the lease is not located within the Absaroka Front Management Area.
Record Number	**4075**
Protected Resource	Fish and Wildlife: Federal mineral estate within the Absaroka Front Management Area
Decision Text	Absaroka Front Management Area (51,739 acres of BLM-administered surface land; 98,852 acres of federal mineral estate): ● a mix of CSU (31,996 acres), **NSO (41,215 acres)**, and closed to leasing (17,184 acres) on the federal mineral estate (Map 3-14) ● areas available for leasing are open to geophysical exploration with specific resource protection ● manage as a renewable energy avoidance area ● manage as a ROW avoidance area ● partially closed to motorized vehicle use and limited to designated roads and trails on the rest of the area Allow and seasonally stipulate, where feasible, vegetative/silviculture treatments; invasive, nonnative pest species control; fuels management; and maintenance of existing facilities.
Stipulation Type	NSO
RMP Acres Affected	41,215 acres

Stipulation Description	No surface occupancy (NSO). No surface occupancy (1) within overlapping wildlife migration corridors and big game crucial winter range in the Absaroka Front Management Area (2) as mapped on the Worland Field Office GIS database. **Exception:** The BLM authorized officer may grant an exception if, in coordination with the WGFD, it is determined that the action as proposed or conditioned would meet wildlife management objectives. **Modification:** The BLM authorized officer may modify the area subject to the stipulation or surface occupancy criteria if, in coordination with the WGFD, it is determined that a portion of the lease is not located within migration corridors or overlapping big game crucial winter range or within the Absaroka Front Management Area. **Waiver:** The BLM authorized officer may grant a waiver if, in coordination with the WGFD, it is determined that the entire lease area is no longer located within migration corridors or overlapping big game crucial winter range or within the Absaroka Front Management Area.
Record Number	**4106**
Protected Resource	Special Status Species: Within 0.6-mile radius of the perimeter Greater Sage-Grouse leks within PHMAs
Decision Text	**Inside PHMAs** Prohibit surface occupancy and surface-disturbing activities on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks. The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse (Map 3-17).
Stipulation Type	NSO
RMP Acres Affected	81,281 acres
Stipulation Description	No surface occupancy (NSO). (1) as mapped on the Worland Field Office GIS database; (2) to protect occupied greater sage-grouse leks and associated seasonal habitat, life-history, or behavioral needs of greater sage-grouse in proximity to leks from habitat fragmentation and loss, and protect greater sage-grouse populations from disturbance within an 0.6-mile radius of the perimeter of occupied greater sage-grouse leks inside designated PHMAs (Core). **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. **Modification:** The authorized officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. **Waiver:** This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the Greater Sage-Grouse lek has been classified as unoccupied as determined by the State wildlife agency. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)

Record Number	4106
Protected Resource	Special Status Species: Within ¼-mile radius of the perimeter of Greater Sage-Grouse leks outside of PHMAs
Decision Text	**Outside PHMAs** Prohibit surface-disturbing and disruptive activities and apply an NSO restriction within a ¼-mile radius of the perimeter of occupied Greater Sage-Grouse leks (Map 3-17). Outside Greater Sage-Grouse PHMAs, the BLM's goal is to sustain important habitats that support core populations and to maintain lek persistence over the long term in sufficient proportions of the Greater Sage-Grouse population to facilitate movement and genetic transfer between core populations, including those found in adjacent states.
Stipulation Type	NSO
RMP Acres Affected	3,157 acres
Stipulation Description	No surface occupancy (NSO). (1) as mapped on the Worland Field Office GIS database; (2) to protect occupied greater sage-grouse leks and associated seasonal habitat, life-history, or behavioral needs of greater sage-grouse in proximity to leks from habitat fragmentation and loss, and protect greater sage-grouse populations from disturbance within an 0.25-mile radius of the perimeter of occupied greater sage-grouse leks outside designated PHMAs (Core) **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. **Modification:** The authorized officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. **Waiver:** This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the Greater Sage-Grouse lek has been classified as unoccupied as determined by the State wildlife agency. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)
Record Number	4107
Protected Resource	Special Status Species: Greater Sage-Grouse nesting and early brood-rearing habitats inside PHMAs
Decision Text	**Inside PHMAs** Prohibit disruptive activities on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30 (81,281 acres). Prohibit surface-disturbing and/or disruptive activities from March 15 to June 30 to protect Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat (1,021,583 acres). Apply this timing limitation throughout the PHMAs. Activities in unsuitable habitats would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis. Note: Where credible data support different timeframes for these seasonal restrictions, dates may be expanded by up to 14 days prior to or subsequent to the above dates.

Stipulation Type	TLS
RMP Acres Affected	All PHMAs – 1,021,583 acres
Stipulation Description	Timing Limitation Stipulation (TLS). (1) Mar 15 to Jun 30; (2) as mapped on the Worland Field Office GIS database; (3) no surface use to seasonally protect Greater Sage-Grouse breeding, nesting and early brood-rearing habitats (independent of habitat suitability) inside designated PHMAs (Core only). Where credible data support different timeframes for this restriction, dates may be expanded by 14 days prior or subsequent to the above dates. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. **Modification:** The authorized officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal Greater Sage-Grouse activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. **Waiver:** No Waiver.
Record Number	**4107**
Protected Resource	Special Status Species: Greater Sage-Grouse nesting and early brood-rearing habitat outside PHMAs
Decision Text	**Outside PHMAs** Prohibit disruptive activities on or within a ¼ mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30 (3,157 acres). Prohibit surface-disturbing and/or disruptive activities in Greater Sage-Grouse nesting and early brood-rearing habitat within a 2-mile radius of the perimeter of occupied Greater Sage-Grouse leks from March 15 to June 30. Note: Where credible data support different timeframes for these seasonal restrictions, dates may be expanded by up to 14 days prior to or subsequent to the above dates.
Stipulation Type	TLS
RMP Acres Affected	3,157 acres and other nesting and brood-rearing habitats identified through site-specific analysis.

Stipulation Description	Timing Limitation Stipulation (TLS). (1) Mar 15 to Jun 30; (2) as mapped on the Worland Field Office GIS database; (3) no surface use to seasonally protect Greater Sage-Grouse breeding, nesting and early brood-rearing habitats outside designated PHMA (Core), within two miles of an occupied lek. Where credible data support different timeframes for this restriction, dates may be expanded by 14 days prior or subsequent to the above dates. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. **Modification:** The authorized officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal Greater Sage-Grouse activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. **Waiver:** This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the Greater Sage-Grouse lek has been classified as unoccupied as determined by the State wildlife agency. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manuals 1624 and 3101.)
Record Number	**4108**
Protected Resource	Special Status Species: Greater Sage-Grouse winter habitats/concentration areas
Decision Text	**Sage-grouse winter concentration areas:** Prohibit surface-disturbing and/or disruptive activities in Greater Sage-Grouse winter concentration areas (172,809 acres) from December 1 to March 14. Evaluate and allow activities in unsuitable habitats within PHMAs in accordance with exception and modification criteria on a case-by-case basis. Protection of additional mapped winter concentration areas in GHMAs would be implemented only where winter concentration areas are identified as supporting biologically significant numbers of Greater Sage-Grouse nesting in PHMAs and/or attending leks within PHMAs. Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated in consultation with the WGFD in all identified winter concentration areas.
Stipulation Type	TLS
RMP Acres Affected	196,253 acres

Stipulation Description	Timing Limitation Stipulation (TLS). (1) Dec 1 to Mar 14; (2) as mapped by the WGFD; (3) no surface use to seasonally protect Greater Sage-Grouse winter concentration areas in designated PHMAs (Core only), and outside designated PHMAs (Core only) when supporting wintering Greater Sage-Grouse that attend leks within designated PHMAs (Core only). **Exception:** The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function and suitability of the winter concentration area, or it is determined that the winter concentration area is not occupied by concentrated populations of Greater Sage- Grouse during the period of concern, or it is determined the project area is within unsuitable habitat. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. **Modification:** The authorized officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal Greater Sage-Grouse activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse. **Waiver:** No Waiver
Record Number	**4109**
Protected Resource	Special Status Species: Density Disturbance within PHMAs

Decision Text	**Density of Disturbances:** In Greater Sage-Grouse PHMAs, the density of disturbance of energy or mining facilities would be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights. The one location and cumulative value of existing disturbances would not exceed 5 percent of habitat. Utilize the Greater Sage-Grouse density disturbance calculation tool described in Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271). Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5 percent within the DDCT area using the DDCT process. Consolidate anthropogenic features from development and transmission on the landscape. Allow on a case-by-case basis high profile structures within Greater Sage-Grouse nesting habitat. Sagebrush Treatment: For vegetation treatments in sagebrush within PHMAs, refer to WGFD Protocols for Treating Sagebrush to Benefit Sage-Grouse (WGFD 2011, as updated). These recommended protocols, subject to seasonal conditions of approval, would be used in determining whether proposed treatment constitutes a "disturbance" that would contribute toward the 5 percent threshold for habitat maintenance. Additionally, these protocols would be used to determine whether the proposed treatment configuration would be expected to have neutral or beneficial impacts for PHMA populations or if they represent additional habitat loss or fragmentation. Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse would be evaluated based upon habitat quality and the functionality/use of treated habitats post-treatment. The BLM would work collaboratively with partners at the state and local levels to maintain and enhance Greater Sage-Grouse habitats. Seasonal restrictions would be applied, as needed, for implementing fuels management treatments according to the type of seasonal habitat present.
Stipulation Type	CSU
RMP Acres Affected	All PHMAs – 1,021,583 acres

Stipulation Description	Controlled Surface Use (CSU). (1) Surface occupancy or use will be restricted to no more than an average of one disturbance location per 640 acres using the DDCT, and the cumulative value of all applicable surface disturbances, existing or future, must not exceed 5 percent of the DDCT area, as described in the Disturbance Density Calculation Tool manual (DDCT); (2) as mapped on the Worland Field Office GIS database; (3) To protect Greater Sage-Grouse designated PHMA (Core only) from habitat fragmentation and loss. This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing oil and natural gas within Greater Sage-Grouse designated PHMAs (Core only). The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on Federal, State, or private lands within designated PHMAs (Core only) or surface disturbance created by other land users. The BLM may require the lessee or operator to enter into a unit agreement or drilling easement to facilitate the equitable development of this and surrounding leases. **Exception:** The authorized officer may grant an exception if an environmental record of review determines that, the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of Greater Sage-Grouse. The BLM can and does grant exceptions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. **Modification:** The authorized officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. **Waiver:** No Waiver
Record Number	**4118**
Protected Resource	Special Status Species: Nesting Raptors
Decision Text	To protect nesting raptors, apply a TLS on 83,940 acres to prohibit surface-disturbing and disruptive activities within: ● ¼ mile of active raptor nests and ½ mile of active golden eagle, bald eagle, northern goshawk, merlin, and prairie and peregrine falcon nests during specific species nesting period or until young birds have fledged (Map 3-17). See Appendix N, *Seasonal Raptor Stipulations for All Surface-Disturbing and Disruptive Activities* (p. 561) for species nesting periods. ● 1 mile of active ferruginous hawk nests from March 1 to July 31 or until young birds have fledged (Map 3-17). Actual distances and dates will vary based on topography, species, season of use, and other pertinent factors.
Stipulation Type	TLS
RMP Acres Affected	83,940 acres

Stipulation Description	Timing Limitation Stipulation (TLS). No surface use is allowed within ¼ mile of active raptor nests and ½ mile of active golden eagle, bald eagle, northern goshawk, merlin, and prairie and peregrine falcon nests and 1 mile of active ferruginous hawk nests during specific species nesting period or until young birds have fledged. This stipulation does not apply to operation and maintenance of production facilities. Timing Limitation Stipulation (1) during the following time periods: ● American Kestrel April 1 – August 15 ● Bald Eagle January 1 – August 15 ● Boreal Owl February 1 – July 31 ● Burrowing Owl April 1 – September 15 ● Common Barn Owl February 1 – September 15 ● Cooper's Hawk March 15 – August 31 ● Eastern Screech-owl March 1 – August 15 ● Ferruginous Hawk March 15 – July 31 ● Golden Eagle January 15 – July 31 ● Great Gray Owl March 15 – August 31 ● Great Horned Owl December 1 – September 31 ● Long-eared Owl February 1 – August 15 ● Merlin April 1 – August 15 ● Northern Goshawk April 1 – August 15 ● Northern Harrier April 1 – August 15 ● Northern Pygmy-Owl April 1 – August 1 ● Northern Saw-whet Owl March 1 – August 31 ● Osprey April 1 – August 31 ● Peregrine Falcon March 1 – August 15 ● Prairie Falcon March 1 – August 15 ● Red-tailed Hawk February 1 – August 15 ● Sharp-shinned Hawk March 15 – August 31 ● Short-eared Owl March 15 – August 1 ● Swainson's Hawk April 1 – August 31 ● Western Screech-owl March 1 – August 15 ● All other raptors February 1 – July 31 (2) as on the Worland Field Office GIS database or as determined by field evaluation; (3) protecting active raptor nests. **Exception:** The BLM authorized officer may grant an exception if it is determined that the raptor nest(s) are not active or the proposed action is of a scale, sited in a location, or otherwise designed so that the proposed action would not disturb (be likely to cause: physical injury; a decrease in productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior) nesting raptors of conservation concern. The determination may include consultation with the WGFD or USFWS. **Modification:** The BLM authorized officer may modify the area subject to the stipulations based upon a BLM evaluation in coordination with WGFD and/or USFWS, as necessary. The stipulation may be modified based on negative or positive monitoring results; or if it is determined that the action will not impair the function or the suitability of the habitat, or cause nest abandonment. **Waiver:** The stipulation may be waived if the BLM authorized officer determines that the entire lease area does not include seasonal buffer zones for nests of raptor species of conservation concern. This determination shall be based upon field studies of the area by a qualified representative and subject to confirmation from BLM, in coordination with the WGFD and/or USFWS, as necessary.
Record Number	**4118**
Protected Resource	Special Status Species: ¼ mile from raptor nest sites

Decision Text	To protect the actual nest site, apply a year-round CSU stipulation within ¼ mile of all raptor nests (32,197 acres) (Map 3-17). Actual distances and dates will vary based on topography, species, season of use, and other pertinent factors.
Stipulation Type	CSU
RMP Acres Affected	32,197 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use within ¼ mile of raptor nest sites will be restricted. (1) Prior to surface disturbance within ¼ mile of raptor nests a mitigation plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator may not initiate surface-disturbing activities unless the BLM authorized officer has approved the plan or approved it with conditions. The plan must demonstrate to the BLM authorized officer's satisfaction that nesting raptors of conservation concern would not be agitated or bothered to a degree that causes or is likely to cause: ● physical injury; ● a decrease in productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or ● nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior, or preclude nest reoccupation; (2) as mapped on the Worland Field Office GIS database or determined by BLM field evaluation; (3) protecting raptor nest sites. **Exception:** The BLM authorized officer may grant an exception if a staff review determines that the proposed action is of a scale, sited in a location, or otherwise designed so that the proposed action would not result in a failure to meet the performance standards above. The determination may include coordination with the WGFD and/or USFWS. **Modification:** A modification may be granted if the BLM authorized officer determines that portions of the leasehold can be occupied without adversely affecting the nest site or suitable nesting habitat, based on topography, species, season of use, and other pertinent factors. The determination may include coordination with the WGFD and/or USFWS. **Waiver:** The stipulation may be waived if the BLM authorized officer determines that the entire lease area is not within ¼ mile of a raptor nest or suitable nesting habitat. This determination shall be based upon a field evaluation of the area by a qualified representative and subject to confirmation from the BLM. Confirmation may include coordination with the WGFD and/or USFWS.
Record Number	**4128**
Protected Resource	Surface Water: Riparian habitat supporting special status fish species
Decision Text	Prohibit surface-disturbing activities within 500 feet and avoid surface-disturbing activities within ¼ mile of perennial surface water and riparian/wetland areas except when their impacts can be mitigated to an acceptable level.
Stipulation Type	CSU
RMP Acres Affected	143,836 acres

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use within ¼ mile of perennial surface water, and riparian/wetland areas will be restricted where determined to support special status fish species. (1) Prior to surface disturbance within ¼ mile of perennial surface water, and riparian/wetland areas where determined to support special status fish species, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● Prevent contamination of soil and groundwater. ● Upland sites are protected from storm water runoff using proper erosion and sediment control techniques. ● Stabilization of channel crossings. (2) as mapped on the Worland Field Office GIS datase; (3) to protect perennial surface water, and riparian/wetland areas. **Exception:** An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be fully mitigated or there are not practical alternatives. **Modification:** Consider modifications if it is determined the proposed project is not located within ¼ mile of perennial surface waters and riparian/wetland areas. **Waiver:** This stipulation may be waived, if the authorized officer determines that the entire leasehold can be occupied without adversely affecting riparian resources.
Record Number	**4148**
Protected Resource	Wild Horses: Fifteenmile HMA foaling season
Decision Text	Apply seasonal restrictions from February 1 to July 31 to prevent foal abandonment or jeopardy of wild horse health and welfare, as appropriate, to surface-disturbing and disruptive activities in the Fifteenmile HMA.
Stipulation Type	TLS
RMP Acres Affected	76,459 acres
Stipulation Description	Timing Limitation Stipulation (TLS). No surface use is allowed (1) Feb. 1 to July 31; (2) within Fifteenmile HMA as mapped on the Worland Field Office GIS database; (3) protecting Fifteenmile HMA foaling season. **Exception:** The BLM authorized officer may grant an exception the BLM determines the area is not likely to be occupied during the period of concern and the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated. **Modification:** The BLM authorized officer may modify the area subject to the stipulations based upon BLM determination that suitable foaling range is not present or boundaries of the HMA have changed. **Waiver:** The BLM authorized officer may grant a waiver if it is determined that the entire lease area is not within the HMA, or is not located within suitable foaling range.
Record Number	**5014**
Protected Resource	Cultural Resources: Legend Rock Petroglyph Site
Decision Text	Apply an NSO restriction on the Legend Rock Petroglyph Site.
Stipulation Type	NSO
RMP Acres Affected	1,107 acres

Stipulation Description	No Surface Occupancy (NSO) (1) within the designated Legend Rock Petroglyph site as mapped on the Worland Field Office GIS database; (2) for the protection of cultural resources. **Exception:** The BLM authorized officer may grant an exception if, after consultation with Native American tribes and SHPO, it is determined that the proposed action will result in a no adverse effect determination to the sacred, spiritual, and/or traditional nature of the property(s). **Modification:** This stipulation may be modified by the BLM authorized officer if, in consultation with Native American tribes and SHPO, the site is no longer considered eligible for NRHP or if, in consultation with Native American tribes and SHPO, it is determined that the identified property's sacred, spiritual, and/or traditional values have been downgraded and/or the tribes have reduced the previous avoidance distance around the site. **Waiver:** The BLM authorized officer may grant a waiver if it is determined, in consultation with Native American tribes and SHPO, that the identified site is no longer considered sacred, spiritual, and/or traditional.
Record Number	**5020**
Protected Resource	Cultural Resources: Foreground of important cultural sites (defined in Glossary) up to 3 miles or the visual horizon
Decision Text	Protect the foreground of important cultural sites (see Glossary for definitions of these terms) up to 3 miles or the visual horizon whichever is closer (the SCZ) where setting is an important aspect of the integrity for the site. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects.
Stipulation Type	CSU
RMP Acres Affected	As determined by the BLM on a site-specific basis.
Stipulation Description	Controlled Surface Use (CSU). (1) Prior to surface disturbance within 3-mile or the visual horizon of important cultural sites, whichever is closer, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-4) – Surface Use Plan of Operations. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer, in consultation with appropriate Native American tribes and the SHPO, has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● There will be no adverse effects to NRHP eligible or listed historic properties (2) as mapped on the Worland Field Office GIS database; (3) protecting cultural and scenic values of important cultural sites. **Exception:** The BLM authorized officer may grant an exception if, after consultation with Native American tribes and/or SHPO, it is determined that the proposed action will result in a no adverse effect determination to the cultural property(s). **Modification:** This stipulation may be modified by the BLM authorized officer if, in consultation with Native American tribes and/or SHPO, the site is no longer considered eligible for NRHP or if, in consultation with Native American tribes and/or SHPO, it is determined that the identified property's important values have been downgraded and/or the tribes have reduced the previous avoidance distance around the site. **Waiver:** The BLM authorized officer may grant a waiver if it is determined, in consultation with Native American tribes and/or SHPO, that the identified cultural site is no longer considered or managed as an important cultural site.
Record Number	**5048**

Protected Resource	VRM: Class II
Decision Text	Allow surface-disturbing activities in areas managed as VRM Class II only if the level of change to the landscape from the activities are low, and will not attract the attention of the casual observer, or the project can be mitigated to meet these objectives.
Stipulation Type	CSU
RMP Acres Affected	662,189 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted within Class I and/or Class II VRM areas. (1) Prior to surface disturbance within Visual Resource Management Class I and/or II areas, a site-specific plan must be submitted to the BLM by the applicant as a component of the Application for Permit to Drill (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator shall not initiate surface-disturbing activities unless the BLM authorized officer has approved the plan (with conditions, as appropriate). The plan must demonstrate to the BLM authorized officer's satisfaction how the operator will meet the following performance standards: ● A visual contrast rating must demonstrate that VRM Class I and/or II objectives will be met. ● Where required by the BLM authorized officer, a visual simulation must be prepared and must demonstrate that VRM Class I and/or II objectives will be met through practices such as siting of permanent facilities. ● Where present and feasible, existing surface disturbances shall be utilized; new surface disturbances shall be minimized to the extent practicable. ● All permanent above-ground facilities (such as production tanks or other production facilities) not having specific coloration requirements for safety must be painted or designed using a BLM-approved color. (2) as mapped in the Worland Field Office GIS database; (3) protecting Class II Visual Resource Management Areas. **Exception:** The BLM authorized officer may grant an exception if it is demonstrated through a BLM-approved visual simulation and contrast rating worksheet that the project or identified mitigation will meet or exceed VRM Class I or II objectives. This restriction does not apply to temporary structures such as drilling rigs. **Modification:** The BLM authorized officer may modify the area subject to the stipulation if it is demonstrated that VRM Class I or II objectives have been modified through appropriate RMP planning procedures, or if a portion of the lease is not located within a VRM Class II area. **Waiver:** The BLM authorized officer may grant a waiver if it is determined that the entire leasehold is no longer managed for VRM Class I or II objectives based on planning, or if the entire leasehold is not located within a Class I or II area.
Record Number	**6059**
Protected Resource	Recreational Resources: Campgrounds, trailheads, day use areas, and similar recreation sites
Decision Text	Apply an NSO restriction at the time of lease offering on the following: ● Areas within ¼ mile of campgrounds, trailheads, day use areas, and similar recreational sites. At the time of APD submittal, apply a CSU stipulation (site-specific relocation) if the lease does not contain an NSO restriction under other resource management on: ● Developed (and future) recreation sites, ● To mapped (and future) national/regional trails, ● Local system trails that connect communities.
Stipulation Type	NSO
RMP Acres Affected	N/A

Stipulation Description	No surface occupancy (NSO). No surface occupancy or use is permitted (1) on developed recreation sites (2) for the protection of designated campgrounds, trailheads, day use areas, and similar recreation sites. **Exception:** An exception to this stipulation may be granted by the BLM authorized officer if the BLM determines that the function and utility of the recreational resources are not adversely affected. **Modification:** The BLM authorized officer may modify the stipulation if the boundaries of recreational sites are changed or a portion of the lease area is determined not to be located within a designated recreational site. **Waiver:** This BLM authorized officer may waive this stipulation if it is determined that the entire leasehold no longer contains developed recreation areas.
Record Number	**6069**
Protected Resource	Scenic and Recreational Resources: Absaroka Mountain Foothills SRMA and Absaroka ERMA.
Decision Text	Apply a CSU stipulation on the Absaroka Mountain Foothills SRMA and Absaroka ERMA.
Stipulation Type	CSU
RMP Acres Affected	71,705 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted within the Absaroka Mountain Foothills SRMA and Absaroka ERMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA.(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Absaroka Mountain Foothills SRMA or Absaroka ERMA are changed. **Waiver:** A waiver may be granted if the lease is not located within the Absaroka Mountain Foothills SRMA or Absaroka ERMA.
Record Number	**6077**
Protected Resource	Scenic and Recreational Resources: Areas within the Bighorn River ERMA
Decision Text	Apply an NSO restriction on lands within the Bighorn River ERMA.
Stipulation Type	NSO
RMP Acres Affected	1,489 acres

Stipulation Description	No surface occupancy (NSO). No surface occupancy is permitted (1) on lands within the Bighorn River ERMA (2) protecting the Bighorn River ERMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Bighorn River ERMA are changed. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** A waiver may be granted if the lease is not located within the Bighorn River ERMA.
Record Number	**6098**
Protected Resource	Scenic and Recreational Resources: Tatman Mountain RMZ
Decision Text	Apply a CSU stipulation on the Tatman Mountain RMZ.
Stipulation Type	CSU
RMP Acres Affected	49,388 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Tatman Mountain RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA. (2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Tatman Mountain RMZ are changed. **Waiver:** A waiver may be granted if the lease is not located within the Tatman Mountain RMZ.
Record Number	**6108**
Protected Resource	Scenic and Recreational Resources: Canyons RMZ
Decision Text	Apply a CSU stipulation on the Trapper Creek area of the Canyons RMZ.
Stipulation Type	CSU
RMP Acres Affected	3,324 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Trapper Creek Area of the Canyons RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA.(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Canyons RMZ are changed. **Waiver:** A waiver may be granted if the lease is not located within the Canyons RMZ.

Record Number	**6129**
Protected Resource	Scenic and Recreational Resources: Brokenback/Logging Road RMZ
Decision Text	Apply a CSU stipulation on the Brokenback/Logging Road RMZ.
Stipulation Type	CSU
RMP Acres Affected	49,449 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Brokenback/Logging Road RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA.(2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Brokenback/Logging Road RMZ are changed. **Waiver:** A waiver may be granted if the lease is not located within the Brokenback/Logging Road RMZ.
Record Number	**6140**
Protected Resource	Scenic and Recreational Resources: Middle Fork of the Powder River SRMA
Decision Text	Apply a CSU stipulation on the Middle Fork of the Powder River SRMA. Review mineral leases on a case-by-case basis and apply mitigation through activity level planning in the Southern Bighorns ERMA.
Stipulation Type	CSU
RMP Acres Affected	13,368 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Middle Fork of the Powder River SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA. (2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Middle Fork of the Powder River SRMA are changed. **Waiver:** A waiver may be granted if the lease is not located within the Middle Fork of the Powder River SRMA.
Record Number	**6151**
Protected Resource	Scenic and Recreational Resources: Canyon Creek SRMA
Decision Text	Apply a CSU stipulation on the Canyon Creek SRMA.
Stipulation Type	CSU
RMP Acres Affected	3,679 acres

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Canyon Creek SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA. (2) as mapped on the Worland Field Office GIS database; (3) protecting Scenic and Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Canyon Creek SRMA are changed. **Waiver:** A waiver may be granted if the lease is not located within the Canyon Creek SRMA.
Record Number	**6168**
Protected Resource	Recreational Resources: Basin Gardens Play Area SRMA
Decision Text	Apply a CSU stipulation on the Basin Gardens Play Area SRMA.
Stipulation Type	CSU
RMP Acres Affected	4,426 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Basin Gardens Play Area RMZ (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA. (2) as mapped on the Worland Field Office GIS database; (3) protecting Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Basin Gardens Play Area RMZ are changed. **Waiver:** A waiver may be granted if the lease is not located within the Basin Gardens Play Area RMZ.
Record Number	**6186**
Protected Resource	Recreational Resources: Horse Pasture SRMA.
Decision Text	Apply a CSU stipulation on the Horse Pasture SRMA.
Stipulation Type	CSU
RMP Acres Affected	144 acres
Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited within the Horse Pasture SRMA (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate to the authorized officer's satisfaction that the proposed action is consistent with the prescribed management for the SRMA. (2) as mapped on the Worland Field Office GIS database; (3) protecting Recreational Resources and ensuring the recreational opportunities and setting of the SRMA. **Exception:** Consider exceptions if exploration and development would not impair identified scenic and primitive or semi primitive recreational resources. **Modification:** The stipulated area may be modified by the authorized officer if the boundaries of the Horse Pasture SRMA are changed. **Waiver:** A waiver may be granted if the lease is not located within the Horse Pasture SRMA.

Record Number	7007
Protected Resource	Special Designations (Paleontological Resources): Fossil concentration area in the Big Cedar Ridge ACEC
Decision Text	Apply an NSO in the Big Cedar Ridge ACEC.
Stipulation Type	NSO
RMP Acres Affected	264 acres
Stipulation Description	No surface occupancy (NSO). No surface occupancy is permitted (1) on the 264-acre fossil concentration area in the Big Cedar Ridge ACEC (2) protection of paleontological resources. **Exception:** An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated. **Modification:** The stipulated area may be modified by the authorized officer if the Big Cedar Ridge ACEC boundaries are changed. **Waiver:** This stipulation may be waived, if the authorized officer determines that the entire leasehold is no longer within a designated ACEC.
Record Number	**7021**
Protected Resource	Special Designations (Paleontological Resources): Sundance Formation of the Red Gulch Dinosaur Tracksite ACEC
Decision Text	Apply an NSO restriction for mineral leasing, exploration, and development on BLM-administered lands in the Sundance Formation of the Red Gulch Dinosaur Tracksite ACEC.
Stipulation Type	NSO
RMP Acres Affected	1,798 acres
Stipulation Description	No surface occupancy (NSO). No surface occupancy is permitted (1) within Sundance Formation of the Red Gulch Dinosaur Tracksite ACEC (2) protection of paleontological resources. **Exception:** An exception to this restriction or stipulation may be granted by the authorized officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated. **Modification:** The stipulated area may be modified by the authorized officer if the Red Gulch Dinosaur Tracksite ACEC boundaries are changed. **Waiver:** This stipulation may be waived, if the authorized officer determines that the entire leasehold is no longer within designated ACEC.
Record Number	**7044**
Protected Resource	Special Designations (Scenic and Cultural Resources): Up to 2 miles from Other Trails
Decision Text	Protect the foreground of Historic Trails (defined in Glossary) up to 2 miles or the visual horizon within contributing portion of the trail whichever is closer (the SCZ) where setting is an important aspect of the integrity for the trail. The 2 mile buffer would also apply to areas unevaluated, until it is determined that setting is not an important aspect of the integrity of the trail. Use BMPs (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) to avoid, minimize and/or compensate adverse effects.
Stipulation Type	CSU
RMP Acres Affected	169,184

Stipulation Description	Controlled Surface Use (CSU). Surface occupancy or use will be restricted or prohibited up to 2 miles where setting is an important aspect of the integrity for the trail. (1) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; The Plan must demonstrate proposed infrastructure is either not visible or will result in a weak contrast rating.(2) as mapped on the Worland Field Office GIS database; (3) protecting other historic trails. **Exception:** The authorized officer may grant an exception if surveys determine that other historic trail remnants are not present or it is determined that the section of trail is sufficiently compromised that the action will not result in an adverse effect to the trail. **Modification:** If surveys determine that a portion of the lease area does not contain contributing trail segments, then the stipulation may be modified. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the BLM. **Waiver:** The authorized officer may grant a waiver if surveys determine that the entire lease area does not contain contributing trail segments. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the BLM.

ACEC Area of Critical Environmental Concern
APD Application for Permit to Drill
BLM Bureau of Land Management
BMP Best Management Practice
CSU Controlled Surface Use
BA Decibels with an A-weighted scale
ERMA Extensive Recreation Management Area
GIS Geographic Information System
HMA Herd Management Area
HMP Habitat Management Plan
LRP Limited Reclamation Potential
MLP Master Leasing Plan
NHT National Historic Trail
NRCS Natural Resources Conservation Service
NRHP National Register of Historic Places
NSO No Surface Occupancy
PHMAs Priority Habitat Management Areas
RAMP Recreation Area Management Plan
RMZ Recreation Management Zone
SCZ Setting Consideration Zone
SHPO State Historic Preservation Office
SRMA Special Recreation Management Area
TLS Timing Limitation Stipulation
USFWS United States Fish and Wildlife Service
USFS United States Forest Service
VRM Visual Resource Management
WGFD Wyoming Game and Fish Department
WHMA Wildlife Habitat Management Area

B.3. Processing Exceptions, Modifications, and Waivers

An exception, waiver, or modification must be based on one of two criteria. According to 43 CFR 3101.1-4, "A stipulation included in an oil and gas lease shall be subject to modification or waiver only if the authorized officer determines that the factors leading to its inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified or if the proposed operations would not cause unacceptable impacts." Waiver, exceptions, or modifications must be supported by appropriate environmental analysis and documentation.

The person requesting the exception, modification, or waiver is responsible to submit a written request including information that might assist the authorized official in making a decision. The authorized officer will review the information submitted in support of the request along with other pertinent information. Requests must be submitted to the BLM field office in which the lease is located. Modification and waiver requests will be forwarded to the BLM-Wyoming Deputy State Director for Minerals and Lands along with the Field Office's recommendation. Requests shall be subject to at least a 30-day public review if the authorized officer determines that a stipulation involves an issue of major concern to the public (43 CFR 3101.1-4).

The request is considered a unique action and is analyzed and documented individually for RMP and NEPA compliance. Processing may include coordination or consultation with the Wyoming Game and Fish Department (WGFD), U.S. Fish and Wildlife Service (USFWS), State Historic Preservation Office, or other agencies. For example, requests will not be granted for stipulations

designed to protect Threatened and Endangered species, unless the BLM consults with the USFWS and reinitiates consultation, if necessary. Consultation with other agencies requires additional time and resources to process.

The request must include the lease number and effective date, the stipulation(s) the request is for, the change in circumstances that lead the lessee or operator to believe the request is appropriate, and the name and/or number of any applicable authorization(s) (i.e., application for permit to drill, sundry, right-of-way). A map is strongly recommended. The following information must be addressed, when applicable, in the written request:

1. **WHY** the public land user wants the request. For example with a timing limitation exception request, include the reason(s) why an action could not be completed outside of the original stipulation period, any evidence of why the action would not adversely affect the resource or species being protected, or any other information (additional mitigation measures or alternatives) that would help the BLM (and WGFD or USFWS) in reviewing the request.
2. **WHO** is filing the request. This must include the company name, the name of the contact person, and the address, telephone number, e-mail address (if available), and fax number of the contact person.
3. **WHAT** is being requested. For example with a timing limitation request, include a detailed description of the activity including types of equipment or vehicles required and the number of trips expected.
4. **WHERE** the activity would take place. This must include the legal description of the activity and a map clearly depicting these areas. Proponent prepared Geographic Information System layers meeting BLM requirements can expedite the processing.
5. **WHEN** the activity would occur and it's duration. This must include the start date, end date, and time of day/night when activities would occur.

Requests must be made in writing and hard copy delivered to the Field Manager at the physical address of the office. When time is of the essence, the process may be initiated by fax or electronic delivery of a scanned copy but the original must be received by the Field Office within three working days. No exception, waiver, or modification will be issued until the hard copy request is received.

An exception request must be initiated near the time of the proposed activity. As a general rule, the request should be made within two weeks of conducting the proposed activity. The unpredictability of weather, animal movement and condition, and so on precludes analysis of requests related to wildlife far in advance of the time periods in question. The BLM uses a set of criteria when considering an exception request. Professional judgment plays a key part in the BLM's decisions on whether to grant exceptions. There is no clear-cut formula.

The following example describes some of the factors considered by the BLM when determining whether a request for a big game winter range timing limitation exception should be granted.

Factors Considered

1. Resource Concern
   - Animal presence or absence
   - Additional or new resource concerns
   - Potential for increased wildlife accidents or poaching
2. Animal Conditions
   - Physical condition of individual animals (e.g., fat reserves)
   - Local animal population condition (animal density)

- Potential for additive mortality
- Likelihood of introduction or increased incidence of disease
- Likelihood of decreased recruitment/natality

3. Climate/Weather
   - Snow conditions (depth, crusting, longevity)
   - Current and historic local precipitation patterns
   - Current and historical seasonal weather patterns
   - Recent and current wind-chill factors (indication of animals energy use)
   - Duration of condition
   - Short- and long-range forecasts
4. Habitat Condition and Availability
   - Water and forage condition (availability, quality, and quantity)
   - Competition (interspecific, intraspecific)
   - Animal use of available forage
   - Suitable and ample forage immediately available and accessible
5. Spatial Considerations
   - Migration/travel corridors
   - Winter range, foraging, calving or breeding
   - Topography (plains vs. mountains)
   - Topographic/geographic limitations (barriers)
   - Presence of thermal cover (e.g., protection from wind)
   - Proportion of range impacted
   - Juxtaposition and density of other activities/disturbances in the vicinity
   - Cumulative impacts
6. Timing
   - When proposed activity would occur in the stipulation period
   - Kind and duration of potentially disruptive activity
   - Likelihood of animals habituating to the proposed activity

A determination will be fully documented in the case file with an appropriate level of environmental review after asking not one, but a series of questions, such as:

- Would the BLM remain in compliance with laws and regulations?
- Is the proposal in conformance with the objectives of the RMP?
- What would be the level of harm to the protected resource, both locally and regionally?
- What would be the economic or public safety concerns if an active operation near completion was shut in to comply with a seasonal closure? (For example: economic, multi-stage fracturing not completed; safety, casing and cementing of fresh water zones not completed.)
- Are the impacts temporary, rather than long term?
- Is the resource being protected rare, or is it relatively common? Is it a special status species?
- Based on existing knowledge of a species and its use of an area, would impacts be confined to single or a small number of individuals, or would there be impacts on local or regional populations?
- Would impacts be allowed under existing law and policy?
- Is offsite mitigation an appropriate option? (For example, where individual or cumulative impacts cannot be effectively mitigated on site?)
- Can the impacts be reduced to an acceptable level through intensive use of environmental Best Management Practices?

Appendix C. Required Design Features and Best Management Practices

Best management practices (BMPs) are environmental protection measures developed by governmental bodies, industry, and scientific or other working groups. BMPs are state-of-the-art mitigation measures applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. These practices are applied to help ensure that development is conducted in an environmentally responsible manner. Some BMPs are as simple as choosing a paint color that helps oil and natural gas equipment blend with the natural surroundings, turning development almost invisible. Other BMPs may reduce the amount of vegetation lost to development, may speed the re-growth of vegetation, or may reduce the amount of wildlife disturbance in important habitats. Public land users are encouraged to review these practices, incorporate them where appropriate, or develop better methods for achieving the same goal.

The purpose of this section is not to select certain practices or designs and require that only those be used. It is not possible to evaluate all the known practices and make determinations as to which are best. BMPs should be matched and adapted to meet the site-specific requirements of the management action, project and local environment. No one management practice is best suited to every site or situation. BMPs must be adaptive and monitored regularly to evaluate effectiveness.

The following sources contain information regarding the development and implementation of BMPs. These references are not to be considered as exclusive sources of information; rather, they should be used as a starting point when evaluating specific BMPs during project design and implementation.

C.1. Bureau of Land Management Best Management Practices Resources

Bureau of Land Management (BLM) BMPs: This website provides an introduction to BLM BMPs with links to BLM contacts, specific resources, and other BMP links, and other resources related to BLM BMPs.
http://www.blm.gov/bmp/

General Information for Oil and Gas BMPs: This resource provides general information regarding BLM BMPs for oil and gas development. A sample of BMPs are provided with a brief description of types of BMPs and terminology.
http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/general_information.html

BMP Frequently Asked Questions: The link below provides responses to frequently asked questions regarding BLM BMPs.
http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/frequently_asked_questions.html

BMP Technical Information: The slide shows at the link below provide a detailed look at a menu of possible oil and natural gas development BMPs. These slide shows are only a starting point and are not intended to serve as a comprehensive list of BMPs.

http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/technical_information.html

Oil and Gas Exploration – The Gold Book: The publication Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as The Gold Book) was developed to assist operators by providing information on the requirements for obtaining permit approval and conducting environmentally responsible oil and gas operations on federal lands and on private surface over federal minerals (split estate). split estate surface owners will also find the Gold Book to be a useful reference guide. In 2007, the Gold Book was updated to incorporate changes resulting from the new Onshore Oil and Gas Order No. 1 regulations. http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/gold_book.html

Visual Resources: There are numerous design techniques that can be used to reduce the visual impacts from surface-disturbing projects. The techniques described here should be used in conjunction with BLM's visual resource contrast rating process wherein both the existing landscape and the proposed development or activity are analyzed for their basic elements of form, line, color, and texture. http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/RMS/2.html

While written for renewable energy development, Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands (BLM 2013a) provides visual BMPs applicable to many land use activities. http://www.blm.gov/wo/st/en/prog/energy/renewable_energy.html

Renewable Energy Development BMPs: The following resources provide information on BMPs related to renewable energy development.

- *Wind Energy Development Programmatic Environmental Impact Statement [EIS]:* The scope of the Wind Energy Programmatic EIS analysis includes an assessment of the positive and negative environmental, social, and economic impacts; discussion of relevant mitigation measures to address these impacts; and identification of appropriate, programmatic policies and BMPs to be included in the proposed Wind Energy Development Program. http://windeis.anl.gov/documents/fpeis/index.cfm

- *BLM Instruction Memorandum [IM] 2009-043, Rights-of-Way [ROW], Wind Energy:* This IM further clarifies the BLM Wind Energy Development policies and BMPs provided in the Wind Energy Development Programmatic EIS. http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-043.html

- *Record of Decision for the Geothermal Resource Leasing Programmatic EIS:* This Record of Decision (ROD) provides a list of sample BMPs that have been collected from various BLM and United States Forest Service documents addressing geothermal and fluid mineral leasing and development, including resource management plans (RMPs), forest plans, and environmental reports for geothermal leasing and development. The document provides guidance on incorporating BMPs, as appropriate, into the geothermal permit application or as Conditions of Approval (COAs). http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/geothermal_eis/final_programmatic.Par.90935.File.dat/ROD_Geothermal_12-17-08.pdf

- *Record of Decision for Solar Energy Development Programmatic EIS:* This ROD identifies for the Department of Energy, industry, and stakeholders, the best practices for deploying solar energy and ensuring minimal impact to natural and cultural resources on BLM-administered lands or other federal, state, tribal, or private lands. http://www.solareis.anl.gov/

General Information for Management of Land Boundaries BMPs: The Departmental Manual 600 Chapter 5, Standards for Federal Lands Boundary Evidence and BLM H-9600-1, Cadastral Survey Handbook, provides general information regarding BLM BMPs for management of public land boundaries. Samples of BMPs are available with a brief description of types of BMPs and terminology. http://www.blm.gov/wo/st/en/prog/more/cadastralsurvey/cadastral_review_of.html.

C.2. Other Agency BMP Resources

U.S. Environmental Protection Agency Best Management Practices Resources

Healthy Watersheds: This resource provides conservation approaches and tools designed to ensure healthy watersheds remain intact. The website provides example approaches that are generally site-specific, and watershed managers are encouraged to use the examples as guidance in developing local conservation strategies. The website also supplies outreach strategies to encourage stakeholder engagement in conservation and protection of healthy watersheds. http://www.epa.gov/owow/nps/

Storm Water BMPs: This online menu provides BMPs designed to meet the minimum requirements for six control measures specified by the Environmental Protection Agency's (EPA's) Phase II Stormwater Program. The control measures include public education, public involvement, illicit discharge detection and elimination, construction, post-construction, and pollution prevention/good housekeeping. The menu also provides case studies assessing the performance of various storm water BMPs. http://water.epa.gov/polwaste/npdes/swbmp/

Pasture, Rangeland, and Grazing Operations BMPs: The link below provides BMPs compiled by the EPA to prevent or reduce pollution associated with livestock grazing. Topics include practices to reduce methane production, managing nonpoint source pollution, controlled grazing, reducing animal feeding operation pollution, and manure management. http://www.epa.gov/oecaagct/anprgbmp.html

U.S. Department of Agriculture – Natural Resources Conservation Service Best Management Practices Resources

National Conservation Practice Standards: This website provides links for national conservation practices developed by the Natural Resources Conservation Service (NRCS) on topics such as herbaceous wind barriers, feed management, forest stand improvement, and irrigation management. The conservation practice standard contains information on why and where the practice is applied, and sets forth the minimum quality criteria that must be met during the application of that practice in order for it to achieve its intended purpose. http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/technical/cp/ncps/?cid=nrcs143_026849

National Range and Pasture Handbook: Developed by NRCS grazing land specialists, this handbook provides a source of expertise to guide cooperators in solving resource problems and in sustaining or improving their grazing lands resources and operations. http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/landuse/rangepasture/?cid=stelprdb1043084

Wyoming Game and Fish Department Best Management Practices Resources

Aquatic Invasive Species: This resource provides information about how to recognize aquatic invasive species and how to avoid introducing them or spreading them through Wyoming's waters. The website contains links to external resources including a link to waterbodies in the United States currently known to be impacted by zebra and quagga mussels. The website also contains information about how to decontaminate equipment and watercraft suspected of harboring aquatic invasive species. https://wgfd.wyo.gov/Fishing-and-Boating/Aquatic-Invasive-Species-Prevention/AIS-Resources

C.3. Greater Sage-Grouse: Required Design Features and Best Management Practices

Introduction

Required Design Features (RDFs) are required for certain activities in Greater Sage-Grouse habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the National Environmental Policy Act (NEPA) analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable;
- An alternative RDF, a state-implemented conservation measure or plan-level protection is determined to provide equal or better protection for Greater Sage-Grouse or its habitat; or
- A specific RDF will provide no additional protection to Greater Sage-Grouse or its habitat.

Adverse environmental impacts associated with development can be avoided, reduced, or mitigated through the project's design and implementation. In order to provide regulatory certainty that the measures will be incorporated, they must be required of every project. The National Technical Team (NTT) report identified management actions and practices that would reduce adverse impacts to Greater Sage-Grouse if mandated to development throughout Core Area (Priority Habitat Management Areas). Some of these practices are incorporated in the Approved Bighorn Basin Resource Management Plan as being universally appropriate. The ones that could be analyzed on a planning area-wide basis have been made a part of the management actions and in this appendix as RDFs.

Other environmental protection measures could not be analyzed in a resource area-wide Environmental Impact Statement (EIS) because their appropriateness depends upon site-specific

issues such as proximity to the boundary of Priority Habitat Management Areas or non-crucial habitat or engineering or physical limitations such as an oil and gas producing zone being too close to the surface to be recoverable through directional drilling. These BMPs are required to be considered in a site-specific project's design to reduce, prevent, or avoid adverse environmental or social impacts. These practices are analyzed to help ensure that development is conducted in an environmentally responsible manner. Some BMPs are as simple as choosing a paint color that helps oil and natural gas equipment blend with the natural surroundings, making development less visible. Other BMPs may reduce the amount of vegetation lost to development, improve the speed of re-growth of desirable vegetation, or may reduce the amount of wildlife disturbance in important habitats. Public land users are encouraged to review these practices, incorporate them where appropriate, or develop better methods for achieving the same goal. However, the BLM may also require their incorporation into the design features of the project as a Condition of Approval (COA). A design feature should only be considered as a potential beneficial impact under the NEPA when it is part of a BLM authorization as a COA. If the practice is only voluntary or suggested, the BLM lacks the authority to require its implementation, so the project should be analyzed as if the practice will not occur. The BLM authorization will make clear whether the BMP is mandatory (attached as a COA) or merely encouraged.

NEPA analysis that concludes that BMPs should not be attached as mandatory COAs needs to clearly explain why with relation to site-specific factors. The purpose of this section is not to select certain practices or designs and require that only those be used. It is not possible to evaluate all the known practices and make determinations as to which are best, particularly without a specific project in a specific location. BMPs should be matched and adapted to meet the site-specific requirements of the management action, project and local environment. No one management practice is best suited to every site or situation, or will remain the most optimal practice over time. BMPs must be adaptive and monitored regularly to evaluate effectiveness. As discussed more fully in the Special Status Species-Wildlife section, protections for the Greater Sage-Grouse are an important focal point in the preparation of the Resource Management Plan (RMP). Accordingly, a special section of BMPs identifies management that should be considered in Greater Sage-Grouse priority habitat. It is expected that these BMPs will change over time as monitoring and further study develop improved Greater Sage-Grouse protections.

The following design approaches are required for all projects unless the proponent establishes that due to site limitations or engineering considerations, the design approaches are infeasible. Economic considerations such as increased costs do not render a design infeasible. The following measures would be applied as RDFs for all solid minerals. They would also apply to locatable minerals subject to valid existing rights and consistent with applicable law.

C.3.1. Required Design Features

The following measures, and others as they are identified, will be required for all BLM-authorized development. As appropriate, they may be required as part of the design of the project or as a mandatory COA. The following RDFs are found in the Sage-Grouse National Technical Team report (Sage-grouse NTT 2011) titled "A Report on National Greater Sage-Grouse Conservation Measures".

General

1. Evaluate and take advantage of opportunities to remove or modify existing power lines within priority Greater Sage-Grouse habitat areas. When possible, require perch deterrents

on existing or new overhead facilities. Encourage installation of perch deterrents on existing facilities.

2. Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.
3. Locate man camps outside priority Greater Sage-Grouse habitats.
4. Work cooperatively with permittees, leasees, and other landowners to develop grazing management strategies that integrate both public and private lands into single management units.
5. Coordinate BMPs and vegetative objectives with the Natural Resources Conservation Service (NRCS) for consistent application across jurisdictions where the BLM and NRCS have the greatest opportunities to benefit Greater Sage-Grouse, particularly as it applies to the NRCS's National Sage-Grouse Initiative: (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/initiatives/?cid=STELDEVB1027671).
6. When conducting NEPA analysis for water developments or other rangeland improvements address the direct and indirect effects to Greater Sage-Grouse populations and habitat.
7. Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority Greater Sage-Grouse habitats to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings are part of an Allotment Management Plan/Conservation Plan or if they provide value in conserving or enhancing the rest of the priority habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat or as a component of a grazing system during land health assessments. For example, some introduced grass seedings are an integral part of a livestock management plan and reduce grazing pressure in important sagebrush habitats, or serve as a strategic fuels management area.
8. Where the federal government owns the surface, and the mineral estate is in non-federal ownership, apply appropriate BMPs to surface development.

Roads

1. Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
2. Locate roads to avoid important areas and habitats.
3. Coordinate road construction and use among federal fluid mineral lessees and ROW or Surface Use Agreement (SUA) holders.
4. Construct road crossings of ephemeral, intermittent, and perennial streams to minimize impacts to the riparian habitat, such as by crossing at right angles to ephemeral drainages and stream crossings.
5. Establish slow speed limits on BLM and Forest Service system-administered roads or design roads for slower vehicle speeds to reduce Greater Sage-Grouse mortality.
6. Establish trip restrictions or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).
7. Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions including this document.
8. Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.)
9. Apply dust abatement on roads, well pads, and other surface disturbances.
10. Close and rehabilitate duplicate roads by restoring original landform and establishing a desirable plant community.

11. Do not issue ROWs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

Operations

1. Site and/or minimize linear ROWs or SUAs to reduce disturbance and fragmentation of sagebrush habitats.
2. Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
3. Bury power lines to the extent technically feasible.
4. Collocate powerlines, flowlines, and small pipelines under or immediately adjacent to existing roads/transportation corridors.
5. Cover all fluid-containing pits and open tanks with netting (maximum 1.5-inch mesh size) regardless of size to reduce Greater Sage-Grouse mortality.
6. Equip tanks and other above ground facilities with structures or devices that discourage nesting and perching of raptors and corvids.
7. Control the spread and effects of invasive non-native plant species, including treating weeds prior to surface disturbance and washing vehicles and equipment at designated wash stations when constructing in areas with weed infestations.
8. Require Greater Sage-Grouse-safe fences.
9. Clean up refuse.
10. Locate mining camps outside of priority Greater Sage-Grouse habitats.
11. Fit transmission towers with anti-perch devices.
12. Construct Greater Sage-Grouse-safe fences around sumps.
13. Cluster disturbances, operations (hydraulic fracture stimulation, liquids gathering, etc.), and facilities.
14. Use directional and horizontal drilling to the extent feasible as a means to reduce surface disturbance in relation to the number of wells.
15. Place infrastructure in already disturbed locations where the habitat has not been fully restored.
16. Apply a phased development approach with concurrent reclamation.
17. Place liquid gathering facilities outside priority areas. To reduce truck traffic and perching and nesting sites for ravens and raptors do not place tanks at well locations within priority habitat areas.
18. Pipelines must be under or immediately adjacent to the road.
19. Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
20. Restrict the construction of tall facilities, distribution powerlines, and fences to the minimum number and amount needed.
21. Design or site permanent structures to minimize impacts to Greater Sage-Grouse, with emphasis on locating and operating facilities that create movement (e.g., pump jacks) or attract frequent human use and vehicular traffic (e.g., fluid storage tanks) in a manner that will minimize disturbance of Greater Sage-Grouse or interference with habitat use.
22. Use only closed-loop systems for drilling operations, with no reserve pits.
23. Consider using oak (or other material) mats for drilling activities where topography permits to reduce vegetation disturbance and for temporary roads between closely-spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.

West Nile

1. Restrict impoundment construction to reduce or eliminate threats from West Nile Virus (WNv).
2. Increase the size of freshwater ponds to accommodate a greater volume of water than is discharged. This will result in un-vegetated and muddy shorelines that breeding *Cx. tarsalis* avoid. This modification may reduce *Cx. tarsalis* habitat but could create larval habitat for *Culicoides sonorensis*, a vector of blue tongue disease, and should be used sparingly. Steep shorelines should be used in combination with this technique whenever possible.
3. Build steep shorelines to reduce shallow water (greater than 60 centimeters [cm]) and aquatic vegetation around the perimeter of impoundments. Construction of steep shorelines also will create more permanent ponds that are a deterrent to colonizing mosquito species like *Cx. tarsalis* which prefer newly flooded sites with high primary productivity.
4. Maintain water levels below that of rooted vegetation for a muddy shoreline that is unfavorable habitat for mosquito larvae. Rooted vegetation includes both aquatic and upland vegetative types. Avoid flooding terrestrial vegetation in flat terrain or low lying areas. Aquatic habitats with a vegetated inflow and outflow separated by open water produce 5 to 10 fold fewer *Culex* mosquitoes than completely vegetated wetlands. Wetlands with open water also had significantly fewer stage III and IV instars which may be attributed to increased predator abundances in open water habitats.
5. Construct dams or impoundments that restrict down slope seepage or overflow by digging ponds in flat areas rather than damming natural draws for effluent water storage, or lining constructed ponds in areas where seepage is anticipated.
6. Line channels where discharge water flows into ponds with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water, thus precluding shallow surface inflow and accumulation of sediment that promotes aquatic vegetation.
7. Line the overflow spillway with crushed rock, and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation.
8. Fence pond sites to restrict access by livestock and other wild ungulates that trample and disturb shorelines, enrich sediments with manure and create hoof print pockets of water that are attractive to breeding mosquitoes.
9. Manage artificial water impoundments for the prevention and/or spread of WNv where the virus poses a threat to Greater Sage-Grouse. This may include but is not limited to: (a) the use of larvicides and adulticides to treat waterbodies; (b) overbuilding ponds to create non-vegetated, muddy shorelines; (c) building steep shorelines to reduce shallow water and emergent aquatic vegetation; (d) maintaining the water level below rooted vegetation; (e) avoiding flooding terrestrial vegetation in flat terrain or low lying areas; (f) constructing dams or impoundments that restrict seepage or overflow; (g) lining the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water; (h) lining the overflow spillway with crushed rock and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation; and (i) restricting access of ponds to livestock and wildlife.
10. Field Offices should consider alternate means to manage produced waters that could present additional vectors for WNv. Such remedies may include re-injection under an approved Underground Injection Control permit, transfer to single/centralized facility, etc.
11. Policy Statement 7 regarding WNv does not apply to naturally occurring waters.
12. Design impoundments for wildlife and/or livestock use to reduce the potential to produce vectors for WNv where the virus may pose a threat to Greater Sage-Grouse.
13. Manage water impoundments to prevent the spread of WNv where analysis shows the virus poses a threat to Greater Sage-Grouse and may result in negative impacts to other species of concern.

14. Remove or re-inject produced water to reduce habitat for mosquitoes that vector WNv. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
    - Overbuild size of ponds for muddy and non-vegetated shorelines.
    - Build steep shorelines to decrease vegetation and increase wave actions.
    - Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
    - Construct dams or impoundments that restrict down slope seepage or overflow.
    - Line the channel where discharge water flows into the pond with crushed rock.
    - Construct spillway with steep sides and line it with crushed rock.
15. Treat waters with larvicides to reduce mosquito production where water occurs on the surface.
16. Restrict pit and impoundment construction to reduce or eliminate threats from WNv.

Noise

1. Limit noise to less than 10 decibels above ambient measures (20 to 24 decibels) at sunrise at the perimeter of a lek during active lek season.
2. Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.
3. Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.
4. Require Greater Sage-Grouse safe fences.

Reclamation

1. Include objectives for ensuring habitat restoration to meet Greater Sage-Grouse habitat needs in reclamation practices/sites. Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve Greater Sage-Grouse habitat needs.
2. Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling, and revegetating cut-and-fill slopes.
3. Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.
4. Implement irrigation during interim or final reclamation for sites where establishment of seedlings has been shown or is expected to be difficult due to dry conditions. Utilize mulching techniques to expedite reclamation.
5. Use mulching, soil amendments, and/or erosion blankets to expedite reclamation and to protect soils.
6. Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve Greater Sage-Grouse habitat needs.
7. Minimize surface-disturbing or disrupting activities (including operations and maintenance) where needed to reduce the impacts of human activities on important seasonal Greater Sage-Grouse habitats. Apply these measures during project level planning.
8. When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in priority Greater Sage-Grouse habitat, address (and apply conservation measures as appropriate) the direct and indirect effects to Greater Sage-Grouse populations and habitat.
9. During activity level planning, where appropriate, designate routes with current administrative/agency purpose or need to administrative access only.
10. Identify and work with partners to increase native seed availability and work with plant material centers to develop new plant materials, especially the forbs needed to restore Greater Sage-Grouse habitat.

11. Consider potential changes in climate when proposing seedings using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed.
12. Use Ecological Site Descriptions (ESDs) or other protocols could be used (e.g., TEUI or LSI) to identify the understory species and sagebrush subspecies needed to restore desirable habitat conditions.

Vegetation Treatments/Fire and Fuels Management

1. During vegetation management project design, consider the utility of using livestock to strategically reduce fine fuels, and implement grazing management that will accomplish this objective. Consult with ecologists to minimize impacts to native perennial grasses.
2. Provide to personnel planning vegetation treatments information on Greater Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.
3. Use vegetation treatment prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable plant species and reduce risk of hydrophobicity.
4. Ensure proposed sagebrush treatments are planned with interdisciplinary input from BLM/Forest Service and /or state wildlife agency biologist and that treatment acreage is conservative in the context of surrounding Greater Sage-Grouse seasonal habitats and landscape.
5. Ensure that treatments are configured in a manner (e.g., strips) that promotes use by Greater Sage-Grouse.
6. Where appropriate, incorporate roads and natural fuels breaks into fuels break design.
7. Power-wash all vehicles and equipment involved in vegetation treatment activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.
8. Design vegetation treatments in areas of high wildfire frequency to facilitate firefighter and public safety, reduce the risk of extreme fire behavior; and to reduce the risk and rate of fire spread to Greater Sage-Grouse habitats.
9. Restore prior perennial grass/shrub plant communities infested with nonnative invasive species to a species composition characterized by perennial grasses, forbs, and shrubs as outlined in ESDs.
10. Emphasize the use of native plant species, recognizing that nonnative species may be necessary depending on the availability of native seed and prevailing site conditions.
11. Reduce the risk of vehicle or human-caused wildfires and the spread of invasive species into Greater Sage-Grouse habitats could be minimized by planting perennial vegetation (e.g., green-strips) paralleling road ROWs (this BMP could be applied to BLM linear ROW authorizations).
12. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, and strictly managed grazed strips) to aid in controlling wildfire should wildfire occur near Greater Sage-Grouse key habitats or important restoration areas (such as where investments in restoration have already been made).
13. Design vegetation treatments in Greater Sage-Grouse habitats to strategically reduce wildfire threats in the greatest area. This may involve spatially arranging new vegetation treatments with past treatments, vegetation with fire-resistant serial stages, natural barriers, and roads in order to constrain fire spread and growth. This may require vegetation treatments to be implemented in a more linear versus block design.
14. Design post Emergency Stabilization and Rehabilitation and Burned Area Emergency Response management to ensure long term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse and burro, and travel management, etc., to achieve and maintain the desired condition of Emergency

Stabilization and Rehabilitation and Burned Area Emergency Response projects to benefit Greater Sage-Grouse. Include Greater Sage-Grouse habitat parameters as defined by Connelly et al., Hagen et al., or if available, State Sage-Grouse Conservation plans and appropriate local information in habitat restoration objectives. Make maintaining these objectives within priority Greater Sage-Grouse habitat areas a high restoration priority.

15. Make re-establishment of sagebrush and desirable understory plant cover (relative to ecological site potential) a high priority for restoration efforts. Write specific vegetation objectives to reestablish Greater Sage-Grouse cover and desirable understory cover.
16. Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patters which most benefit Greater Sage-Grouse habitat.
17. Provide training to fuels treatment personnel on Greater Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.
18. Use fire prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of hydrophobicity).
19. Ensure proposed sagebrush treatments are planned with interdisciplinary input from BLM, Forest Service and/or state wildlife agency biologist and that treatment acreage is conservative in the context of surrounding Greater Sage-Grouse seasonal habitats and landscape.
20. Where appropriate, ensure that treatments are configured in a manner (e.g., strips) that promotes use by Greater Sage-Grouse.
21. Where applicable, incorporate roads and natural fuel breaks into fuel break design.
22. Power-wash all firefighting vehicles, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATVs) prior to deploying in or near Greater Sage-Grouse habitat areas to minimize noxious weed spread.
23. Design vegetation treatment in areas of high frequency to facilitate firefighting safety, reduce the risk of extreme fire behavior; and to reduce the risk and rate of fire spread to Greater Sage-Grouse key habitats and restoration habitats.
24. Give priority for implementing specific Greater Sage-Grouse habitat restoration projects in areas infested with undesirable annual grasses first to sites which are adjacent to or surrounded by Greater Sage-Grouse key habitats. Areas infested with undesirable annual grasses are second priority for restoration when the sites not adjacent to key habitat, but within two miles of key habitat. The third priority for areas infested with undesirable annual grasses habitat restoration projects are sites beyond two miles of key habitat. The intent is to focus restoration outward from existing, intact habitat.
25. As funding and logistics permit, restore areas infested with undesirable annual grasses to a species composition characterized by perennial grasses, forbs, and shrubs.
26. Emphasize the use of native plant species, recognizing that nonnative species may be necessary depending on the availability of native seed and prevailing site conditions.
27. Remove standing and encroaching trees within at least 100 meters of occupied Greater Sage-Grouse leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as appropriate, and resources permit.
28. Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.
29. Develop state-specific Greater Sage-Grouse reference information and resource materials containing maps, a list of resource advisors, contact information, local guidance, and other relevant information.
30. Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

31. Assign a Greater Sage-Grouse resource advisor to all extended attack fires in or near priority Greater Sage-Grouse habitat areas. Prior to the fire season, provide training to Greater Sage-Grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals.
32. On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in Greater Sage-Grouse habitat areas.
33. During periods of multiple fires, ensure line officers are involved in setting priorities.
34. Locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, and heli-bases) in areas where physical disturbance to Greater Sage-Grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.
35. Minimize unnecessary cross-country vehicle travel during fire operations in Greater Sage-Grouse habitat.
36. Minimize burnout operations in key Greater Sage-Grouse habitats by constructing direct firelines whenever safe and practical to do so.
37. Utilize retardant and mechanized equipment to minimize burned acreage during initial attack.
38. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

Fire Operations BMPs for Sage-Grouse Conservation

1. Compile district-level information into state-wide Greater Sage-Grouse tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each district, which will be aggregated into a state-wide document.
2. Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.
3. Assign a resource advisor with Greater Sage-Grouse expertise, or who has access to Greater Sage-Grouse expertise, to all extended attack fires in or near Greater Sage-Grouse habitat areas. Prior to the fire season, provide training to Greater Sage-Grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals.
4. On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in Greater Sage-Grouse habitat areas.
5. As appropriate, utilize existing fuel breaks, such as roads or discrete changes in fuel type, as control lines in order to minimize fire spread.
6. During periods of multiple fires, ensure line officers are involved in setting priorities.
7. To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to Greater Sage-Grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.
8. Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and ATVs prior to deploying in or near Greater Sage-Grouse habitat areas to minimize noxious weed spread.
9. Minimize unnecessary cross-country vehicle travel during fire operations in Greater Sage-Grouse habitat.
10. Minimize burnout operations in key Greater Sage-Grouse habitat areas by constructing direct fireline whenever safe and practical to do so.
11. Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

12. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.
13. Adequately document fire operation activities in Greater Sage-Grouse habitat for potential follow-up coordination activities.

Fuels Management BMPs for Sage-Grouse Conservation

1. Where applicable, design fuels treatment objectives to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit Greater Sage-Grouse habitat.
2. Provide training to fuels treatment personnel on Greater Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.
3. Use burning prescriptions which minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).
4. Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with state fish and wildlife agencies, and that treatment acreage is conservative in the context of surrounding Greater Sage-Grouse seasonal habitats and landscape.
5. Where appropriate, ensure that treatments are configured in a manner that promotes use by Greater Sage-Grouse.
6. Where applicable, incorporate roads and natural fuel breaks into fuel break design.
7. Power-wash all vehicles and equipment involved in fuels management activities, prior to entering the area, to minimize the introduction of undesirable and/or invasive plant species.
8. Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to Greater Sage-Grouse habitat. Additionally, develop maps for Greater Sage-Grouse habitat which spatially display current fuels treatment opportunities for suppression resources.
9. Give priority for implementing specific Greater Sage-Grouse habitat restoration projects in areas infested with undesirable annual grasses, first to sites which are adjacent to or surrounded by preliminary priority habitat or that reestablish continuity between priority habitats. Areas infested with undesirable annual grasses are a second priority for restoration when the sites are not adjacent to preliminary priority habitat, but within two miles of preliminary priority habitat. The third priority for areas infested with undesirable annual grasses habitat restoration projects are sites beyond two miles of preliminary priority habitat. The intent is to focus restoration outward from existing, intact habitat.
10. As funding and logistics permit, restore areas infested with undesirable annual grasses to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.
11. Emphasize the use of native plant species, recognizing that nonnative species may be necessary depending on the availability of native seed and prevailing site conditions.
12. Remove standing and encroaching trees within at least 100 meters of occupied Greater Sage-Grouse leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.
13. Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

Oil and Gas Development

1. Require unitization when deemed necessary for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means

of minimizing adverse impacts to resources, including Greater Sage-Grouse, so long as the unitization plan adequately protects the rights of all parties including the United States, according to the Federal Lease Form, 3100-11, Sections 4 and 6.

C.4. Best Management Practices

The BMPs shown in this appendix are not intended to encompass all potentially applicable BMPs. Instead, this appendix was developed to address specific issues brought forward during scoping, alternative development, and comments from the public and cooperating agencies.

C.4.1. Best Management Practices for Important Cultural Resource and Trail Settings

The BLM should use standard measures to reduce the visual impact of proposed actions within trail settings, where setting is a contributing element of eligibility to the National Register of Historic Places and the setting has integrity. Standard measures should be used as stipulations or conditions of approval attached to authorizations. Standard measures, or BMPs, for reducing the visibility of proposed actions include, but are not limited to:

- Apply a controlled surface use stipulation to surface-disturbing activities or surface occupancy.
- Visual Contrast Ratings and, as appropriate, require visual simulations.
- Consolidate project facilities among oil and gas developers; maximize use of existing locations.
- Develop coordinated road and pipeline systems.
- Reduce the amount of surface development by consolidating facilities.
- Use low-profile facilities.
- Locate projects to maximize the use of topography and vegetation to screen development.
- Design projects to blend with topographic forms and existing vegetation patterns.
- Use environmental coloration or camouflage techniques to reduce the visual impact of facilities that cannot be completely hidden.
- Use broken linear patterns for road developments to screen roads as much as possible. This can include feathering or blending of the edges of linear rights-of-way to soften the dominant line form.
- For livestock control, use electric fencing with low-visibility fiberglass posts and environmental colors.
- Design linear facilities and seismic lines to run parallel to key observation points rather than perpendicular.
- Position facilities to present less of a visual impact (e.g., a facility with several tanks lined up so that one obscures the visibility of the others).

C.4.2. Decontamination Procedure for Aquatic Invasive Species

To prevent the spread of aquatic invasive species, the Wyoming Game and Fish Department recommends following the guidelines outlined in the *Aquatic Invasive Species in Wyoming* brochure (link below). Specific BMPs to aquatic invasive species spread prevention include, but are not limited to:

- Decontamination should first occur before arrival at a project site, so aquatic invasive species are not transferred from the last visited area. Decontamination should occur again before leaving a project site, so aquatic invasive species are not transferred to the next site.

- Decontamination may consist of either:
  1. Drain all water from equipment and compartments, clean equipment of all mud, plants, debris, or animals, and dry equipment for five days in summer (June, July, and August); 18 days in spring (March, April, and May) and fall (September, October, and November); or three days in winter (December, January, and February) when temperatures are at or below freezing,

     -or-
  2. Use a high pressure (2,500 pounds per square inch [psi]) hot water (140°F) pressure washer to thoroughly wash equipment and flush all compartments that may hold water.

https://wgfd.wyo.gov/WGFD/media/content/PDF/Fishing/AIS_INSPECTIONMANUAL.pdf

C.4.3. Wyoming Forestry Best Management Practices

The Wyoming Forestry Best Management Practices: Forestry BMPs Water Quality Protection Guidelines (link below) describes BMPs for the management of forest lands. These BMPs are a set of voluntary preferred methods of forestland management designed to protect water quality and forest soils, and are intended for use on non-industrial private, forest industry, state-owned and federal forests.

http://wyforestinfo.wyo.gov/best-management-practices

C.4.4. Reseeding Best Management Practices

The following recommendations may be required depending on the project size and location.

1. Proposed actions where native brush species located on lands proposed to be disturbed are unique and desirable for interim and final reclamation purposes, and the seed supply for these desirable brush species is not commercially available, will be collected from the area and stored using the procedures of the Seeds of Success program. Seedlings or plugs of common dominant species will be propagated, preferably locally, in preparation for use in portions of area to be reclaimed to expedite vegetation recovery.
2. Areas of sustainable plant communities and populations (where they do not conflict with other allowable resource uses) will be identified as sources for native plant material and will be managed under consideration of the need to consistently produce seed stocks of non-commercially available materials for use in reclamation and restoration work (e.g., to support reclamation of abandoned mine lands or well pads or to supplement commercially available seeds in high fire years).

C.4.5. Engineering Best Management Practices

Road maintenance, construction, and any other related travel and transportation management will be mandated by BLM Manual 9113. BLM Manual 9113 provides for BMPs to be used in evaluating, maintaining, and constructing BLM travel and transportation routes. As stated in Manual 9113, "Bureau roads must be designed to an appropriate standard no higher than necessary to accommodate their intended functions adequately (timber hauling administrative access, public travel); and design, construction, and maintenance activities must be consistent

with national policies for safety, aesthetics, protection and preservation of cultural, historic, and scenic values, and accessibility for the physically handicapped. The following is a list of BMPs that are recommended but not binding for road maintenance practices:

1. Design roads to minimize total disturbance, to conform with topography, and to minimize disruption of natural drainage patterns.
2. Base road design criteria and standards on road management objectives such as traffic requirements of the proposed activity and the overall transportation planning, economic analysis, safety requirements, resource objectives, and minimizing damage to the environment.
3. Locate roads on stable terrain such as ridge tops, natural benches, and flatter transitional slopes near ridges, and valley bottoms, and moderate side slopes and away from slumps, slide prone areas, concave slopes, clay beds, and where rock layers dip parallel to the slope. Locate roads on well-drained soil types; avoid wet areas when possible.
4. Construct cut and fill slopes to be approximately 3 horizontal (h):1 vertical (v) or flatter where feasible. Locate roads to minimize heights of cutbanks. Avoid high, steeply sloping cutbanks in highly fractured bedrock.
5. Avoid headwalls, midslope locations on steep, unstable slopes, fragile soils, seeps, old landslides, side slopes in excess of 70 percent, and areas where the geologic bedding planes or weathering surfaces are inclined with the slope. Implement extra mitigation measures when these areas cannot be avoided.
6. Construct roads for surface drainage by using outslopes, crowns, grade changes, drain dips, waterbars and in-sloping to ditches as appropriate.
7. Sloping the road base to the outside edge for surface drainage is normally recommended for local spurs or minor collector roads where low-volume traffic and lower traffic speeds are anticipated. This is also recommended in situations where long intervals between maintenance will occur and where minimum excavation is wanted. Out-sloping is not recommended on steep slopes. Sloping the road base to the inside edge is an acceptable practice on roads with steep side slopes and where the underlying soil formation is very rocky and not subject to appreciable erosion or failure.
8. Crown and ditching is recommended for arterial and collector roads where traffic volume, speed, intensity and user comfort are considerations. Recommended gradients range from 0 to 15 percent where crown and ditching may be applied, as long as adequate drainage away from the road surface and ditch lines is maintained.
9. Minimize excavation, when constructing roads, through the use of balanced earthwork, narrowing road widths, and end hauling where side slopes are between 50 and 70 percent.
10. If possible, construct roads when soils are dry and not frozen. When soils or road surfaces become saturated to a depth of 3 inches, BLM-authorized activities should be limited or ceased unless otherwise approved by the authorized officer.
11. Consider improving inadequately surfaced roads that are to be left open to public traffic during wet weather with gravel or pavement to minimize sediment production and maximize safety.
12. Retain vegetation on cut slopes unless it poses a safety hazard or restricts maintenance activities. Roadside brushing of vegetation should be done in a way that prevents disturbance to root systems and visual intrusions (i.e., avoid using excavators for brushing).
13. Retain adequate vegetation between roads and streams to filter runoff caused by roads.
14. Avoid riparian/wetland areas where feasible; locate in riparian/wetland areas only if the roads do not interfere with the attainment of resource objectives.
15. Minimize the number of unimproved stream crossings. When a culvert or bridge is not feasible, locate drive-through (low water crossings) on stable rock portions of the drainage

channel. Harden crossings with the addition of rock and gravel if necessary. Use angular rock if available.

16. Locate roads and limit activities of mechanized equipment within stream channels to minimize their influence on riparian areas. When crossing a stream is necessary, design the approach and crossing perpendicular to the channel, where practicable. Locate the crossing where the channel is well defined, unobstructed, and straight.
17. Avoid placing fill material in floodplain unless the material is large enough to remain in place during flood events.
18. Use drainage dips instead of culverts on level 2 roads where gradients will not present a safety issue. Locate drainage dips in such a way so that water will not accumulate or where outside berms prevent drainage from the roadway. Locate and design drainage dips immediately upgrade of stream crossings and provide buffer areas and catchment basins to prevent sediment from entering the stream.
19. Construct catchment basins, brush windrows, and culverts in a way to minimize sediment transport from road surfaces to stream channels. Install culverts in natural drainage channels in a way to conform with the natural streambed gradients with outlets that discharge onto rocky or hardened protected areas.
20. Design and locate water crossing structures in natural drainage channels to accommodate adequate fish passage, provide for minimum impacts to water quality, and to be capable of handling a 100-year event for runoff and floodwaters.
21. Use culverts that pass, at a minimum, a 25-year storm event or have a minimum diameter of 24 inches for permanent stream crossings and a minimum diameter of 18 inches for road cross drains.
22. Replace undersized culverts and repair or replace damaged culverts and downspouts. Provide energy dissipaters at culvert outlets or drainage dips.
23. Locate culverts or drainage dips in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Culverts should be placed on solid ground to avoid road failures.
24. Proper sized aggregate and riprap should be used during culvert construction. Place riprap at culvert entrance to streamline waterflow and reduce erosion.
25. Establish adapted vegetation on all cuts and fill immediately following road construction and maintenance.
26. Remove berms from the downslope side of roads, consistent with safety considerations.
27. Leave abandoned roads in a condition that provides adequate drainage without further maintenance. Close abandoned roads to traffic. Physically obstruct the road with gates, large berms, trenches, logs, stumps, or rock boulders as necessary to accomplish permanent closure.
28. Abandon and rehabilitate roads that are no longer needed. Leave these roads in a condition that provides adequate drainage. Remove culverts.
29. When plowing snow for winter use of roads, provide breaks in snow berms to allow for road drainage. Avoid plowing snow into streams. Plow snow only on existing roads.
30. Maintenance should be performed to conserve existing surface material, retain the original crowned or out-sloped self-draining cross section, prevent or remove rutting berms (except those designed for slope protection) and other irregularities that retard normal surface runoff. Avoid wasting loose ditch or surface material over the shoulder where it can cause stream sedimentation or weaken slump-prone areas. Avoid undercutting back slopes.
31. Do not disturb the toe of cut slopes while pulling ditches or grading roads. Avoid sidecasting road material into streams.

32. Grade roads only as necessary. Maintain drain dips, waterbars, road crown, in-sloping and outsloping, as appropriate, during road maintenance.
33. Maintain roads in special areas according to special area guidance. Generally, retain roads within existing disturbed areas and sidecast material away from the special area.
34. When landslides occur, save all soil and material usable for reclamation or stockpile for future reclamation needs. Avoid sidecasting of slide material where it can damage, overload, and saturate embankments, or flow into down-slope drainage courses. Reestablish vegetation as needed in areas where vegetation has been destroyed due to sidecasting.
35. Strip and stockpile topsoil ahead of construction of new roads, if feasible. Reapply soil to cut and fill slopes prior to revegetation.

C.4.6. Best Management Practices for Livestock Grazing

The purpose of this section is not to attempt to select certain practices and require that only those be used. It is not possible to evaluate all the known practices and make determinations as to which are best. What is best must be determined as a result of a site-specific investigation of the proposed management action. No one management practice is best suited to every site or situation. BMPs must be adaptive and monitored regularly to evaluate effectiveness.

The following sources contain information regarding grazing BMPs. Over time, other sources of information will become available and will be considered in proposed management actions.

The National Range and Pasture Handbook
http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/landuse/rangepasture/?cid=stelprdb1043084

Best Management Practices for Grazing
http://deq.wyoming.gov/media/attachments/Water%20Quality/Nonpoint%20Source/Reports%20%26%20Documents/2013_wqd-wpp-Nonpoint-Source_Livestock-Wildlife-Best-Mangement-Practice-Manual.pdf

The following BMPs for livestock grazing management within Greater Sage-Grouse Priority Habitat Management Areas have been identified from Cagney et al. (2010):

Sage-Grouse Habitat Season

- Mating Leks: Avoid any new sources of disturbance such as range improvements on lek sites.
- Nesting/Early Brood-Rearing: Maintain the Sagebrush/Bunchgrass Plant Community wherever currently present. Manage for high vigor in all plant communities. Avoid repeatedly using cool-season bunchgrasses in the critical growing season and limit utilization to moderate levels to assure that the previous year's standing crop is available for hiding cover.
- Late Brood-Rearing: Avoid repeatedly grazing riparian areas in seasons when temperatures are high.
- Winter: Avoid levels of browsing on sagebrush that would limit Greater Sage-Grouse access to their food supply and cover. Additionally, avoid heavy use of herbaceous standing crop as this will adversely affect hiding cover the following spring.

Vegetation Community

- Bunchgrass: Consider changes in management that would increase utilization or change the timing of grazing on these sites.
- Sagebrush/Bunchgrass:

  - Retain sufficient residual cover to provide Sage-Grouse hiding cover the following year.
  - Employ planned grazing; periodic small-scale disturbance such as occasional thinning or specialized small ruminant grazing of dense (30+ percent canopy cover) sagebrush will help maintain this desired state.
- Sagebrush/Rhizomatous Grass/Bluegrass:
  - Establish grazing strategies tailored to plant growth requirements of cool-season grasses.
  - Retain sufficient residual cover to provide Sage-Grouse hiding cover the following year.
  - Avoid confining animals on inadequate pasture or supplemental feeding to compensate for a lack of natural forage.
- Sagebrush/Bare Ground: Restrict grazing in conjunction with restoration efforts until the site is ready to sustain grazing.

C.4.7. Best Management Practices for Visual Resources

The following BMPs would be considered to reduce impacts to all visual resource management classes within the planning area:

- Burying of distribution power lines and flow lines in or adjacent to access roads;
- Repeating elements of form, line, color, and texture to blend facilities and access roads with the surrounding landscape;
- Painting all above-ground structures, production equipment, tanks, transformers, and insulators not subject to safety requirements to blend with the natural color of the landscape, using paint that is a non-reflective "standard environmental color" approved by the BLM visual resource management (VRM) specialist:
  - All new equipment brought onto the sites should be painted the same color(s);
  - Semi-gloss paints will stain and fade less than flat paints;
  - Typically, the background is a vegetated background, and seldom a solid background;
  - The selected color should be one or two shades darker than the background; and
  - Consider the predominant season of public use; however, never paint an object to match snow.
- Performing final reclamation recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography;
- Avoiding facility placement on steep slopes, ridge tops, and hilltops;
- Screening facilities from view;
- Following contours of the land to reduce unnecessary disturbance;
- Recontouring and revegetating disturbed areas to blend with the surrounding landscape;
- Reclaiming unnecessary access roads as soon as possible to the original contour;
- Using gravel of a similar color to adjacent dominant soil and vegetation colors for road surfacing;
- Use dust abatement to reduce fugitive dust, as well as minimize the light colors of the routes;
- Avoiding locating pads in areas visible from primary roads;
- Using subsurface or low-profile facilities to prevent protrusion above horizon line when viewed from any primary road;
- Co-locating wells when possible;
- Locating facilities far enough from the cut and fill slopes to facilitate recontouring for interim reclamation;
- Locating wells away from prominent features, such as rock outcrops;
- Completing an annual transportation plan for entire area before beginning construction, and making a layout that will minimize disturbance and visual impact;

- Designing and constructing all new roads to a safe and appropriate standard "no higher than necessary" to accommodate their intended use;
- Locating roads far enough off the back of ridgelines so they aren't visible from state, county, or BLM roads;
- Using remote monitoring to reduce traffic and road requirements;
- Removing unused equipment, trash, and junk immediately.

C.4.8. Best Management Practices for Water Resources

BMPs would be appropriate for consideration to mitigate potential water quality impacts when proposed oil and gas activities are within 500 feet of riparian areas and surface waters of the state, Source Water Protection Areas identified in Wellhead or Source Water Protection Plans approved by the local governing body, and "High" and "Moderately High" sensitivity aquifers (identified throughout the use of the Wyoming Groundwater Vulnerability Assessment Handbook (as updated over time). BMPs to mitigate impacts to water resources include, but are not limited to, the following:

- Those management approaches for oil and gas activities required by Source Water and Wellhead Protection Plans approved by the local governing body; or
- Use closed loop drilling systems;
- Do not use evaporation ponds in proximity to shallow aquifers;
- Do not use unlined ponds or pits overlying sensitive aquifers;
- Line surface impoundment ponds (evaporation ponds or drilling pits) with synthetic liners and subsequently decommission by removing all contaminants and liner and reclaiming the area;
- Identify water supply wells and implement appropriate protection measures for the affected aquifer(s), as necessary to prevent the introduction of contaminants into the well;
- Require a monitoring plan which includes collection of baseline and periodic water quality data from potentially affected water supply wells, identification of parameters to monitor, reporting results to BLM and well owners, reporting to Wyoming Department of Environmental Quality-Air Quality Division;
- Review the geology of shallow aquifers to determine well construction requirements, which may include cementing to surface and drilling with a fresh water mud system;
- Requirement surface casing and cement to a specific formation or depth to protect aquifers at depth that need protection:
  - Set surface casing below the lowermost underground sources of drinking water and set into a confining (e.g., shale) layer;
  - Set an intermediate string of casing and cement in the event of deep aquifers;
  - Require submittal of a well logging plan and document submittal of plan to ensure proper well construction to protect groundwater. If a lost circulation event occurs during the installation of surface casing, a cement bond log will be required to be run on the surface casing to determine if the cement is adequate and protective.
  - Review the geology of shallow aquifers in proximity to groundwater development activities to determine potential impacts to flow patterns supporting water elements such as fen, wetlands, springs, and seeps, and ponds.

C.4.9. Best Management Practices for Greater Sage-Grouse Protection

Knowledge of BMPs for Greater Sage-Grouse protections is an evolving field. As research is done on impacts of various kinds of activities, or the absence thereof, on Greater Sage-Grouse, additional protections will be identified. While some of these will be generic enough to be applied planning area-wide, others will require site-specific analysis to determine if they are appropriate for inclusion as a mandatory COA. This BMP section of this appendix will be supplemented as technology and understanding of Greater Sage-Grouse advance.

Bibliography

Cagney, Jim, Bainter, E., B. Budd, T. Christiansen, V. Herren, M. Holloran, B. Rashford, M. Smith, J. Williams. 2010. Grazing Influence, Objective Development, and Management in Wyoming's Greater Sage-grouse Habitat. University of Wyoming Cooperative Extension Service. B-1203. 62pp.

Sage-Grouse NTT (National Technical Team). 2011. A Report on National Greater Sage-Grouse Conservation Measures. December.

This page intentionally
left blank

Appendix D. Greater Sage-Grouse Habitat Management Strategy

D.1. Introduction

The Wyoming Greater Sage-Grouse Resource Management Plans (RMPs), including the Worland Approved RMP and Greater Sage-Grouse Amendments, provide specific goals, objectives, management actions, and required design features for the conservation of Greater Sage-Grouse in Wyoming. These are the commitments made to meet the federal agencies' national policy and direction for the conservation of Greater Sage-Grouse in light of the 2010 U.S. Fish and Wildlife Service (USFWS) listing decision as warranted but precluded from listing under the Endangered Species Act. Through the National Planning Strategy, the BLM has coordinated with the USFWS to identify conservation measures to be included in land use plans as the principal regulatory mechanisms to assure adequate conservation of the Greater Sage-Grouse and its habitat on public lands.

The measures identified in the Worland Approved RMP have been developed in coordination with not just the USFWS, but also the State of Wyoming, including the Wyoming Game and Fish Department (WGFD), and local cooperating agencies including conservation districts and counties.

Wyoming has established Core Population Areas to help delineate landscape planning units by distinguishing areas of high biological value. These areas are based on the locations of breeding areas and are intended to help balance Greater Sage-Grouse habitat requirements with demand for energy development (Doherty et al. 2011). The Worland Approved RMP is consistent with the Core Area Strategy, but contains additional restrictions to protect other resources, which results in added protections to Greater Sage-Grouse habitat and achieving conservation objectives identified in the Conservation Objectives Team (COT) Report on BLM-managed public lands. The COT Report indicates that the Core Area Strategy is a substantial regulatory mechanism that contributes to the conservation of Greater Sage-Grouse and balances the priorities of retaining a healthy Greater Sage-Grouse population on the landscape and energy development.

This appendix will introduce the framework for implementation of Greater Sage-Grouse conservation measures within the Worland Field Office. Implementation is a combination of permitting activities under the auspices of management direction provided in the Land Use Plan (LUP), undertaking specific activities in pursuit of the goals and objectives identified in the plan and monitoring of sage brush habitat and populations.

The implementation framework outlined here is focused specifically towards Greater Sage-Grouse and is reflective of how the national strategy will be assimilated into the existing statewide implementation efforts currently in place in Wyoming. This framework has been developed mindful of the varying scales at which implementation will be evaluated: at the local level to define successful conservation measures, at the state level to assess success of the statewide strategy, and across the species' range.

In 2013, the Director of U.S. Fish and Wildlife Service tasked staff with the development of range-wide conservation objectives for the Greater Sage-Grouse to define the degree to which threats need to be reduced or ameliorated to conserve Greater Sage-Grouse so that it is no

longer in danger of extinction or likely to become in danger of extinction in the foreseeable future. Recognizing that state wildlife agencies have management expertise and management authority for Greater Sage-Grouse, the FWS created a COT of state and USFWS representatives to accomplish this task.

The COT conservation framework consisted of (1) identifying Greater Sage-Grouse population and habitat status and threats, (2) defining a broad conservation goal, (3) identifying priority areas for conservation, and (4) developing specific conservation objectives and measures. The COT used three parameters—population and habitat representation, redundancy, and resilience (Shaffer and Stein 2010, Redford et al. 2011)—as guiding concepts in developing the conservation goal, priority areas for conservation, conservation objectives, and measures.

The COT report identified priority areas for Greater Sage-Grouse population habitats as Priority Areas for Conservation or (PACs). PACs are recognized as key areas across the landscape that are necessary to maintain redundant, representative, and resilient populations" of the species. The COT Report describes maintaining the integrity of PACs as "the essential foundation for Greater Sage-Grouse conservation." PACs cover nearly 73 million acres across the west; within the Bighorn Basin Planning Area, more than 1.1 million acres of BLM-administered surface are considered priority habitat (Table D.1, "Greater Sage-Grouse Habitat within the Bighorn Basin Planning Area" (p. 272)). Thirty-five percent of the priority habitat in the Planning Area is BLM-administered surface and twenty-six percent is BLM-administered minerals. Based upon 2007 through 2015 lek counts, and the population data contained in the COT Report, the Bighorn Basin Planning Area contains an estimated two percent of the range-wide population of Greater Sage-Grouse. Priority Habitat Management Areas (PHMAs) and General Habitat Management Areas (GHMAs) within the Planning Area are depicted in Figure D.1, "Priority Habitat Management Areas and General Habitat Management Areas within the Bighorn Basin Planning Area" (p. 273).

Table D.1. Greater Sage-Grouse Habitat within the Bighorn Basin Planning Area

Populations / Subpopulations: ***Wyoming Basin and Powder River Basin Populations*** ***WAFWA Management Zone I and II***		
Surface Estate	**Priority Habitat Acres (%)**	**General Habitat Acres (%)**
Private	505,850 (28)	1,327,877 (36)
State	151,591 (8)	244,045 (7)
BLM	1,115,076 (62)	2,034,027 (55)
Other	13,652 (1)	86,707 (2)
Total	1,786,169	3,692,656
Fluid Mineral Estate	**Priority Habitat Acres (%)**	**General Habitat Acres (%)**
Non-federal	360,032 (20)	1,099,993 (30)
BLM	1,426,137 (80)	2,592,663 (70)
Total	1,786,169	3,692,656
% percent BLM Bureau of Land Management WAFWA Western Association of Fish and Wildlife Agencies		

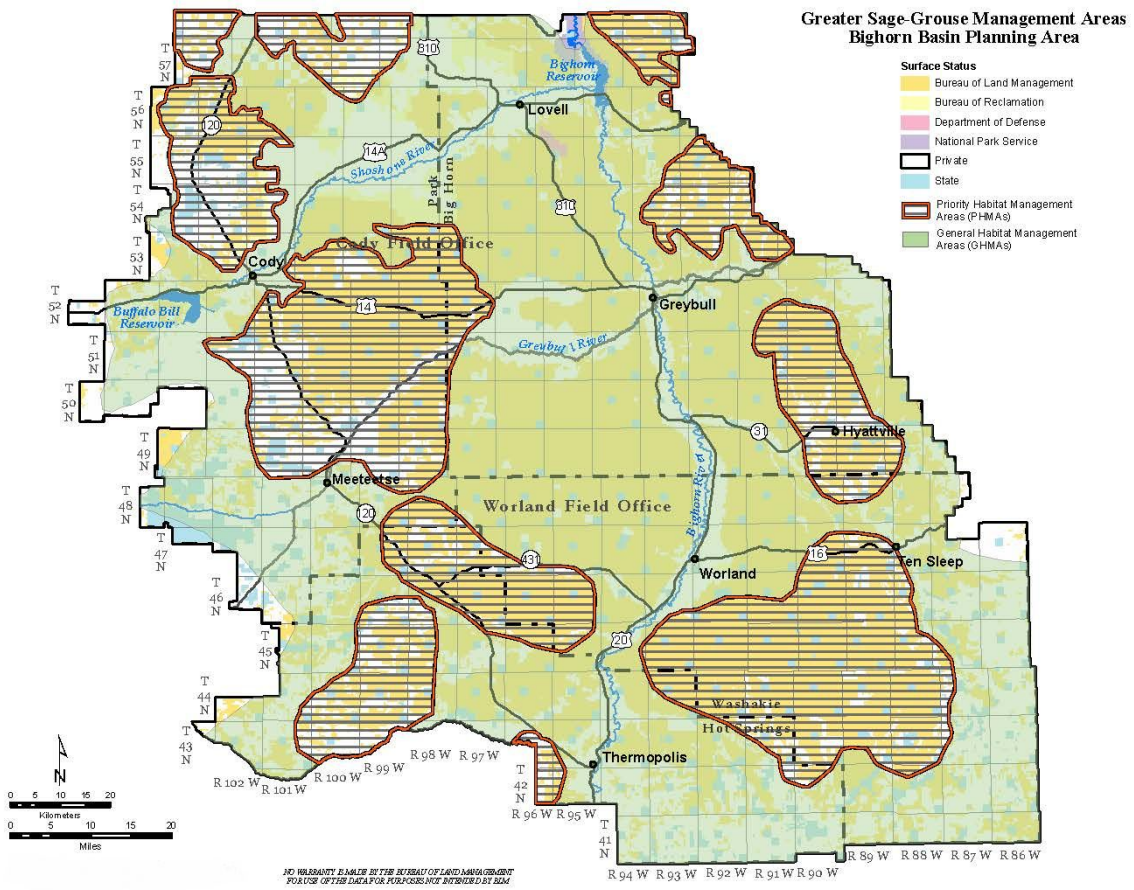


Figure D.1. Priority Habitat Management Areas and General Habitat Management Areas within the Bighorn Basin Planning Area

The conservation objectives identified in the COT Report, targeted at maintaining redundant, representative, and resilient Greater Sage-Grouse habitats and populations, is the basis on which the Greater Sage-Grouse elements of the Worland Approved RMP were developed. Due to the variability in ecological conditions and the nature of the threats across the range of the Greater Sage-Grouse, developing detailed, prescriptive species or habitat actions was not attainable at the range-wide scale. Specific strategies and actions necessary to achieve the conservation objectives have been developed by BLM in cooperation with state and local governments to ensure implementation of activities to meet the objectives identified in the COT report.

D.2. COT Objective 1: Stop Population Declines and Habitat Loss

> There is an urgent need to 'stop the bleeding' of continued population declines and habitat losses by acting immediately to eliminate or reduce the impacts contributing to population declines and range erosion. There are no populations within the range of Greater Sage-Grouse that are immune to the threat of habitat loss and fragmentation. (COT Report 2013)

The COT Report identified a series of threats to Greater Sage-Grouse habitat and the extent of those threats at the population scale. The management actions identified in the Worland Approved RMP were specifically designed to reduce the threats, as they were identified. The Bighorn Basin Planning Area encompasses lands within WAFWA Management Zones 1 and 2. To ensure that the threats are adequately addressed by the RMP, a strategy for reviewing activities and projects on public lands to determine the extent of their impact on Greater Sage-Grouse habitat has also been developed. The following outlines the process by which all activities on public lands will be reviewed.

The BLM will ensure that any activities or projects in Greater Sage-Grouse habitats would: 1) only occur in compliance with Worland Approved RMP Greater Sage-Grouse goals and objectives for priority management areas; and 2) maintain neutral or positive Greater Sage-Grouse population trends and habitat by avoiding, minimizing, and offsetting unavoidable impacts to assure a conservation gain at the scale of this land use plan and within Greater Sage-Grouse population areas, state boundaries, and WAFWA Management Zones through the application of mitigation for implementation-level decisions. The mitigation process will follow the regulations from the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20; e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy, while also following Secretary of the Interior Order 3330 and consulting BLM, USFWS and other current and appropriate mitigation guidance. If it is determined that residual impacts to Greater Sage-Grouse from implementation-level actions would remain after applying avoidance and minimization measures to the extent possible, then compensatory mitigation projects will be used to offset residual impacts, or the project may be deferred or denied if necessary to achieve the goals and objectives for priority and general management areas in the Worland Approved RMP.

To ensure that impacts from activities proposed in Greater Sage-Grouse PHMAs are appropriately approved and mitigated as necessary, the BLM will apply mitigation measures and conservation actions and potentially modify the location, design, construction, and/or operation of proposed land uses or activities to comply with statutory requirements for environmental protection. The mitigation measures and conservation actions (Appendix C, *Required Design Features and Best Management Practices* (p. 249)) for proposed projects or activities in these areas will be identified as part of the National Environmental Policy Act (NEPA) environmental review process, through interdisciplinary analysis involving resource specialists, project proponents, government entities, landowners or other Surface Management Agencies. Those measures selected for implementation will be identified in the Record of Decision (ROD) or Decision Record (DR) for those authorizations and will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands and minerals to mitigate, per the mitigation hierarchy referenced above, impacts from the activity or project such that Greater Sage-Grouse goals and objectives are met. Because these actions create a clear obligation for the BLM to ensure any proposed mitigation action adopted in the environmental review process is performed, there is assurance that mitigation will lead to a reduction of environmental impacts in the implementation stage and include binding mechanisms for enforcement (CEQ Memorandum for Heads of Federal Departments and Agencies 2011).

To achieve the goals and objectives for PHMAs in the Bighorn Basin Planning Area, the BLM will assess all proposed land uses or activities such as road, pipeline, communication tower, or powerline construction, fluid and solid mineral development, range improvements, and recreational activities proposed for location in PHMAs in a step-wise manner. The following steps identify a sequential screening process for review of proposed activities or projects in these areas (Table D.2, "Implementation of RMP Decisions to Address COT Threats" (p. 275)). This

process will provide a consistent approach and ensure that authorization of these projects, if granted, will appropriately mitigate impacts and be consistent with the RMP goals and objectives for Greater Sage-Grouse.

Table D.2. Implementation of RMP Decisions to Address COT Threats

COT Threat	Threat Extent	Program Area	RMP Decision	Implementation Process	Tracking Mechanism
Sagebrush Elimination	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Vegetation Management Wildland Fire Management			
Weeds/ Annual Grasses	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Vegetation Management Range Management Wildland Fire Management Recreation			
Energy	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Lands and Realty Fluid Minerals			
Fire	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Wildland Fire Management			
Grazing Range Management Structures	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Range Management Wild Horse and Burro Management Special Status Species Vegetation Management			
Free-Roaming Equids	Not Present (MZ1) Present but Localized (Wyoming Basin Population)	Wild Horse and Burro Management			
Conifer Encroachment	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Wildland Fire Management Vegetation Management			

COT Threat	Threat Extent	Program Area	RMP Decision	Implementation Process	Tracking Mechanism
Agriculture and Urbanization	Present but Localized (MZ1) Present but Localized (Wyoming Basin Population)	Lands and Realty			
Mining	Present and Widespread (MZ1) Present but Localized (Wyoming Basin Population)	Lands and Realty Locatable Minerals Salable Minerals Non-energy Leasable Minerals Management			
Recreation	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Recreation Trails and Travel Management			
Infrastructure	Present and Widespread (MZ1) Present and Widespread (Wyoming Basin Population)	Lands and Realty Trails and Travel Management			

Step 1 – Determine Proposal Adequacy

This screening process is initiated upon formal submittal of a proposal for authorization for use of BLM lands. The actual documentation of the proposal would include at a minimum a description of the location, scale of the project and timing of the disturbance. The acceptance of the proposal(s) for review would be consistent with existing protocol and procedures for each type of use. Evaluating consistency with (at a minimum) state Greater Sage-Grouse regulations.

Step 2 – Evaluate Proposal Consistency with LUP

Step 2.1 – The proposal will be reviewed to determine whether it would be allowed as prescribed in the Land Use Plan. For example, some activities or types of development are prohibited in Greater Sage-Grouse habitat, such as wind developments in Priority Habitat. Evaluation of projects will also include an assessment of the current state of the Adaptive Management hard and soft triggers. If the proposal is for an activity that is specifically prohibited, the applicant should be informed that the application is being rejected since it would not be allowed, regardless of the design of the project.

Step 2.2 – The proposal will be reviewed to determine whether it conforms with the Density and Disturbance Limitations. If the proposed activity occurs within a PHMA, evaluate whether the disturbance from the activity exceeds the limit on the amount of disturbance allowed within the activity or project area (Density/Disturbance Calculation Tool [DDCT] process). If current disturbance within the activity area or the anticipated disturbance from the proposed activity exceeds this threshold, the project would be deferred until such time as the amount of disturbance within the area has been reduced below the threshold, redesigned so as to not result in any

additional surface disturbance (collocation) or redesigned to move it outside of PHMA. Should the project be a result of a valid existing right, BLM will work to minimize the disturbance and determine any residual impacts that may require appropriate mitigation.

The maximum density of disruptive activities and surface disturbance allowed will be analyzed via the DDCT, and will be conducted by the Federal Land Management Agency on federal land and the project proponent on non-federal (private, state) land per the RMP 9 revision.

State Agency Permit is needed, without a need for a federal permit:

The first point of contact for addressing Greater Sage-Grouse issues for any state permit application should be the WGFD. Project proponents (proponents) need to have a thorough description of their project and identify the potential effects on Greater Sage-Grouse prior to submitting an application to the permitting agency. Project proponents should contact WGFD at least 45-60 days prior to submitting their application. More complex projects will require more time. It is understood that WGFD has a role of consultation, recommendation, and facilitation, and has no authority to either approve or deny the project. The purpose of the initial consultation with the WGFD is to become familiar with the project proposal and ensure the project proponent understands the DDCT and recommended stipulations.

Federal Agency Permit is needed, with or without a State permit:

When a project requires federal action prior to approval, the proponent should contact the federal agency responsible for reviewing the action. The federal agency and the proponent will determine the best process for completing the DDCT and receiving recommendations from WGFD. Project proponents (proponents) need to have a thorough description of their project and identify the potential effects on Greater Sage-Grouse prior to submitting an application to the permitting agency.

Maximum Density and Disturbance Process

Density and Disturbance Calculation: The DDCT is a spatially based tool that calculates both the average density of disruptive activities and total surface disturbance within the area affected by the project, or DDCT assessment area. The DDCT assessment area is created based on buffers around proposed projects (first buffer) in protected Greater Sage-Grouse PHMAs, and subsequent buffers around any occupied, PHMA leks within the first buffer. A 4-mile buffer is used to identify 75% of the Greater Sage-Grouse use around a lek. All activities will be evaluated within the context of maximum allowable disturbance (disturbance percentages, location and number of disturbances) of suitable Greater Sage-Grouse habitat within the DDCT assessment area. This tool allows for better siting of projects rather than averaging the density/disturbance calculation per section.

All lands within PHMA boundaries are is considered suitable habitat unless documented. Mapped unsuitable habitat is treated neither as suitable habitat, nor disturbance, which results in the area being removed from the DDCT assessment area altogether.

1. Density/Disturbance Calculation Tool: Determine all occupied leks within PHMAs that may be affected by the project by placing a 4 mile boundary around the project boundary (as defined by the proposed area of disturbance related to the project). All occupied leks located within the 4 mile boundary and within PHMAs will be considered in this assessment (Figure D.2, “Proposed Project Boundary” (p. 278)).

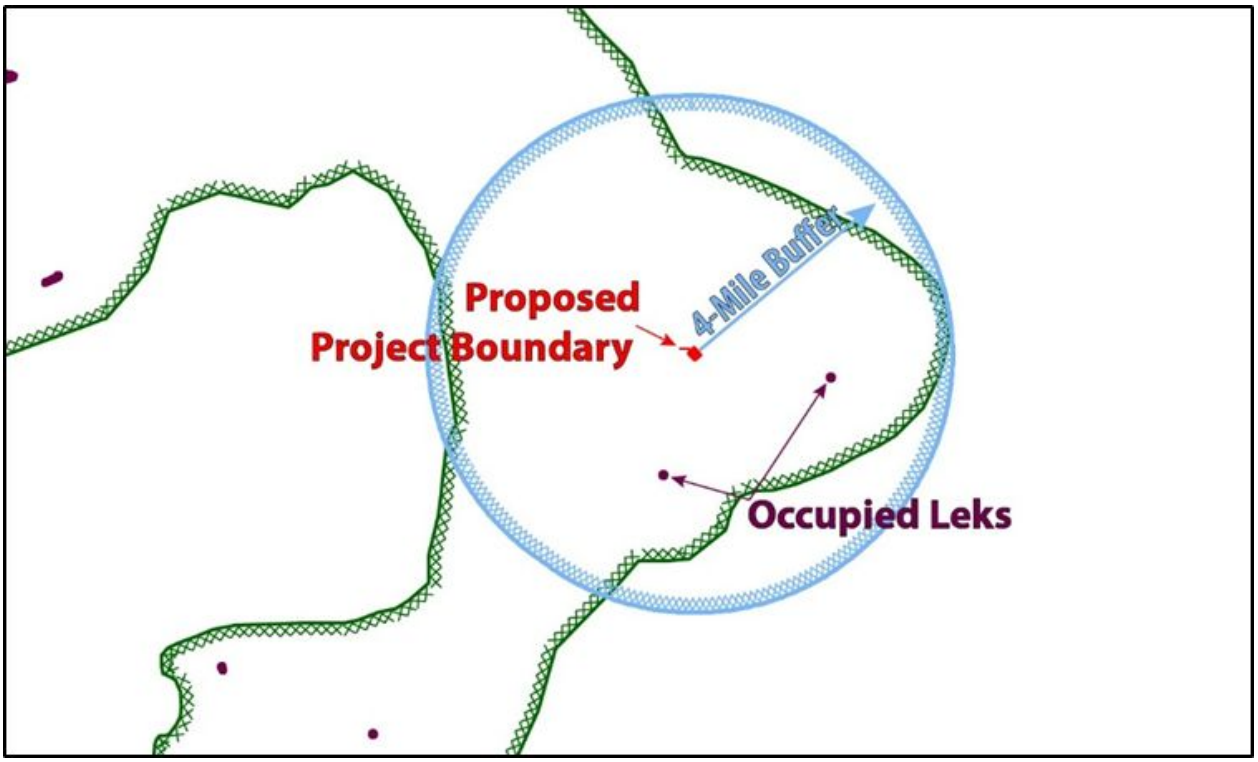


Figure D.2. Proposed Project Boundary

A 4-mile boundary will then be placed around the perimeter of each of these lek(s) (Figure D.2, "Proposed Project Boundary" (p. 278)).

The PHMAs within the combined 4-mile buffer around both the leks and the project boundary creates the DDCT assessment area for each individual project (Figure D.3, "DDCT Assessment Area" (p. 279)).

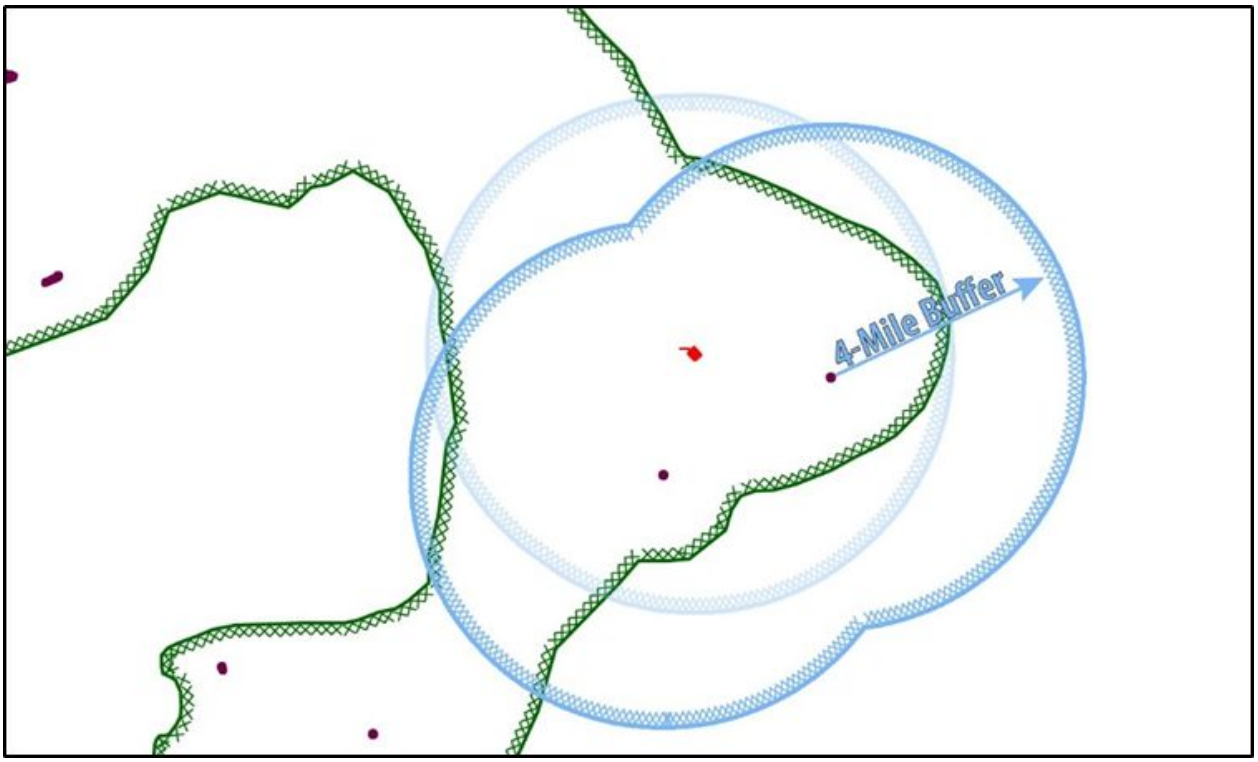


Figure D.3. DDCT Assessment Area

Disturbance will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area (Figure D.4, "DDCT Assessment Area – Existing Disturbance" (p. 280) through Figure D.7, "DDCT Assessment Area – Existing Disturbance with Buffer (cont.)" (p. 281)).

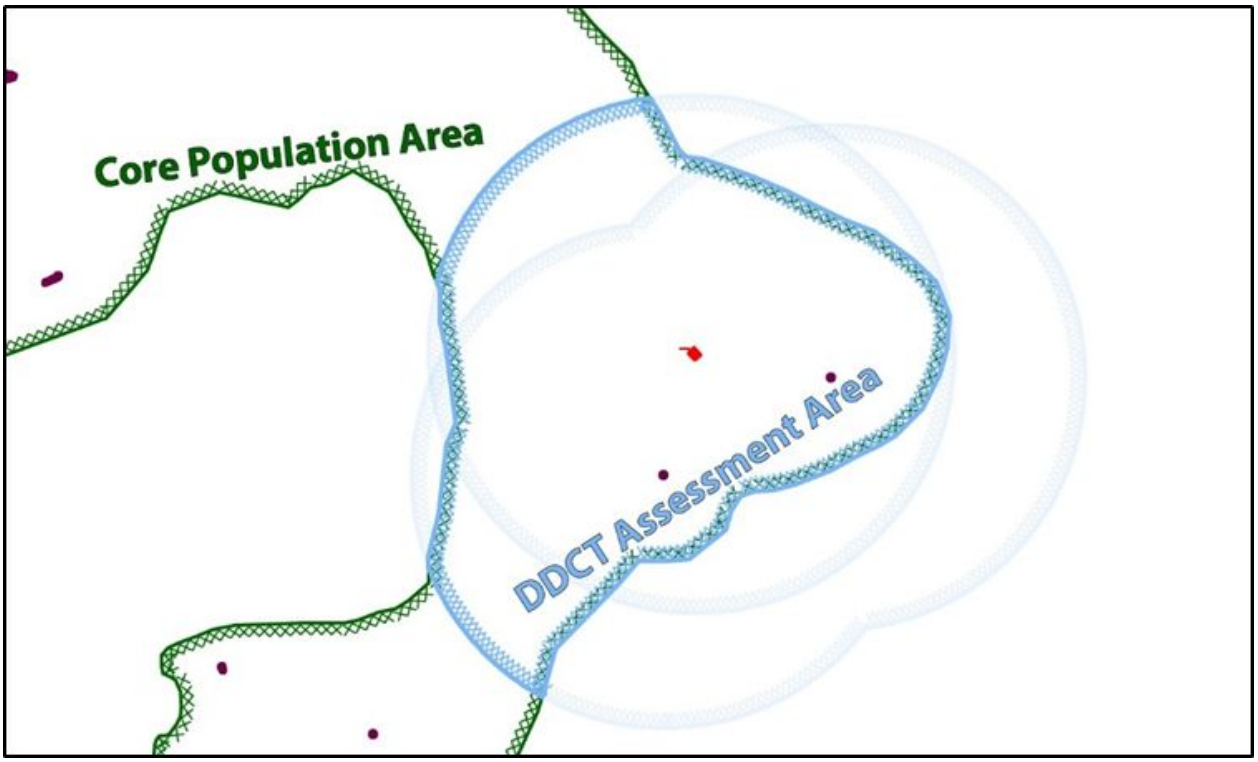


Figure D.4. DDCT Assessment Area – Existing Disturbance

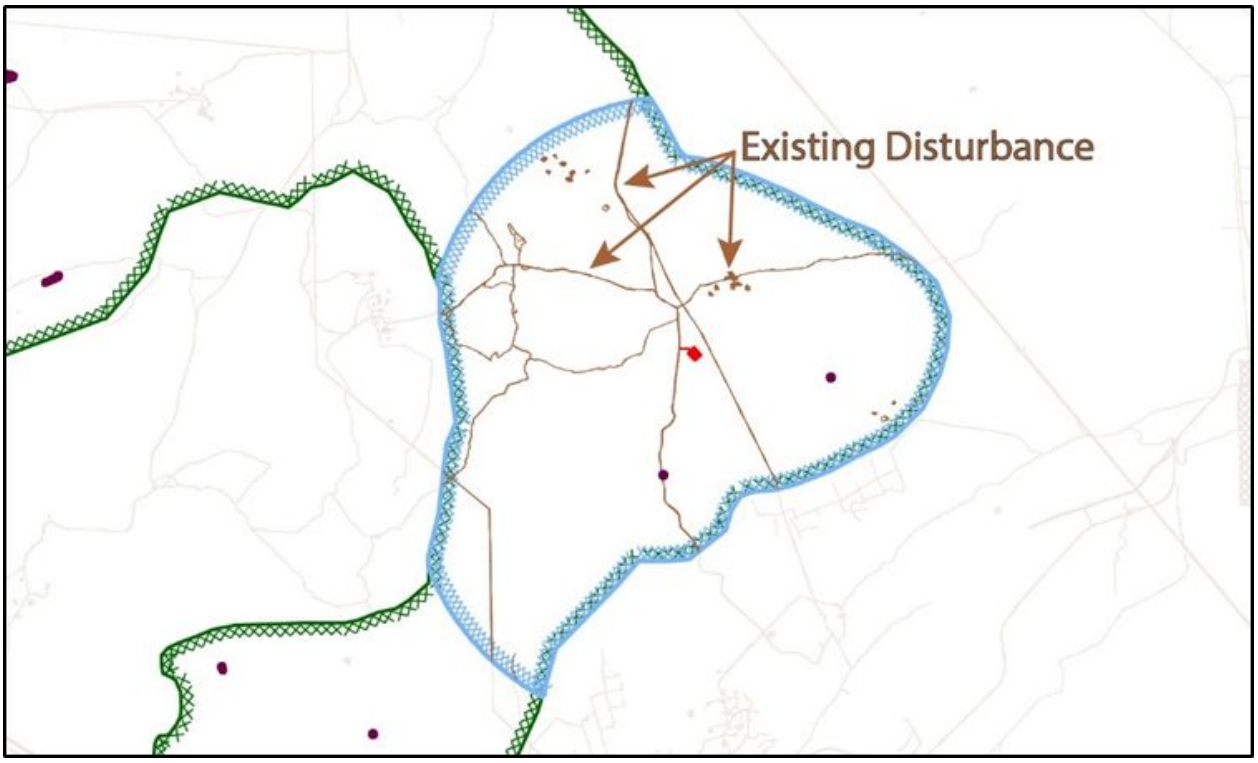


Figure D.5. DDCT Assessment Area – Existing Disturbance (cont.)

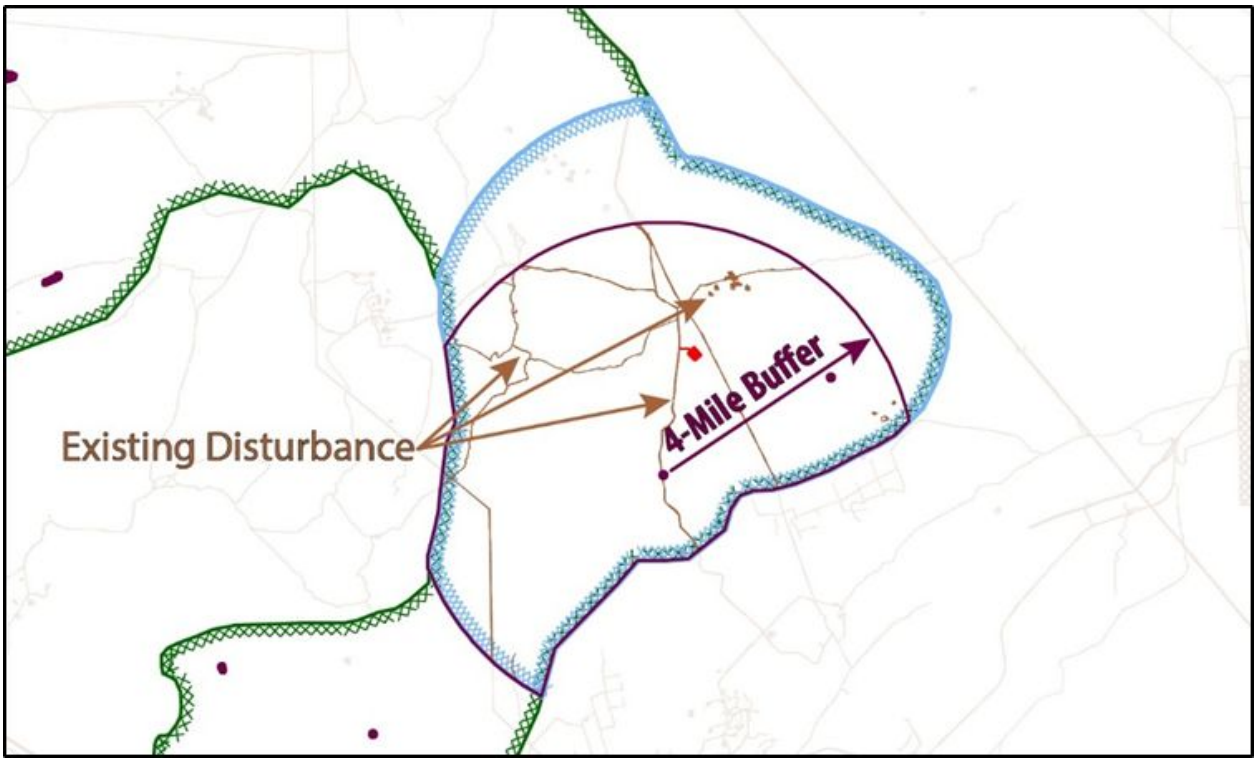


Figure D.6. DDCT Assessment Area – Existing Disturbance with Buffer

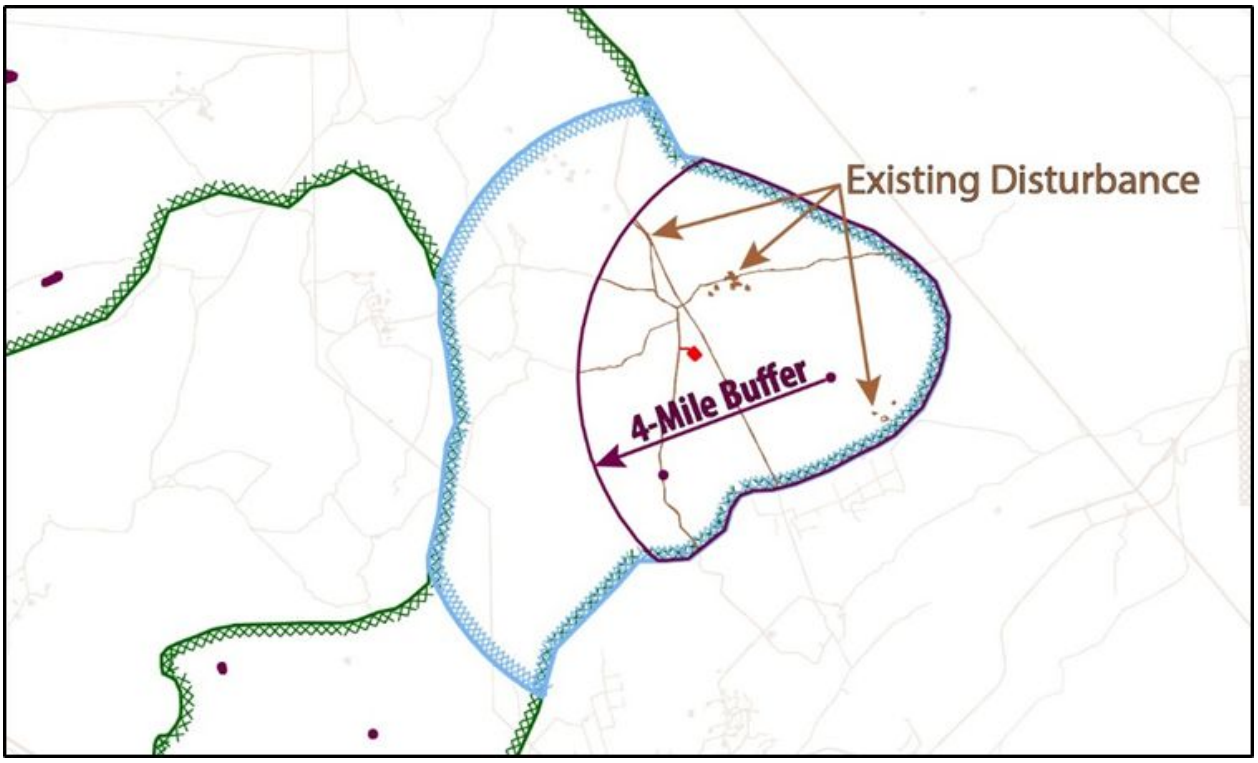


Figure D.7. DDCT Assessment Area – Existing Disturbance with Buffer (cont.)

Density of disruptive features will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area (Figure D.8, "DDCT Assessment Area – Existing Disruptive Features" (p. 282) through Figure D.10, "DDCT Assessment Area – Existing Disruptive Features Buffer (cont.)" (p. 283)).

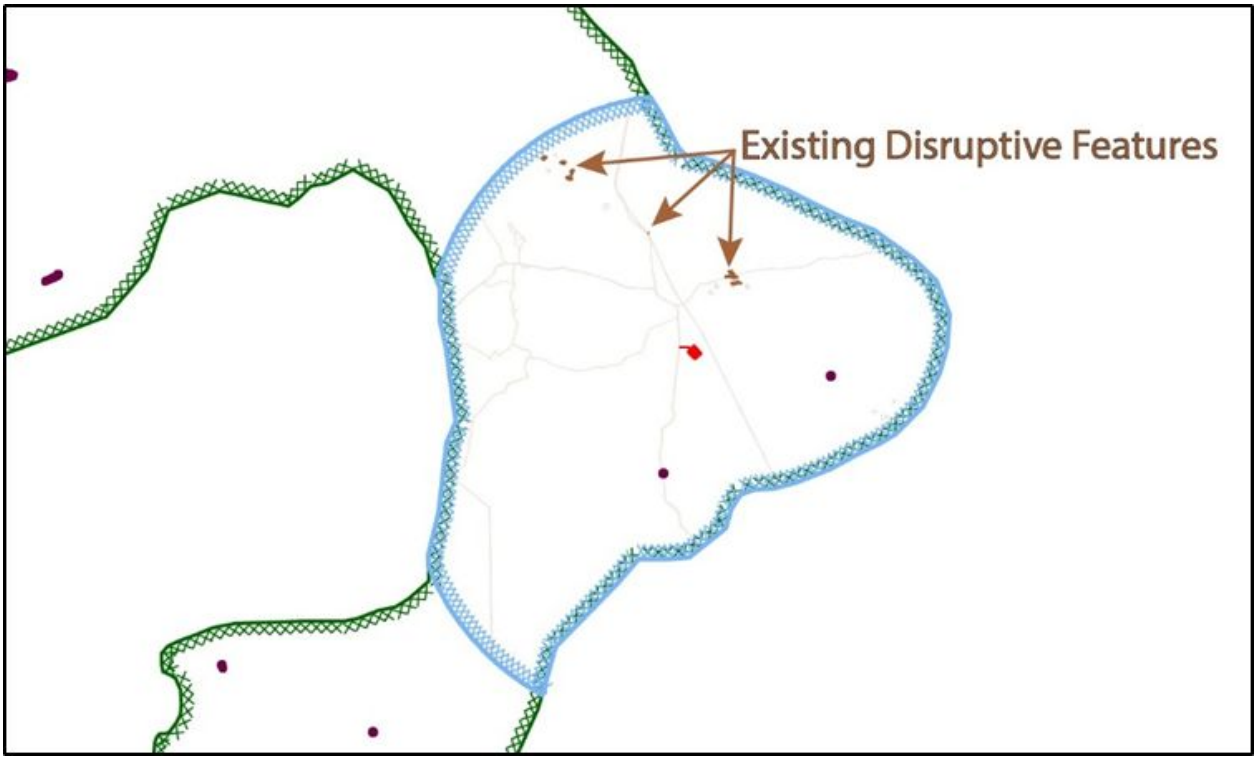


Figure D.8. DDCT Assessment Area – Existing Disruptive Features

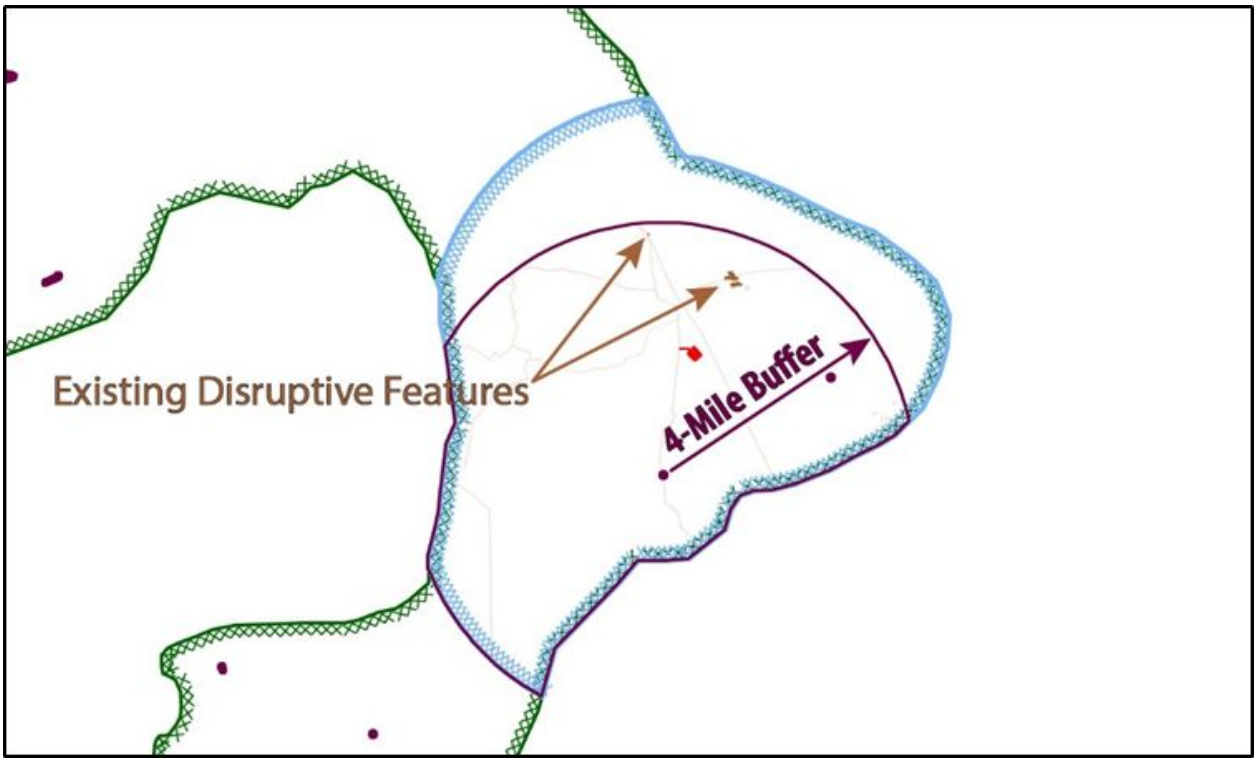


Figure D.9. DDCT Assessment Area – Existing Disruptive Features Buffer

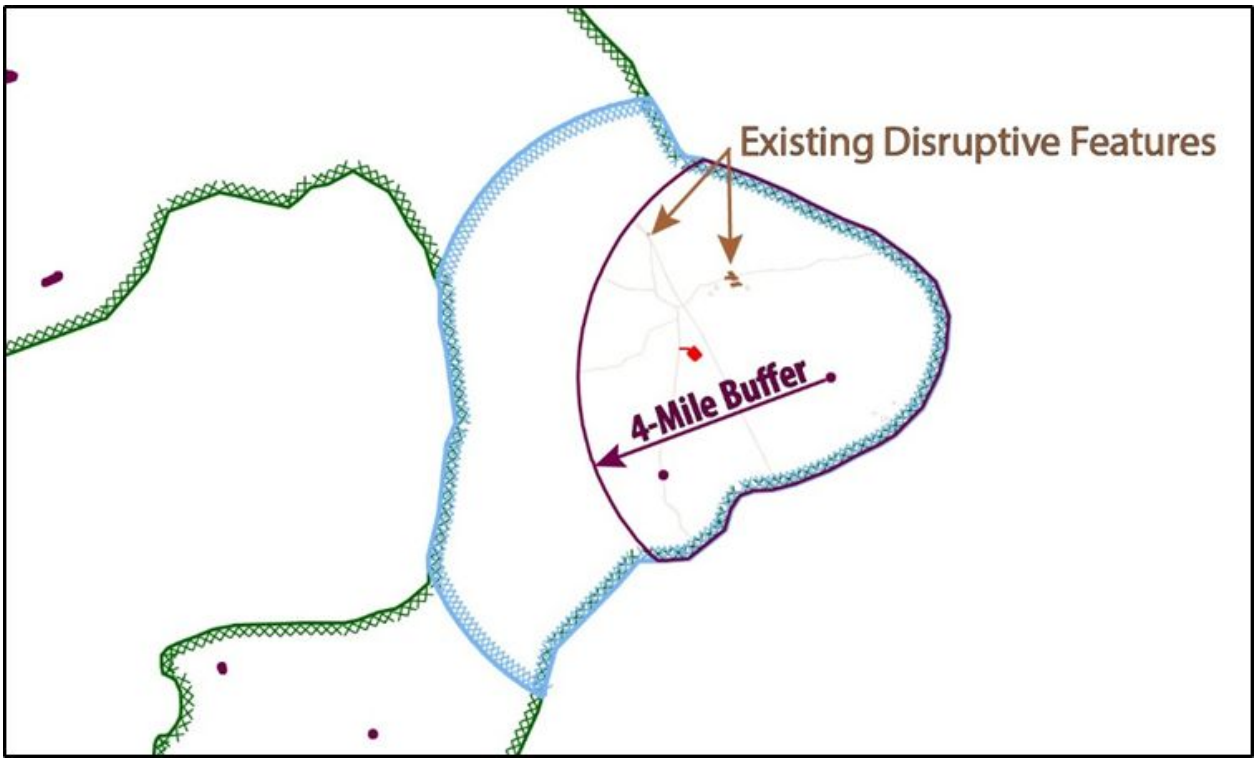


Figure D.10. DDCT Assessment Area – Existing Disruptive Features Buffer (cont.)

If there are no leks identified for this assessment within the 4-mile boundary around the project boundary, the DDCT assessment area will be that portion of the 4-mile project boundary within the PHMAs.

2. Density and Disturbance analysis: The total number of discrete disruptive activity features, as well as the total disturbance acres within the DDCT assessment area will be determined through an evaluation of:
   a. Existing disturbance (Greater Sage-Grouse habitat that is disturbed due to existing anthropogenic activity and wildfire);
   b. Approved permits (that have approval for on the ground activity) not yet implemented; and
   c. Validating digitized disturbance through on the ground evaluation.

The complete analysis package (DDCT results, mapbook, and Worksheet), and recommendations developed by consultation and review outlined herein will be forwarded to the appropriate permitting agency(s). WGFD recommendations will be included, as will other recommendations from project proponents and other appropriate agencies. Project proponent shall have access to all information used in developing recommendations. Where possible and when requested by the project proponent, State agencies shall provide the project proponent with potential development alternatives other than those contained in the project proposal.

If the permit for which a proponent has applied expires, another DDCT analysis is required before issuing a new permit. An additional DDCT is not required for Permit extensions or renewals when no changes are being authorized. Any project will need to comply with the current Executive Order.

Step 2.3 – The BLM's goal for any new activity or development proposal within PHMAs is to provide consistent implementation of project proposals which meet the BLM's LUP goals and the population management objectives of the State. Activities would be consistent with the strategy where it can be sufficiently demonstrated that no declines to PHMA populations would be expected as a result of the proposed action. Published research suggests that impacts to Greater Sage-Grouse leks associated primarily with infrastructure and energy development are discernible at a distance of at least 4 miles and that many leks within this radius have been extirpated as a direct result of development (Walker et al. 2007, Walker 2008). Research also suggests that an evaluation of habitats and Greater Sage-Grouse populations that attend leks within an 11-mile radius from the project boundary in the context of "large" projects may be appropriate in order to consider all seasonal habitats that may be affected for birds that use the habitats associated with the proposal during some portion of the life-cycle of seasonally migratory Greater Sage-Grouse (Connelly et al. 2000).

To determine the manner in which Greater Sage-Grouse may be impacted by proposed undertakings, the following will be reviewed in the site specific NEPA analysis to quantify the effects:

- Greater Sage-Grouse Habitat delineation maps.
- Current science recommendations.
- The 'Base Line Environment Report' (USGS) which identifies areas of direct and indirect effect for various anthropogenic activities.
- Consultation with agency or State Wildlife Agency biologist.
- Other methods needed to provide an accurate assessment of impacts.

If the proposal will not have a direct or indirect impact on either the habitat or population, document the findings in the NEPA and proceed with the appropriate process for review, decision and implementation of the project.

Step 3 – Apply Avoidance and Minimization Measures to Comply with Sage-Grouse Goals and Objectives

If the project can be relocated so as to not have an impact on Greater Sage-Grouse and still achieve objectives of the proposal and the disturbance limitations, relocate the proposed activity and proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record). This Step does not consider redesign of the project to reduce or eliminate direct and indirect impacts, but rather authorization of the project in a physical location that will not impact Greater Sage-Grouse. If the preliminary review of the proposal concludes that there may be adverse impacts to Greater Sage-Grouse habitat or populations in Step 2 and the project cannot be effectively relocated to avoid these impacts, proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record) with the inclusion of appropriate mitigation requirements to further reduce or eliminate impacts to Greater Sage-Grouse habitat and populations and achieve compliance with Greater Sage-Grouse objectives. Mitigation measures could include design modifications of the proposal, site disturbance restoration, post-project reclamation, etc. (see Appendix C, *Required Design Features and Best Management Practices* (p. 249)). Compensatory or offsite mitigation may be required (Step 4) in situations where residual impacts remain after application of all avoidance and minimization measures.

Step 4 – Apply Compensatory Mitigation or Reject/Defer Proposal

If screening of the proposal has determined that direct and indirect impacts cannot be eliminated through avoidance or minimization, evaluate the proposal to determine if compensatory mitigation can be used to offset the remaining adverse impacts and achieve Greater Sage-Grouse goals and objectives. If the impacts cannot be effectively mitigated, reject or defer the proposal. The criteria for determining this situation could include but are not limited to:

- The current trend within the Priority Habitat is down and additional impacts, whether mitigated or not, could lead to further decline of the species or habitat.
- The proposed mitigation is inadequate in scope or duration, has proven to be ineffective or is unproven is terms of science based approach.
- The project would impact habitat that has been determined to be a limiting factor for species sustainability.
- Other site specific information and analysis that determined the project would lead to a downward change of the current species population or habitat and not comply with Greater Sage-Grouse goals and objectives.

If, following application of available impact avoidance and minimization measures, the project can be mitigated to fully offset impacts and assure conservation gain to the species and comply with Greater Sage-Grouse goals and objectives, proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record).

Mitigation

General

In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and degradation, the

BLM will require and assure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. In Wyoming, the USFWS has found that "the core area strategy, if implemented by all landowners via regulatory mechanism, would provide adequate protection for Greater Sage-Grouse and their habitats in the state." The BLM will implement actions to achieve the goal of net conservation gain consistent with the Wyoming Strategy (State of Wyoming Executive Order 2015-4). Compensatory mitigation would be used when avoidance and minimization measures consistent with State of Wyoming Executive Order 2015-4 are inadequate to protect Core Population Area Greater Gage-Grouse.

Mitigation will follow the regulations from the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20; e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from BLM management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation (see Glossary).

The BLM, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy that will inform the NEPA decision making process including the application of the mitigation hierarchy for BLM management actions and third party actions that result in habitat loss and degradation. A robust and transparent Regional Mitigation Strategy will contribute to Greater Sage-Grouse habitat conservation by reducing, eliminating, or minimizing threats and compensating for residual impacts to Greater Sage-Grouse and its habitat.

The BLM's Regional Mitigation Manual MS-1794 serves as a framework for developing and implementing a Regional Mitigation Strategy. The following sections provide additional guidance specific to the development and implementation of a WAFWA Management Zone Regional Mitigation Strategy.

Developing a WAFWA Management Zone Regional Mitigation Strategy

The BLM, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy to guide the application of the mitigation hierarchy for BLM management actions and third party actions that result in habitat loss and degradation. The Strategy should consider any State-level Greater Sage-Grouse mitigation guidance that is consistent with the requirements identified in this Appendix. The Regional Mitigation Strategy should be developed in a transparent manner, based on the best science available and standardized metrics.

As described in the Worland Approved RMP, the BLM will establish a WAFWA Management Zone Greater Sage-Grouse Conservation Team (hereafter, Team) to help guide the conservation of Greater Sage-Grouse, within 90 days of the issuance of the Record of Decision. The Strategy will be developed within one year of the issuance of the Record of Decision.

The Regional Mitigation Strategy should include mitigation guidance on avoidance, minimization, and compensation, as follows:

- Avoidance

  - Include avoidance areas (e.g., right-of-way avoidance/exclusion areas, no surface occupancy areas) already included in laws, regulations, policies, and/or land use plans (e.g., Resource Management Plans, State Plans); and,
  - Include any potential, additional avoidance actions (e.g., additional avoidance best management practices) with regard to Greater Sage-Grouse conservation.
- Minimization
  - Include minimization actions (e.g., required design features, best management practices) already included in laws, regulations, policies, land use plans, and/or land-use authorizations; and,
  - Include any potential, additional minimization actions (e.g., additional minimization best management practices) with regard to Greater Sage-Grouse conservation.
- Compensation
  - Include discussion of impact/project valuation, compensatory mitigation options, siting, compensatory project types and costs, monitoring, reporting, and program administration. Each of these topics is discussed in more detail below.
    - Residual Impact and Compensatory Mitigation Project Valuation Guidance
    - A common standardized method should be identified for estimating the value of the residual impacts and value of the compensatory mitigation projects, including accounting for any uncertainty associated with the effectiveness of the projects.
    - This method should consider the quality of habitat, scarcity of the habitat, and the size of the impact/project.
    - For compensatory mitigation projects, consideration of durability (see glossary), timeliness (see glossary), and the potential for failure (e.g., uncertainty associated with effectiveness) may require an upward adjustment of the valuation.
    - The resultant compensatory mitigation project will, after application of the above guidance, result in proactive conservation measures for Greater Sage-Grouse (consistent with BLM Manual 6840 – Special Status Species Management, section .02).
- Compensatory Mitigation Options
  - Options for implementing compensatory mitigation should be identified, such as:
    - Utilizing certified mitigation/conservation bank or credit exchanges.
    - Contributing to an existing mitigation/conservation fund.
- Compensatory Mitigation Siting
  - Sites should be in areas that have the potential to yield a net conservation gain to the Greater Sage-Grouse, regardless of land ownership.
  - Sites should be durable (see glossary).
  - Sites identified by existing plans and strategies (e.g., fire restoration plans, invasive species strategies, healthy land focal areas) should be considered, if those sites have the potential to yield a net conservation gain to Greater Sage-Grouse and are durable.
- Compensatory Mitigation Project Types and Costs
  - Project types should be identified that help reduce threats to Greater Sage-Grouse (e.g., protection, conservation, and restoration projects).
  - Each project type should have a goal and measurable objectives.
  - Each project type should have associated monitoring and maintenance requirements, for the duration of the impact.
  - To inform contributions to a mitigation/conservation fund, expected costs for these project types (and their monitoring and maintenance), within the WAFWA Management Zone, should be identified.
- Compensatory Mitigation Compliance and Monitoring

  - Mitigation projects should be inspected to ensure they are implemented as designed, and if not, there should be methods to enforce compliance.
  - Mitigation projects should be monitored to ensure that the goals and objectives are met and that the benefits are effective for the duration of the impact.
- Compensatory Mitigation Reporting
  - Standardized, transparent, scalable, and scientifically-defensible reporting requirements should be identified for mitigation projects.
  - Reports should be compiled, summarized, and reviewed in the WAFWA Management Zone in order to determine if Greater Sage-Grouse conservation has been achieved and/or to support adaptive management recommendations.
- Compensatory Mitigation Program Implementation Guidelines
  - Guidelines for implementing the State-level compensatory mitigation program should include holding and applying compensatory mitigation funds, operating a transparent and credible accounting system, certifying mitigation credits, and managing reporting requirements.

Incorporating the Regional Mitigation Strategy into NEPA Analyses

The BLM will include the avoidance, minimization, and compensatory recommendations from the Regional Mitigation Strategy in one or more of the NEPA analysis' alternatives for BLM management actions and third party actions that result in habitat loss and degradation and the appropriate mitigation actions will be carried forward into the decision.

Implementing a Compensatory Mitigation Program

The BLM needs to ensure that compensatory mitigation is strategically implemented to provide a net conservation gain to the species, as identified in the Regional Mitigation Strategy. In order to align with existing compensatory mitigation efforts, this compensatory mitigation program will be managed at a State-level (as opposed to a WAFWA Management Zone, or a field office), in collaboration with our partners (e.g., federal, tribal, and state agencies).

To ensure transparent and effective management of the compensatory mitigation funds, the BLM will enter into a contract or agreement with a third-party to help manage the State-level compensatory mitigation funds, within one year of the issuance of the Record of Decision. The selection of the third-party compensatory mitigation administrator will conform to all relevant laws, regulations, and policies. The BLM will remain responsible for making decisions that affect federal lands.

D.3. COT Objective 2: Implement Targeted Habitat Management and Restoration

> Some Greater Sage-Grouse populations warrant more than the amelioration of the impacts from stressors to maintain Greater Sage-Grouse on the landscape. In these instances, and particularly with impacts resulting from wildfire, it may be critical to not only remove or reduce anthropogenic threats to these populations but additionally to improve population health through active habitat management (e.g., habitat restoration). This is particularly important for those populations that are essential to maintaining range-wide redundancy and representation. (COT Report, 2013)

In many areas of Wyoming, amelioration of threats isn't enough. Activities must be taken to enhance the habitat for continued success of Greater Sage-Grouse. This objective identifies the areas where RMPs will put forth the commitments for habitat restoration and enhancement.

The Wyoming Game and Fish Department established local Greater Sage-Grouse working groups over 10 years ago. Each of these local working groups developed conservation plans which have served to guide conservation of Greater Sage-Grouse habitat at a local level. The management objectives for this federal land use plan were developed in coordination with the State of Wyoming, recognizing the ongoing work which has been done over the last 10 years in Wyoming as a result of the conservation efforts identified by each of the local working groups.

Upon completion of the planning process, with issuance of an Approved Plan and Record of Decision, subsequent implementation decisions will be put into effect by developing implementation (activity-level or project-specific) plans. These implementation decisions will be based upon the objectives identified in the Approved Plan and Record of Decisions, and will be coordinated with local working groups.

D.4. COT Objective 3: Develop and Implement State and Federal Conservation Strategies and Associated Incentive-based Conservation Actions and Regulatory Mechanisms

> To conserve Greater Sage-Grouse and habitat redundancy, representation, and resilience, state and federal agencies, along with interested stakeholders within range of the Greater Sage-Grouse should work together to develop a plan, including any necessary regulatory or legal tools (or use an existing plan, if appropriate) that includes clear mechanisms for addressing the threats to Greater Sage-Grouse within PACs. Where consistent with state conservation plans, Greater Sage-Grouse habitats outside of PACs should also be addressed. We recognize that threats can be ameliorated through a variety of tools within the purview of states and federal agencies, including incentive-based conservation actions or regulatory mechanisms. Federal land management agencies should work with states in developing adequate regulatory mechanisms. Federal land management agencies should also contribute to the incentive-based conservation and habitat restoration and rehabilitation efforts. In the development of conservation plans, entities (states, federal land management agencies, etc.) should coordinate with FWS. This will ensure that the plans address the threats contributing to the 2010 warranted but precluded determination, and that conservation strategies will meaningfully contribute to future listing analyses. (COT Report, 2013)

D.4.1. Implementation Working Groups

National Level

In December 2011, Wyoming Governor Matt Mead and Secretary of the Interior Ken Salazar co-hosted a meeting to address coordinated conservation of the Greater Sage-Grouse across its range. Ten states within the range of the Greater Sage-Grouse were represented, as were the U.S. Forest Service (FS), the Natural Resources Conservation Service (NRCS), and the Department of the Interior (DOI) — including representatives from the DOI's Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (FWS). The primary outcome of the

meeting was the creation of a Sage-Grouse Task Force (Task Force) chaired by Governors Mead (WY) and Hickenlooper (CO) and the Director of the BLM. The Task Force was directed to develop recommendations on how to best advance a coordinated, multi-state, range-wide effort to conserve the Greater Sage-Grouse, including the identification of conservation objectives to ensure the long-term viability of the species.

Regional Level

Regional Level Teams (Sage Grouse Implementation Group)

State Level

The Sage Grouse Implementation Team (SGIT) has been established through Wyoming Legislature (Wyoming Statute 9-19-101(a)) to review data and make recommendations to the Governor of Wyoming regarding actions and funding to enhance and restore Greater Sage-Grouse habitats in Wyoming. Additionally, the SGIT is responsible for making recommendations to the Governor regarding regulatory actions necessary to maintain Greater Sage-Grouse populations and Greater Sage-Grouse habitats.

Adaptive Management Working Group has been established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect Greater Sage-Grouse populations and/or habitat through their permitting authority. The AMWG includes BLM, FS, FWS, and State of Wyoming.

Local Level

In 2000, a Local Working Group was established by the Wyoming Game and Fish Department to develop and facilitate implementation of local conservation plans for the benefit of Greater Sage-Grouse, their habitats, and whenever feasible, other species that use sagebrush habitats. This group prepared the Wyoming Greater Sage-grouse Conservation Plan (Wyoming Sage-Grouse Working Group 2003) to provide coordinated management and direction across the state. In 2004, local Greater Sage-Grouse working groups were formed to develop and implement local conservation plans. Eight local working groups around Wyoming have completed conservation plans, many of which prioritize addressing past, present, and reasonably foreseeable threats at the state and local levels, and prescribe management actions for private landowners to improve Greater Sage-Grouse conservation at the local scale, consistent with Wyoming's Core Population Area Strategy.

D.4.2. Implementation Tracking

Because the State of Wyoming continues to retain management of the species, and through implementation of the Executive Order, BLM Wyoming will continue to coordinate tracking of populations, disturbance and conservation actions.

- DDCT GIS for tracking disturbance
- Population Counts
- Lek counts
- Conservation Actions

In addition to the tracking databases being maintained by the State of Wyoming, a national-Greater Sage-grouse Land Use Plan Decision Monitoring and Reporting Tool is being developed to describe how the BLM will consistently and systematically monitor and report

implementation-level activity plans and implementation actions for all plans within the range of Greater Sage-Grouse. A description of this tool for collection and reporting of tabular and spatially explicit data will be included in the ROD or approved plan. The BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

D.4.3. Public Involvement

A website where the public can quickly and easily access data concerning implementation will be developed and kept current on the Wyoming BLM database. Creating this website and maintaining it through the implementation cycle will be a vital part of implementation success. The public is welcome to provide implementation comments to the BLM any time during the cycle, but schedules for implementation planning decisions will be posted so the public can make timely comments. All Activity Plan Working Group meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement. This includes providing web-based information to the public prior to any Activity Plan Working Group meetings; such that members of the public can provide input to the working session, both early and mid-way through the scheduled meetings.

The state sponsored LWG and SGIT meetings are advertised and open to the public.

D.5. COT Objective 4: Proactive Conservation Actions

> Proactive, incentive based, voluntary conservation actions (e.g., Candidate Conservation Agreements with Assurances, Natural Resources Conservation Service programs) should be developed and/or implemented by interested stakeholders and closely coordinated across the range of the species to ensure they are complimentary and address Greater Sage-Grouse conservation needs and threats. These efforts need to receive full funding, including funding for necessary personnel. (COT Report, 2013)

In addition to the conservation activities identified through implementation of the Resource Management Plan in coordination with the Local Working Group Conservation Plans, BLM will continue to partner with other agencies and stakeholders to identify conservation actions to benefit Greater Sage-Grouse habitat. Actions which may occur could include Candidate Conservation Agreements (CCAs) with accompanying Candidate Conservation Agreements with Assurances (CCAAs) and designation of conservation easements.

CCAs are entered into when a potential threat to habitat is identified. BLM enters into CCAs with USFWS to identify potential threats and plan for conservation measures to address potential threats. The purpose of federal CCAs and the accompanying non-federal CCAAs, is to encourage conservation actions for species that are not yet listed as threatened or endangered. The goal is that enhancements in conservation can preclude the need for federal listing or so that conservation can occur before the status of the species has become so dire that listing is necessary. Although a single property owner's activities may not eliminate the need to list, conservation, if conducted by enough property owners throughout the species' range, can eliminate the need to list.

The BLM will work with partners and stakeholders to develop species-specific or ecosystem-based conservation strategies and will work cooperatively with other agencies, organizations, governments, and interested parties for the conservation of sensitive species and their habitats to meet agreed on species and habitat management goals. Cooperative efforts are important

for conservation based on an ecosystem management approach and will improve efficiency by combining efforts and fostering collaborative working relationships.

Conservation Easements are identified private lands with Greater Sage-Grouse habitat where the private landowners enter into voluntary agreements with the government to give up developmental rights which may adversely affect habitat. The most common way these areas may be used in Wyoming is for mitigation banks. Allowing development within some areas of historic Greater Sage-Grouse habitat or marginal habitat will require appropriate mitigation. In some cases the most appropriate mitigation may be for project proponents to buy credits at a conservation easement, thus creating a mitigation bank. Overall, the benefit is to the Greater Sage-Grouse, as it reduces the overall potential for fragmented habitat by ensuring there are areas with no development potential which could adversely affect the viability of the species.

To learn more about what CCAs and CCAAs are in place for Greater Sage-grouse, please see the U.S. Fish and Wildlife website:

http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06W

Sweetwater River Conservancy Habitat Conservation Bank

The Sweetwater River Conservancy Habitat Conservation Bank is the first conservation bank established for Greater Sage-Grouse. Located in central Wyoming, the bank manages habitat for Greater Sage-Grouse allowing energy development and other activities to proceed on other lands within Wyoming. A conservation bank is a site or suite of sites established under an agreement with the USFWS, intended to protect, and improve habitat for species. Credits may be purchased which result in perpetual conservation easements and conservation projects on the land to offset impacts occurring elsewhere. The Sweetwater River Conservancy Habitat Conservation Bank launched with 55,000 deeded acres of Greater Sage-Grouse habitat, and could expand up to 700,000 acres on other lands owned by the Sweetwater River Conservancy contingent upon demand (USFWS 2015).

Wyoming Landscape Conservation Initiative

The Wyoming Landscape Conservation Initiative is a long-term science based effort to assess and enhance aquatic and terrestrial habitats at a landscape scale in southwest Wyoming, while facilitating responsible development through local collaboration and partnership. Collaborative efforts address multiple concerns at a scale that considers all activities on the landscape, and can leverage resources that might not be available for single agency projects. Greater Sage-Grouse initiatives from the Wyoming Landscape Conservation Initiative have included habitat enhancement efforts (e.g., invasive weed treatment, prescribed grazing strategies), and Greater Sage-Grouse research studies (Wyoming Landscape Conservation Initiative 2013).

Powder River Basin Restoration Program

The Powder River Basin Restoration Program is a collaborative partnership to restore and enhance Greater Sage-Grouse habitat on a landscape level in the Powder River Basin. The basin encompasses 13,493,840 acres in northeast Wyoming and southeast Montana. Surface ownership is composed of approximately 70 percent private lands, 14 percent BLM-administered lands (including 8 percent in Wyoming and 6 percent in Montana), 8 percent Forest Service lands, and 8 percent States of Wyoming and Montana lands. Subsurface mineral ownership is 50 to 60 percent federal (BLM 2014).

The Powder River Basin Restoration Program is focusing on areas affected by the federal oil and gas development that has occurred over the past decade in the Powder River Basin in northeastern Wyoming. Its objectives are restoring or enhancing disturbed previously suitable habitat to suitable habitat for sagebrush obligate species, primarily Greater Sage-Grouse. This includes multiple sites affected by coal bed natural gas abandonment reclamation efforts, wildfires, and noxious and invasive plants. Priority will be given to those areas recognized as priority habitats (e.g., PHMAs).

Habitat objectives are meeting the needs for nesting, brood-rearing, and late brood-rearing. The program would contribute to efforts focused on the management and control of mosquitoes carrying West Nile virus and would include funding, labor, treatment locations, and other needs as determined.

Additionally, efforts would be coordinated to reduce fuels in and near Greater Sage-Grouse habitat, to enhance sagebrush stands, support restoration efforts, and reduce the risk of high-severity wildfire. Pine stands and juniper woodlands would be managed for structural diversity and to reduce fuels, especially near PHMA, human developments, and recreation areas.

Natural Resource Conservation Service Sage Grouse Initiative

The US Department of Agriculture, Natural Resources Conservation Service's Sage-Grouse Initiative (SGI) is working with private landowners in 11 western states to improve habitat for Greater Sage-Grouse (Manier et al. 2013). With 13.5 million acres of Greater Sage-Grouse habitat in private ownership within MZ II/VII (Manier et al. 2013, p. 118), a unique opportunity exists for the Natural Resources Conservation Service to benefit Greater Sage-Grouse and to ensure the persistence of large and intact rangelands by implementing the SGI.

Participation in the SGI program is voluntary, but willing participants enter into binding contracts or easements to ensure that conservation practices that enhance Greater Sage-Grouse habitat, such as fence marking, protecting riparian areas, and maintaining vegetation in nesting areas, are implemented. Participating landowners are bound by a contract (usually 3 to 5 years) to implement, in consultation with Natural Resources Conservation Service staff, conservation practices if they wish to receive the financial incentives offered by the SGI. These financial incentives generally take the form of payments to offset costs of implementing conservation practices and easements or rental payments for long-term conservation.

While potentially effective at conserving Greater Sage-Grouse populations and habitat on private lands, incentive-based conservation programs that fund the SGI generally require reauthorization from Congress under subsequent farm bills, meaning future funding is not guaranteed.

D.6. COT Objective 5: Development of Monitoring Plans

> A robust range-wide monitoring program must be developed and implemented for Greater Sage-Grouse conservation plans, which recognizes and incorporates individual state approaches. A monitoring program is necessary to track the success of conservation plans and proactive conservation activities. Without this information, the actual benefit of conservation activities cannot be measured and there is no capacity to adapt if current management actions are determined to be ineffective. (COT Report, 2013)

D.6.1. Greater Sage-Grouse Monitoring Framework

D.6.2. Introduction

The purpose of this Greater Sage-grouse Monitoring Framework (hereafter, monitoring framework) is to describe the methods to monitor habitats and evaluate the implementation and effectiveness of the BLM planning strategy (BLM IM 2012-044) to conserve the species and its habitat. The regulations for the BLM (43 CFR 1610.4-9) require that land use plans establish intervals and standards, as appropriate, for monitoring and evaluations, based on the sensitivity of the resource to the decisions involved. Therefore, BLM will use the methods described herein to collect monitoring data to evaluate implementation and effectiveness of the Greater Sage-Grouse (hereafter, Greater Sage-Grouse) planning strategy and the conservation measures contained in land use plans. The type of monitoring data to be collected at the land use plan scale will be described in the monitoring plan which will be developed after the signing of the ROD. For a summary of the frequency of reporting see Attachment A. Adaptive management will be informed by data collected at any and all scales.

To ensure the BLM has the ability to make consistent assessments about Greater Sage-Grouse habitats across the range of the species, this framework lays out the methodology for monitoring the implementation and evaluating the effectiveness of BLM actions to conserve the species and its habitat through monitoring that informs effectiveness at multiple scales. Monitoring efforts will include data for measurable quantitative indicators of sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions. Implementation monitoring results will provide information to allow the BLM to evaluate the extent that decisions from the Worland Approved RMP to conserve Greater Sage-Grouse and its habitat have been implemented. Population monitoring information will be collected by state fish and wildlife agencies and will be incorporated into effectiveness monitoring as it is made available.

This multi-scale monitoring approach is necessary as Greater Sage-Grouse are a landscape species and conservation is scale-dependent whereby conservation actions are implemented within seasonal habitats to benefit populations. The four orders of habitat selection (Johnson 1980) used in this monitoring framework are described by Connelly et al. (2003) and Stiver et al. (2014) as first order (broad scale), second order (mid-scale), third order (fine scale), and fourth order (site scale) to apply them to Greater Sage-Grouse habitat selection. The various scales may show differences because of the methods used. The broad and mid-scale may provide a generalize direction, however the suitability baseline (pre-euro) is not considered an accurate baseline. The current baseline will provide better information on trends provided the data used in the analysis is sound. Based upon the management actions related to the BLM and Wyoming SGEO, the broad and mid-scale may greatly underestimate the impacts of the threats outlined in the COT report. Habitat selection and habitat use by Greater Sage-Grouse occurs at multiple scales and is driven by multiple environmental and behavioral factors. Managing and monitoring Greater Sage-Grouse habitats are complicated by the differences in habitat selection across the range and habitat utilization by individual birds within a given season. Therefore, the tendency to look at a single indicator of habitat suitability or only one scale limits the ability for managers to identify the threats to Greater Sage-Grouse and to respond at the appropriate scale. For descriptions of these habitat suitability indicators for each scale, see the Sage-grouse Habitat Assessment Framework (HAF; Stiver et al. 2015).

Monitoring methods and indicators in this monitoring framework are derived from the current peer-reviewed science. Range wide best-available datasets for broad and mid-scale monitoring will be acquired. If these exiting datasets are not readily available or are inadequate, but are necessary to effectively inform the three measurable quantitative indicators (sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions), the BLM will strive to develop datasets or obtain information to fill these data gaps. Datasets that are not readily available to inform the fine and site scale indicators will be developed. These data will be used to generate monitoring reports at the appropriate and applicable geographic scales, boundaries and analysis units: across the range of Greater Sage-Grouse as defined by Schroeder et al. (2004), and clipped by WAFWA Management Zone (MZ) (Stiver et al. 2006) boundaries and other areas as appropriate for size (e.g., populations based on Connelly et al. 2004; Figure D.11, "Greater Sage-Grouse Range, Populations, Subpopulations and Priority Areas for Conservation as of 2013" (p.)). This broad and mid-scale monitoring data and analysis will provide context for RMP/LMP areas; states; Greater Sage-Grouse Priority Habitat, General Habitat and other Greater Sage-Grouse designated management areas; and Priority Areas for Conservation (PACs) as defined in the Greater Sage-grouse Conservation Objectives: Final Report (COT, U.S. Fish and Wildlife Service 2013). Throughout the remainder of the document, all of these areas will be referred to as "Greater Sage-Grouse areas".

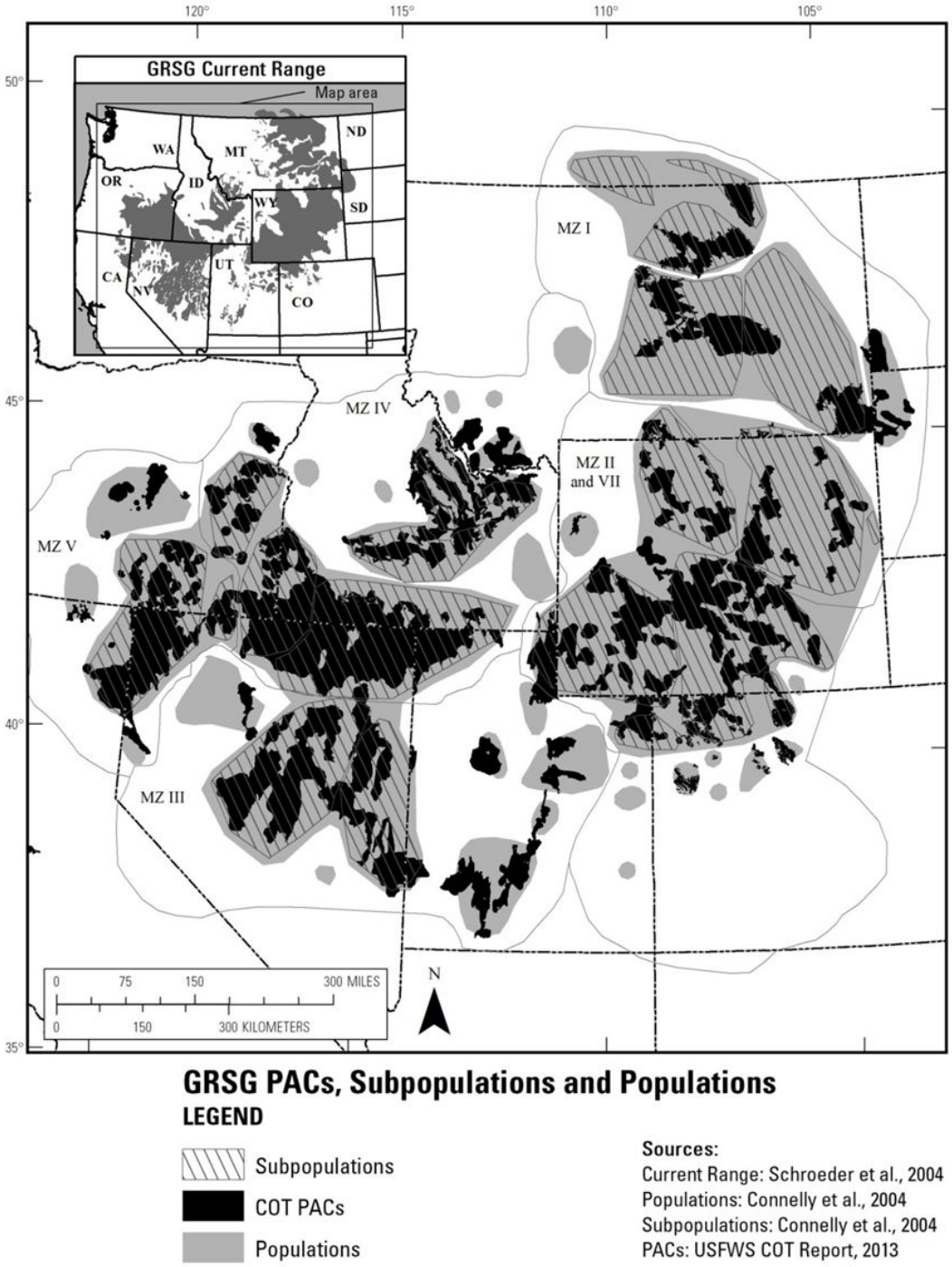


Figure D.11. Greater Sage-Grouse Range, Populations, Subpopulations and Priority Areas for Conservation as of 2013

This monitoring framework is divided into two sections. The broad- and mid-scale methods, described in Section D.6.3, "Broad and Mid-Scales" (p. 298), provide a consistent approach across the range of the species to monitor implementation decisions and actions, mid-scale habitat attributes (e.g., sagebrush availability and habitat degradation), and population changes to

determine the effectiveness of the planning strategy and management decisions. (See Table D.3, "Indicators for Monitoring Implementation of the Strategy, Decisions, Greater Sage-Grouse Habitat, and Greater Sage- Grouse Populations at the Broad and Mid-scales" (p. 297), Indicators for monitoring implementation of the national planning strategy, RMP decisions, Greater Sage-Grouse habitat, and Greater Sage-Grouse populations at the broad and mid-scales.) For Greater Sage-Grouse habitat at the fine and site scales, described in Section D.6.4, "Fine and Site Scales" (p. 321), this monitoring framework describes a consistent approach (e.g., indicators and methods) for monitoring Greater Sage-Grouse seasonal habitats. Funding, support, and dedicated personnel for broad- and mid-scale monitoring will be renewed annually through the normal budget process. For an overview of BLM multiscale monitoring commitments, see Attachment A.

Table D.3. Indicators for Monitoring Implementation of the Strategy, Decisions, Greater Sage-Grouse Habitat, and Greater Sage- Grouse Populations at the Broad and Mid-scales

	Implementation	Habitat		Population (State Wildlife Agencies)
Geographic Scales		**Availability**	**Degradation**	**Demographics**
Broad Scale: From the range of Greater Sage-Grouse to WAFWA Management Zones	BLM Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations	An analysis of RMP decisions across the designated scale	Mid-scale habitat indicators (HAF 2014; Table 2, e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities (Table 2)*	Individual population trend
Fine Scale: Pacs	A summary of DDCT actions related to BLM mineral and surface resources in conjunction with other ownerships	Areas that have greater than 5% sagebrush cover and non-habitat (unsuitable) that is less than 0.6 mile from the suitable habitat.	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs	PAC Trends
Site Scale: DDCT level	A summary of DDCT actions related to BLM mineral and surface resources	The available occupied habitat using the DDCT process	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs	Individual lek Trends
Broad Scale: From the range of Greater Sage-Grouse to WAFWA Management Zones	BLM Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations; PACs	RMP decisions	Mid-scale habitat indicators (HAF 2014; Table 2, e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities (Table 2)*	Individual population trend

D.6.3. Broad and Mid-Scales

First-order habitat selection, the broad scale, describes the physical or geographical range of a species. The first-order habitat of the Greater Sage-Grouse is defined by populations of Greater Sage-Grouse associated with sagebrush landscapes, based on Schroeder et al. 2004, and Connelly et al. 2004, and on population or habitat surveys since 2004. An intermediate scale between the broad and mid-scales was delineated by WAFWA from floristic provinces within which similar environmental factors influence vegetation communities. This scale is referred to as the WAFWA Sage-Grouse Management Zones (MZs). Although no indicators are specific to this scale, these MZs are biologically meaningful as reporting units.

Second-order habitat selection, the mid-scale, includes Greater Sage-Grouse populations and PACs. The second order includes at least 40 discrete populations and subpopulations (Connelly et al. 2004). Populations range in area from 150 to 60,000 mi2 and are nested within MZs. PACs range from 20 to 20,400 mi2 and are nested within population areas.

Other mid-scale landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. 2015) will also be assessed. The methods used to calculate these metrics will be derived from existing literature (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011).

Midscale indicators using the HAF can grossly underestimate the occupation of anthropogenic activities because of the use of 30m pixels (page Table II – X). The HAF removes 'non'habitat from the suitability availability. There are no parameters that are provided to protect adjacent suitable habitat from development on these nonhabitat parcels, thus making the adjacent nonhabitat a potential threat by indirect impacts.

The Wyoming BLM Field Offices will be actively participating in a fine and site scale monitoring that will more accurately reflect the impacts associated with direct and indirect effects of anthropogenic and wildfire impacts.

D.6.3.1. Implementation (Decision) Monitoring

Implementation monitoring is the process of tracking and documenting the implementation (or the progress toward implementation) of RMP decisions. The BLM will monitor implementation of project-level and/or site-specific actions and authorizations, with their associated conditions of approval/stipulations for Greater Sage-Grouse, spatially (as appropriate) within Priority Habitat, General Habitat, and other Greater Sage-Grouse designated management areas, at a minimum, for the Bighorn Basin Planning Area. These actions and authorizations, as well as progress toward completing and implementing activity-level plans, will be monitored consistently across all planning units and will be reported to BLM headquarters annually, as well as reported to the State of Wyoming with numerical and spatial data twice a year, and a HQ summary report every 5 years, for the Bighorn Basin Planning Area. A national-level Greater Sage-grouse Land Use Plan Decision Monitoring and Reporting Tool is being developed to describe how the BLM will consistently and systematically monitor and report implementation-level activity plans and implementation actions for all plans within the range of Greater Sage-Grouse. A description of this tool for collection and reporting of tabular and spatially explicit data will be included in the Record of Decision or approved plan. The BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

D.6.3.2. Habitat (Vegetation) Monitoring

The USFWS, in its 2010 listing decision for the Greater Sage-Grouse, identified 18 threats contributing to the destruction, modification, or curtailment of Greater Sage-Grouse habitat or range (75 FR 13910 2010). The BLM will, therefore, monitor the relative extent of these threats that remove sagebrush, both spatially and temporally, on all lands within an analysis area, and will report on amount, pattern, and condition at the appropriate and applicable geographic scales and boundaries. These 18 threats have been aggregated into three broad- and mid-scale measures to account for whether the threat predominantly removes sagebrush or degrades habitat. (See Table D.4, "Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring" (p. 299)) The three measures are:

1. Sagebrush Availability (percent of sagebrush per suitable unit area)
2. Habitat Degradation (percent of human activity per unit area)
3. Energy and Mining Density (facilities and locations per suitable unit area)

These three habitat disturbance measures will evaluate disturbance on all lands within priority habitat, regardless of land ownership. The direct area of influence will be assessed with the goal of accounting for actual removal of sagebrush on which Greater Sage-Grouse depend (Connelly et al. 2000) and for habitat degradation as a surrogate for human activity. Measure 1 (sagebrush availability) examines where disturbances have removed plant communities that support sagebrush (or have broadly removed sagebrush from the landscape). Measure 1, therefore, monitors the change in sagebrush availability–or, specifically, where and how much of the sagebrush community is available on lands that can support sagebrush within the range of Greater Sage-Grouse. The sagebrush community is defined as the ecological systems that have the capability of supporting sagebrush vegetation and seasonal Greater Sage-Grouse habitats within the range of Greater Sage-Grouse (see Section D.6.3.2.1, "Sagebrush Availability (Measure 1)" (p. 300)). Measure 2 (see Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311)) and Measure 3 (see Section D.6.3.2.3, "Energy and Mining Density (Measure 3)" (p. 315)) focus on where habitat degradation is occurring within suitable sagebrush soils by using the footprint/area of direct disturbance and the number of facilities at the mid-scale to identify the relative amount of degradation per geographic area of interest and in areas that have the capability of supporting sagebrush and seasonal Greater Sage-Grouse use. Measure 2 (habitat degradation) not only quantifies footprint/area of direct disturbance but also establishes a surrogate for those threats most likely to have ongoing activity. Because energy development and mining activities are typically the most intensive activities in sagebrush habitat, Measure 3 (the density of active energy development, production, and mining sites) will help identify areas of particular concern for such factors as noise, dust, traffic, etc., that degrade Greater Sage-Grouse habitat.

Table D.4. Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring

FWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		

FWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and salable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights of ways		X	
Note: Data availability may preclude specific analysis of individual layers. See the detailed methodology for more information.			

The methods to monitor disturbance found herein differ slightly from methods used in the Sage-Grouse Baseline Environmental Report (BER; Manier et al. 2013) that provided a baseline of datasets of disturbance across jurisdictions. One difference is that, for some threats, the data in the BER were for federal lands only. In addition, threats were assessed individually in that report, using different assumptions from those in this monitoring framework about how to quantify the location and magnitude of threats. The methodology herein builds on the BER methodology and identifies datasets and procedures to utilize the best available data across the range of the Greater Sage-Grouse and to formulate a consistent approach to quantify impact of the threats through time. This methodology also describes an approach to combine the threats and calculate the three measures.

D.6.3.2.1. Sagebrush Availability (Measure 1)

Greater Sage-Grouse populations have been found to be more resilient where a percentage of the landscape is maintained in sagebrush (Knick and Connelly 2011), which will be determined by sagebrush availability. Measure 1 has been divided into two sub measures to describe sagebrush availability on the landscape:

- Measure 1a: the current amount of sagebrush on the geographic area of interest, and
- Measure 1b: the amount of sagebrush on the geographic area of interest compared with the amount of sagebrush the landscape of interest could ecologically support.

Measure 1a (the current amount of sagebrush on the landscape) will be calculated using this formula: [the existing updated sagebrush layer] divided by [the geographic area of interest]. The appropriate geographic areas of interest for sagebrush availability include the species' range, WAFWA MZs, populations, and PACs. In some cases these Greater Sage-Grouse areas will need to be aggregated to provide an estimate of sagebrush availability with an acceptable level of accuracy.

Measure 1b (the amount of sagebrush for context within the geographic area of interest) will be calculated using this formula: [existing sagebrush divided by [pre-EuroAmerican settlement geographic extent of lands that could have supported sagebrush]. This measure will provide information to set the context for a given geographic area of interest during evaluations of monitoring data. The information could also be used to inform management options for restoration or mitigation and to inform effectiveness monitoring.

The sagebrush base layer for Measure 1 will be based on geospatial vegetation data adjusted for the threats listed in Table D.4, "Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring" (p. 299). The following subsections of this monitoring framework describe the methodology for determining both the current availability of sagebrush on the landscape and the context of the amount of sagebrush on the landscape at the broad and mid-scales.

D.6.3.2.1.1. Establishing the Sagebrush Base Layer

The current geographic extent of sagebrush vegetation within the rangewide distribution of Greater Sage-Grouse populations will be ascertained using the most recent version of the Existing Vegetation Type (EVT) layer in LANDFIRE (2013). LANDFIRE EVT was selected to serve as the sagebrush base layer for five reasons: 1) it is the only nationally consistent vegetation layer that has been updated multiple times since 2001; 2) the ecological systems classification within LANDFIRE EVT includes multiple sagebrush type classes that, when aggregated, provide a more accurate (compared with individual classes) and seamless sagebrush base layer across jurisdictional boundaries; 3) LANDFIRE performed a rigorous accuracy assessment from which to derive the rangewide uncertainty of the sagebrush base layer; 4) LANDFIRE is consistently used in several recent analyses of sagebrush habitats (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011); and 5) LANDFIRE EVT can be compared against the geographic extent of lands that are believed to have had the capability of supporting sagebrush vegetation pre-EuroAmerican settlement [LANDFIRE Biophysical Setting (BpS)]. This fifth reason provides a reference point for understanding how much sagebrush currently remains in a defined geographic area of interest compared with how much sagebrush existed historically (Measure 1b). Therefore, the BLM has determined that LANDFIRE provides the best available data at broad and mid-scales to serve as a sagebrush base layer for monitoring changes in the geographic extent of sagebrush. The BLM, in addition to aggregating the sagebrush types into the sagebrush base layer, will aggregate the accuracy assessment reports from LANDFIRE to document the cumulative accuracy for the sagebrush base layer. The BLM—through its Assessment, Inventory, and Monitoring (AIM) program and, specifically, the BLM's landscape monitoring framework (Taylor et al. 2014)—will provide field data to the LANDFIRE program to support continuous quality improvements of the LANDFIRE EVT layer. The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of the existing percent of sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will also be used to determine the trend in other landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. 2015). In the future, changes in sagebrush availability, generated annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See Section D.6.3.4, "Effectiveness Monitoring" (p. 317)).

Within the BLM, field office-wide existing vegetation classification mapping and inventories are available that provide a much finer level of data than what is provided through LANDFIRE. Where available, these finer-scale products will be useful for additional and complementary mid-scale indicators and local-scale analyses (see Section D.6.4, "Fine and Site Scales" (p. 321)). The fact that these products are not available everywhere limits their utility for monitoring at the broad and mid-scale, where consistency of data products is necessary across broader geographies.

The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of existing percent sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will be used to determine the trend in other landscape indicators, e.g., patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. 2015). In the future, changes in sagebrush availability, generated bi-annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See Section D.6.3.4, "Effectiveness Monitoring" (p. 317)).

Data Sources for Establishing and Monitoring Sagebrush Availability

In much the same manner as how the LANDFIRE data was selected as the data source, described above, the criteria for selecting the datasets (Table D.5, "Datasets for Establishing and Monitoring Changes in Sagebrush Availability" (p. 302)) for establishing and monitoring the change in sagebrush availability, Measure 1, were threefold:

- Nationally consistent dataset available across the range
- Known level of confidence or accuracy in the dataset
- Continual maintenance of dataset and known update interval

Table D.5. Datasets for Establishing and Monitoring Changes in Sagebrush Availability

Dataset	Source	Update Interval	Most Recent Version Year	Use
BioPhysical Setting (BpS) v1.1	LANDFIRE	Static	2008	Denominator for sagebrush availability (1.b.)
Existing Vegetation Type (EVT) v1.2	LANDFIRE	Static	2010	Numerator for sagebrush availability
Cropland Data Layer (CDL)	National Agricultural Statistics Service (NASS)	Annual	2012	Agricultural Updates; removes existing sagebrush from numerator of sagebrush availability
National Land Cover Dataset (NLCD) Percent Imperviousness	Multi-Resolution Land Characteristics Consortium	5 Year	2011 available in March 2014	Urban Area Updates; removes existing sagebrush from numerator of sagebrush availability

Dataset	Source	Update Interval	Most Recent Version Year	Use
Fire Perimeters	GeoMac	Annual	2013	< 1,000 acres Fire updates; removes existing sagebrush from numerator of sagebrush availability
Burn Severity	Monitoring Trends in Burn Severity (MTBS)	Annual	2012 available in April 2014	> 1,000 acres Fire Updates; removes existing sagebrush from numerator of sagebrush availability except for unburned sagebrush islands

LANDFIRE Existing Vegetation Type (EVT) Version 1.2

LANDFIRE EVT represents existing vegetation types on the landscape derived from remote sensing data. Initial mapping was conducted using imagery collected in approximately 2001. Since the initial mapping there have been two update efforts: version 1.1 represents changes before 2008, and version 1.2 reflects changes on the landscape before 2010. Version 1.2 will be used as the starting point to develop the sagebrush base layer.

Ecological systems from the LANDFIRE EVT to be used in the sagebrush base layer were determined by Greater Sage-Grouse subject matter experts through the identification of the ecological systems that have the capability of supporting sagebrush vegetation and could provide suitable seasonal habitat for the Greater Sage-Grouse (Table D.6, "Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse" (p. 303)). Two additional vegetation types that are not ecological systems were added to the EVT and are Artemisia tridentata ssp. vaseyana Shrubland Alliance and *Quercus gambelii* Shrubland Alliance. These alliances have species composition directly related to the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system, both of which are ecological systems in LANDFIRE BpS. In LANDFIRE EVT however, in some map zones, the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system were named Artemisia tridentata ssp. vaseyana Shrubland Alliance and Quercus gambelii Shrubland Alliance respectively.

Table D.6. Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Mixed Low Sagebrush Shrubland	*Artemisia arbuscula* ssp. *longiloba* *Artemisia bigelovii* *Artemisia nova* *Artemisia frigida* *Artemisia tridentata* ssp. *wyomingensis*
Columbia Plateau Scabland Shrubland	*Artemisia rigida*
Great Basin Xeric Mixed Sagebrush Shrubland	*Artemisia arbuscula* ssp. *longicaulis* *Artemisia arbuscula* ssp. *longiloba* *Artemisia nova* *Artemisia frigida* *Artemisia tridentata* ssp. *wyomingensis*

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Inter-Mountain Basins Big Sagebrush Shrubland	*Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *xericensis* *Artemisia tridentata* ssp. *vaseyana* *Artemisia tridentata* ssp. *wyomingensis*
Inter-Mountain Basins Mixed Salt Desert Scrub	*Artemisia tridentata* ssp. *wyomingensis* *Artemisia spinescens*
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	*Artemisia arbuscula* ssp. *longiloba* *Artemisia nova* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tripartita* ssp. *rupicola*
Columbia Plateau Low Sagebrush Steppe	*Artemisia arbuscula* *Artemisia arbuscula* ssp. *longiloba* *Artemisia nova*
Inter-Mountain Basins Big Sagebrush Steppe	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *xericensis* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tripartita* ssp. *tripartita* *Artemisia frigida*
Inter-Mountain Basins Montane Sagebrush Steppe	*Artemisia tridentata* ssp. *vaseyana* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia nova* *Artemisia arbuscula* *Artemisia tridentata* ssp. *spiciformis*
Northwestern Great Plains Mixed grass Prairie	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *vaseyana* *Artemisia frigida*
Northwestern Great Plains Shrubland	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *wyomingensis*
Western Great Plains Sand Prairie	*Artemisia cana* ssp. *cana*
Western Great Plains Floodplain Systems	*Artemisia cana* ssp. *cana*
Columbia Plateau Steppe and Grassland	*Artemisia* spp.
Inter-Mountain Basins Semi-Desert Shrub-Steppe	*Artemisia tridentata* *Artemisia bigelovii* *Artemisia tridentata* ssp. *wyomingensis*
Rocky Mountain Lower Montane-Foothill Shrubland	*Artemisia nova* *Artemisia tridentata* *Artemisia frigida*
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	*Artemisia tridentata*
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Woodland and Shrubland	*Artemisia tridentata* ssp. *vaseyana* *Artemisia arbuscula* *Artemisia tridentata*
Artemisia tridentata ssp. *vaseyana* Shrubland Alliance (EVT only)	*Artemisia tridentata* ssp. *vaseyana*
Quercus gambelii Shrubland Alliance (EVT only)	*Artemisia tridentate*

Accuracy and Appropriate Use of LANDFIRE Datasets

Because of concerns over the thematic accuracy of individual classes mapped by LANDFIRE, all ecological systems listed in Table D.6, "Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse" (p. 303) will be merged into one value that represents the sagebrush base layer.

With all ecological systems aggregated, the combined accuracy of the sagebrush base layer (EVT) will be much greater than if all categories were treated separately.

LANDFIRE performed the original accuracy assessment of their EVT product on a map zone basis. There are 20 LANDFIRE map zones that cover the historic range of Greater Sage-Grouse as defined by Schroeder (2004). Attachment C, Table D.9, "User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones" (p. 329), lists the user and producer accuracies for the aggregated ecological systems that make up the sagebrush base layer and also defines user and producer accuracies. The aggregated sagebrush base layer for monitoring had producer accuracies ranging from 56.7% to 100% and user accuracies ranging from 57.1% to 85.7%.

LANDFIRE EVT data are not designed to be used at a local level. In reports of the percent sagebrush statistic for the various reporting units (Measure 1a), the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the 30m pixel level (900m^2 resolution of raster data) for any reporting. The smallest geographic extent for using the data to determine percent sagebrush is at the PAC level; for the smallest PACs, the initial percent sagebrush estimate will have greater uncertainties compared with the much larger PACs.

Agricultural Adjustments for the Sagebrush Base Layer

The dataset for the geographic extent of agricultural lands will come from the National Agricultural Statistics Service (NASS) Cropland Data Layer (CDL) (http://www.nass.usda.gov/research/Cropland/Release/index.htm). CDL data are generated annually, with estimated producer accuracies for "large area row crops ranging from the mid 80% to mid-90%," depending on the state (http://www.nass.usda.gov/research/Cropland/sarsfaqs2.htm#Section3_18.0). Specific information on accuracy may be found on the NASS metadata website (http://www.nass.usda.gov/research/Cropland/metadata/meta.htm). CDL provided the only dataset that matches the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in this monitoring framework and represents the best available agricultural lands mapping product.

The CDL data contain both agricultural classes and nonagricultural classes. For this effort, and in the baseline environmental report (Manier et al. 2013), nonagricultural classes were removed from the original dataset. The excluded classes are:

- Barren (65 & 131), Deciduous Forest (141), Developed/High Intensity (124), Developed/Low Intensity (122), Developed/Med Intensity (123), Developed/Open Space (121), Evergreen Forest (142), Grassland Herbaceous (171), Herbaceous Wetlands (195), Mixed Forest (143), Open Water (83 & 111), Other Hay/Non Alfalfa (37), Pasture/Hay (181), Pasture/Grass (62), Perennial Ice/Snow (112), Shrubland (64 & 152), Woody Wetlands (190).

The rule set for adjusting the sagebrush base layer for agricultural lands (and for updating the base layer for agricultural lands in the future) is that once an area is classified as agriculture in any year of the CDL, those pixels will remain out of the sagebrush base layer even if a new version of the CDL classifies that pixel as one of the nonagricultural classes listed above. The assumption is that even though individual pixels may be classified as a nonagricultural class in any given year, the pixel has not necessarily been restored to a natural sagebrush community that would be included in Table D.6, "Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse" (p. 303). A

further assumption is that once an area has moved into agricultural use, it is unlikely that the area would be restored to sagebrush. Should that occur, however, the method and criteria for adding pixels back into the sagebrush base layer would follow those found in the sagebrush restoration monitoring section of this monitoring framework.

Urban Adjustments for the Sagebrush Base Layer

The National Land Cover Dataset (NLCD) Percent Imperviousness was selected as the best available dataset to be used for urban updates. These data are generated on a five-year cycle and specifically designed to support monitoring efforts. Other datasets were evaluated and lacked the spatial specificity that was captured in the NLCD product. Any new impervious pixel will be removed from the sagebrush base layer during the update process. Although the impervious surface layer includes a number of impervious pixels outside of urban areas, there are two reasons why this is acceptable for this process. First, an evaluation of national urban area datasets did not reveal a layer that could be confidently used in conjunction with the NLCD product to screen impervious pixels outside of urban zones because unincorporated urban areas were not being included thus leaving large chunks of urban pixels unaccounted for in this rule set. Secondly, experimentation with setting a threshold on the percent imperviousness layer that would isolate rural features proved to be unsuccessful. No combination of values could be identified that would result in the consistent ability to limit impervious pixels outside urban areas. Therefore, to ensure consistency in the monitoring estimates, it was determined to include all impervious pixels.

Fire Adjustments for the Sagebrush Base Layer

Two datasets were selected for performing fire adjustments and updates: GeoMac fire perimeters and Monitoring Trends in Burn Severity (MTBS). An existing data standard in the BLM requires that all fires of more than 10 acres are to be reported to GeoMac; therefore, there will be many small fires of less than 10 acres that will not be accounted for in the adjustment and monitoring attributable to fire. Using fire perimeters from GeoMac, all sagebrush pixels falling within the perimeter of fires less than 1,000 acres will be used to adjust and monitor the sagebrush base layer.

For fires greater than 1,000 acres, MTBS was selected as a means to account for unburned sagebrush islands during the update process of the sagebrush base layer. The MTBS program (http://www.mtbs.gov) is an ongoing, multiyear project to map fire severity and fire perimeters consistently across the United States. One of the burn severity classes within MTBS is an unburned to low-severity class. This burn severity class will be used to represent unburned islands of sagebrush within the fire perimeter for the sagebrush base layer. Areas within the other severity classes within the fire perimeter will be removed from the base sagebrush layer during the update process. Not all wildfires, however, have the same impacts on the recovery of sagebrush habitat, depending largely on soil moisture and temperature regimes. For example, cooler, moister sagebrush habitat has a higher potential for recovery or, if needed, restoration than does the warmer, dryer sagebrush habitat. These cooler, moister areas will likely be detected as sagebrush in future updates to LANDFIRE.

Conifer Encroachment Adjustment for the Sagebrush Base Layer

Conifer encroachment into sagebrush vegetation reduces the spatial extent of Greater Sage-Grouse habitat (Davies et al. 2011, Baruch-Mordo et al. 2013). Conifer species that show propensity for encroaching into sagebrush vegetation resulting in Greater Sage-Grouse habitat loss include various juniper species, such as Utah juniper (*Juniperus osteosperma*), western juniper (*Juniperus occidentalis*), Rocky Mountain juniper (*Juniperus scopulorum*), pinyon species, including

singleleaf pinyon (*Pinus monophylla*) and pinyon pine (*Pinus edulis*), ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and Douglas-fir (*Pseudotsuga menziesii*) (Gruell et al. 1986, Grove et al. 2005, Davies et al. 2011).

A rule set for conifer encroachment was developed to be used for determination of the existing sagebrush base layer. To capture the geographic extent of sagebrush that is likely to experience conifer encroachment, ecological systems within LANDFIRE EVT version 1.2 (NatureServe 2011) were identified if they have the capability of supporting the conifer species (listed above) and have the capability of supporting sagebrush vegetation. Those ecological systems (Table D.7, "Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation" (p. 307)) were deemed to be the plant communities with conifers most likely to encroach into sagebrush vegetation. Sagebrush vegetation was defined as including sagebrush species (Attachment B) that provide habitat for the Greater Sage-Grouse and are included in the Sage-Grouse Habitat Assessment Framework. An adjacency analysis was conducted to identify all sagebrush pixels that were directly adjacent to these conifer ecological systems and these immediately adjacent sagebrush pixels were removed from the sagebrush base layer.

Table D.7. Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Pinyon-Juniper Woodland	*Pinus edulis* *Juniperus osteosperma* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia nova* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tridentata* ssp. *vaseyana* *Artemisia bigelovii* *Artemisia pygmaea*
Columbia Plateau Western Juniper Woodland and Savanna	*Juniperus occidentalis* *Pinus ponderosa* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia rigida* *Artemisia tridentata* ssp. *vaseyana*
East Cascades Oak-Ponderosa Pine Forest and Woodland	*Pinus ponderosa* *Pseudotsuga menziesii* *Artemisia tridentata* *Artemisia nova*
Great Basin Pinyon-Juniper Woodland	*Pinus monophylla* *Juniperus osteosperma* *Artemisia arbuscula* *Artemisia nova* *Artemisia tridentata* *Artemisia tridentata* ssp. *vaseyana*
Northern Rocky Mountain Ponderosa Pine Woodland and Savanna	*Pinus ponderosa* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia tridentata* ssp. *vaseyana*

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Rocky Mountain Foothill Limber Pine-Juniper Woodland	*Juniperus osteosperma* *Juniperus scopulorum* *Artemisia nova* *Artemisia tridentata* ssp. *vaseyana*
Rocky Mountain Poor-Site Lodgepole Pine Forest	*Pinus contorta* *Pseudotsuga menziesii* *Pinus ponderosa* *Artemisia tridentata* ssp. *vaseyana*
Southern Rocky Mountain Pinyon-Juniper Woodland	*Pinus edulis* *Juniperus monosperma* *Artemisia bigelovii* *Artemisia tridentata* ssp. *vaseyana* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tridentata* ssp. *vaseyana*
Southern Rocky Mountain Ponderosa Pine Woodland	*Pinus ponderosa* *Pseudotsuga menziesii* *Pinus edulis* *Pinus contorta* *Juniperus* spp. *Artemisia nova* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia tridentata* ssp. *Vaseyana*

Invasive Annual Grasses for the Sagebrush Base Layer

There are no invasive species datasets from 2010 to the present (beyond the LANDFIRE data) that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in the determination of the sagebrush base layer. For a description of how invasive species land cover will be incorporated in the sagebrush base layer in the future, see Section D.6.3.2.1.2, "Monitoring Sagebrush Availability" (p. 308).

Sagebrush Restoration Adjustments for the Sagebrush Base Layer

There are no datasets from 2010 to the present that could provide additions to the sagebrush base layer from restoration treatments that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated); therefore, no adjustments were made to the sagebrush base layer calculated from the LANDFIRE EVT (version 1.2) attributable to restoration activities since 2010. Successful restoration treatments before 2010 are assumed to have been captured in the LANDFIRE refresh.

D.6.3.2.1.2. Monitoring Sagebrush Availability

Updating the Sagebrush Availability Sagebrush Base Layer

Sagebrush availability will be updated annually by incorporating changes to the sagebrush base layer attributable to agriculture, urbanization, and wildfire. The monitoring schedule for the existing sagebrush base layer updates is as follows:

- ***2010 Existing Sagebrush Base Layer*** = [Sagebrush EVT] minus [2006 Imperviousness Layer] minus [2009 and 2010 CDL] minus [2009/10 GeoMac Fires < 1,000 acres] minus [2009/10 MTBS Fires excluding unburned sagebrush islands] minus [Conifer Encroachment Layer]

- ***2012 Existing Sagebrush Update*** = [Base 2010 Existing Sagebrush Layer] minus [2011 Imperviousness Layer] minus [2011 and 2012 CDL] minus [2011/12 GeoMac Fires < 1,000 acres] minus [2011/12 MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter]
- ***2013 and beyond Existing Sagebrush Updates*** = [Previous Existing Sagebrush Update Layer] minus [Imperviousness Layer (if new data are available)] minus [Next 2 years of CDL] minus [Next 2 years of GeoMac Fires < 1,000 acres] minus [Next 2 years MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter] plus [restoration/monitoring data provided by the field]

Sagebrush Restoration Updates

Restoration after fire, after agricultural conversion, after seedings of introduced grasses, or after treatments of pinyon pine and/or juniper, are examples of updates to the sagebrush base layer that can add sagebrush vegetation back in. When restoration has been determined to be successful through range wide, consistent, interagency fine and site-scale monitoring, the polygonal data will be used to add sagebrush pixels back into the broad and mid-scale sagebrush base layer.

Measure 1b – Context for the change in the amount of sagebrush in a landscape of interest

Measure 1b describes the amount of sagebrush on the landscape of interest compared with the amount of sagebrush the landscape of interest could ecologically support. Areas with the potential to support sagebrush were derived from the BpS data layer that describes sagebrush pre Euro-American settlement (biophysical setting (BpS) v1.2 of LANDFIRE). This measure (1b) will provide information during evaluations of monitoring data to set the context for a given geographic area of interest. The information could also be used to inform management options for restoration, mitigation and inform effectiveness monitoring.

The identification and spatial locations of natural plant communities (vegetation) that are believed to have existed on the landscape (BpS) were constructed based on an approximation of the historical (pre Euro-American settlement) disturbance regime and how the historical disturbance regime operated on the current biophysical environment. BpS is composed of map units which are based on NatureServe's (2011) terrestrial ecological systems classification.

The ecological systems within BpS used for this monitoring framework are those ecological systems that have the capability of supporting sagebrush vegetation and could provide seasonal habitat for the Greater Sage-Grouse. These ecological systems are listed in Table D.6, "Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse" (p. 303) with the exception of the Artemisia tridentata ssp. vaseyana Shrubland Alliance and the *Quercus gambelii* Shrubland Alliance. Ecological systems selected included sagebrush species or subspecies that are included in the Sage-Grouse Habitat Assessment Framework and are found in Attachment B.

Attributable to the lack of any reference data, the BpS layer does not have an associated accuracy assessment. Visual inspection, however, of the BpS data reveals inconsistencies in the labeling of pixels among LANDFIRE map zones. The reason for these inconsistencies between map zones are the decision rules used to map a given ecological system will vary between map zones based on different physical, biological, disturbance and atmospheric regimes of the region. This can result in artificial edges in the map that are an artifact of the mapping process. However, metrics will be calculated at broad spatial scales using BpS potential vegetation type, not small groupings or individual pixels, therefore, the magnitude of these observable errors in the BpS layer is minor

compared with the size of the reporting units. Therefore, since BpS will be used to identify broad landscape patterns of dominant vegetation, these inconsistencies will only have a minor impact on the percent sagebrush availability calculation.

LANDFIRE BpS data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units, the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level ($30m^2$) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush remaining estimate will have greater uncertainties compared with the much larger PACs.

Tracking

BLM will analyze and monitor sagebrush availability (Measure 1) on a bi-annual basis and it will be used to inform effectiveness monitoring and initiate adaptive management actions as necessary. The 2010 estimate of sagebrush availability will serve as the base year and an updated estimate for 2012 will be reported in 2014 after all datasets become available. The 2012 estimate will capture changes attributable to fire, agriculture, and urban development. Subsequent updates will always include new fire and agricultural data and new urban data when available. Restoration data that meets criteria of adding sagebrush areas back into the sagebrush base layer will begin to be factored in as data allows. Attributable to data availability, there will be a two year lag (approximately) between when the estimate is generated and when the data used for the estimate becomes available (e.g., the 2014 sagebrush availability will be included in the 2016 estimate).

Future Plans

Geospatial data used to generate the sagebrush base layer will be available through BLM's EGIS Web Portal and Geospatial Gateway or through the authoritative data source. Legacy datasets will be preserved, so that trends may be calculated. Additionally, accuracy assessment data for all source datasets will be provided on the portal either spatially, where applicable, or through the metadata. Accuracy assessment information was deemed vital to share to help users understand the limitation of the sagebrush estimates and will be summarized spatially by map zone and included in the Portal.

LANDFIRE plans to begin a remapping effort in 2015. This remapping has the potential to greatly improve overall quality of the data products primarily through the use of higher quality remote sensing datasets. Additionally, BLM and the Multi-Resolution Land Characteristics Consortium are working to improve the accuracy of vegetation map products for broad and mid-scale analyses through the Grass/Shrub mapping effort in partnership with the Multi-Resolution Land Characteristics Consortium. The Grass/Shrub mapping effort applies the Wyoming multi-scale sagebrush habitat methodology (Homer et al. 2009) to spatially depict fractional percent cover estimates for five components range and west-wide. These five components are percent cover of sagebrush vegetation, percent bare ground, percent herbaceous vegetation (grass and forbs combined), annual vegetation, and percent shrubs. One of the benefits of the design of these fractional cover maps is that they facilitate monitoring "with-in" class variation (e.g., examination of declining trend in sagebrush cover for individual pixels). This "with-in" class variation can serve as one indicator of sagebrush quality that cannot be derived from LANDFIRE's EVT information. The Grass/Shrub effort is not a substitute for fine scale monitoring, but will leverage fine scale data to support the validation of the mapping products. An evaluation will be conducted to determine if either dataset is of great enough quality to warrant replacing the existing sagebrush

layers. The earliest possible date for this evaluation will not occur until 2018 or 2019 depending on data availability.

D.6.3.2.2. Habitat Degradation Monitoring (Measure 2)

The measure of habitat degradation will be calculated by combining the footprints of threats identified in Table D.4, "Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring" (p. 299). The footprint is defined as the direct area of influence of "active" energy and infrastructure; it is used as a surrogate for human activity. Although these analyses will try to summarize results at the aforementioned meaningful geographic areas of interest, some may be too small to report the metrics appropriately and may be combined (smaller populations, PACs within a population, etc.). Data sources for each threat are found in Table D.8, "Geospatial Data Sources for Habitat Degradation (Measure 2)" (p. 314). Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and to calculate trends in habitat degradation to inform adaptive management. A 5-year summary report will be provided to the USFWS.

Habitat Degradation Datasets and Assumptions

Energy (oil and gas wells and development facilities): This dataset will compile information from three oil and gas databases: the proprietary IHS Enerdeq database, the BLM Automated Fluid Minerals Support System (AFMSS) database, and the proprietary Platts (a McGraw-Hill Financial Company) GIS Custom Data (hereafter, Platts) database of power plants. Point data from wells active within the last 10 years from IHS and producing wells from AFMSS will be considered as a 5-acre (2.0ha) direct area of influence centered on the well point, as recommended by the BLM WO-300 (Minerals and Realty Management). Plugged and abandoned wells will be removed if the date of well abandonment was before the first day of the reporting year (i.e., for the 2015 reporting year, a well must have been plugged and abandoned by 12/31/2014 to be removed). Platts oil and gas power plants data (subset to operational power plants) will also be included as a 5-acre (2.0ha) direct area of influence.

Additional Measure: Reclaimed Energy-related Degradation: This dataset will include those wells that have been plugged and abandoned. This measure thereby attempts to measure energy-related degradation that has been reclaimed but not necessarily fully restored to Greater Sage-Grouse habitat. This measure will establish a baseline by using wells that have been plugged and abandoned within the last 10 years from the IHS and AFMSS datasets. Time lags for lek attendance in response to infrastructure have been documented to be delayed 2–10 years from energy development activities (Harju et al. 2010). Reclamation actions may require 2 or more years from the Final Abandonment Notice. Sagebrush seedling establishment may take 6 or more years from the point of seeding, depending on such variables as annual precipitation, annual temperature, and soil type and depth (Pyke 2011). This 10-year period is conservative and assumes some level of habitat improvement 10 years after plugging. Research by Hemstrom et al. (2002), however, proposes an even longer period—more than 100 years—for recovery of sagebrush habitats, even with active restoration approaches. Direct area of influence will be considered 3 acres (1.2ha) (J. Perry, personal communication, February 12, 2014). This additional layer/measure could be used at the broad and mid-scale to identify areas where sagebrush habitat and/or potential sagebrush habitat is likely still degraded. This layer/measure could also be used where further investigation at the fine or site scale would be warranted to: 1) quantify the

level of reclamation already conducted, and 2) evaluate the amount of restoration still required for sagebrush habitat recovery. At a particular level (e.g., population, PACs), these areas and the reclamation efforts/success could be used to inform reclamation standards associated with future developments. Once these areas have transitioned from reclamation standards to meeting restoration standards, they can be added back into the sagebrush availability layer using the same methodology as described for adding restoration treatment areas lost to wildfire and agriculture conversion (see Monitoring Sagebrush Restoration in Section D.6.3.2.1.2, "Monitoring Sagebrush Availability" (p. 308)). This dataset will be updated annually from the IHS dataset.

Energy (coal mines): Currently, there is no comprehensive dataset available that identifies the footprint of active coal mining across all jurisdictions. Therefore, point and polygon datasets will be used each year to identify coal mining locations. Data sources will be identified and evaluated annually and will include at a minimum: BLM coal lease polygons, U.S. Energy Information Administration mine occurrence points, U.S. Office of Surface Mining Reclamation and Enforcement coal mining permit polygons (as available), and U.S. Geological Survey (USGS) Mineral Resources Data System mine occurrence points. These data will inform where active coal mining may be occurring. Additionally, coal power plant data from Platts power plants database (subset to operational power plants) will be included. Aerial imagery will then be used to digitize manually the active coal mining and coal power plants surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active coal mine and power plant direct area of influence. Coal mine location data source and imagery date will be documented for each digitized coal polygon at the time of creation. Subsurface facility locations (polygon or point location as available) will also be collected if available, included in density calculations, and added to the active surface activity layer as appropriate (if an actual direct area of influence can be located).

Energy (wind energy facilities): This dataset will be a subset of the Federal Aviation Administration (FAA) Digital Obstacles point file. Points where "Type_" = "WINDMILL" will be included. Direct area of influence of these point features will be measured by converting to a polygon dataset as a direct area of influence of 3 acres (1.2ha) centered on each tower point. See the BLM's "Wind Energy Development Programmatic Environmental Impact Statement" (BLM 2005). Additionally, Platts power plants database will be used for transformer stations associated with wind energy sites (subset to operational power plants), also with a 3-acre (1.2ha) direct area of influence.

Energy (solar energy facilities): This dataset will include solar plants as compiled with the Platts power plants database (subset to operational power plants). This database includes an attribute that indicates the operational capacity of each solar power plant. Total capacity at the power plant was based on ratings of the in-service unit(s), in megawatts. Direct area of influence polygons will be centered over each point feature representing 7.3ac (3.0ha) per megawatt of the stated operational capacity, per the report of the National Renewable Energy Laboratory (NREL), "Land-Use Requirements for Solar Power Plants in the United States" (Ong et al. 2013).

Energy (geothermal energy facilities): This dataset will include geothermal wells in existence or under construction as compiled with the IHS wells database and power plants as compiled with the Platts database (subset to operational power plants). Direct area of influence of these point features will be measured by converting to a polygon dataset of 3 acres (1.2ha) centered on each well or power plant point.

Mining (active developments; locatable, leasable, salable): This dataset will include active locatable mining locations as compiled with the proprietary InfoMine database. Aerial imagery will then be used to digitize manually the active mining surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active mine direct area of influence. Mine location data source and imagery date will be documented for each digitized polygon at the time of creation. Currently, there are no known compressive databases available for leasable or salable mining sites beyond coal mines. Other data sources will be evaluated and used as they are identified or as they become available. Point data may be converted to polygons to represent direct area of influence unless actual surface disturbance is available.

Infrastructure (roads): This dataset will be compiled from the proprietary Esri StreetMap Premium for ArcGIS. Dataset features that will be used are: Interstate Highways, Major Roads, and Surface Streets to capture most paved and "crowned and ditched" roads while not including "two-track" and 4-wheel-drive routes. These minor roads, while not included in the broad- and mid-scale monitoring, may support a volume of traffic that can have deleterious effects on Greater Sage-Grouse leks. It may be appropriate to consider the frequency and type of use of roads in a NEPA analysis for a proposed project. This fine- and site-scale analysis will require more site-specific data than is identified in this monitoring framework. The direct area of influence for roads will be represented by 240.2ft, 84.0ft, and 40.7ft (73.2m, 25.6m, and 12.4m) total widths centered on the line feature for Interstate Highways, Major Roads, and Surface Streets, respectively (Knick et al. 2011). The most current dataset will be used for each monitoring update. Note: This is a related but different dataset than what was used in BER (Manier et al. 2013). Individual BLM planning units may use different road layers for fine- and site-scale monitoring.

Infrastructure (railroads): This dataset will be a compilation from the Federal Railroad Administration Rail Lines of the USA dataset. Non-abandoned rail lines will be used; abandoned rail lines will not be used. The direct are of influence for railroads will be represented by a 30.8ft (9.4m) total width (Knick et al. 2011) centered on the non-abandoned railroad line feature.

Infrastructure (powerlines): This line dataset will be derived from the proprietary Platts transmission lines database. Linear features in the dataset attributed as "buried" will be removed from the disturbance calculation. Only "In Service" lines will be used; "Proposed" lines will not be used. Direct area of influence will be determined by the kV designation: 1–199 kV (100ft/30.5m), 200–399 kV (150ft/45.7m), 400–699 kV (200ft/61.0m), and 700-or greater kV (250ft/76.2m) based on average right-of-way and structure widths, according to BLM WO-300 (Minerals and Realty Management).

Infrastructure (communication towers): This point dataset will be compiled from the Federal Communications Commission (FCC) communication towers point file; all duplicate points will be removed. It will be converted to a polygon dataset by using a direct area of influence of 2.5 acres (1.0ha) centered on each communication tower point (Knick et al. 2011).

Infrastructure (other vertical structures): This point dataset will be compiled from the FAA's Digital Obstacles point file. Points where "Type_" = "WINDMILL" will be removed. Duplicate points from the FCC communication towers point file will be removed. Remaining features will be converted to a polygon dataset using a direct area of influence of 2.5 acres (1.0ha) centered on each vertical structure point (Knick et al. 2011).

Other Developed Rights-of-Way: Currently, no additional data sources for other rights-of-way have been identified; roads, power lines, railroads, pipelines, and other known linear features are represented in the categories described above. The newly purchased IHS data do contain pipeline information; however, this database does not currently distinguish between above-ground and underground pipelines. If additional features representing human activities are identified, they will be added to monitoring reports using similar assumptions to those used with the threats described above.

D.6.3.2.2.1. Habitat Degradation Threat Combination and Calculation

The threats targeted for measuring human activity (Table D.8, "Geospatial Data Sources for Habitat Degradation (Measure 2)" (p. 314)) will be converted to direct area of influence polygons as described for each threat above. These threat polygon layers will be combined and features dissolved to create one overall polygon layer representing footprints of active human activity in the range of Greater Sage-Grouse. Individual datasets, however, will be preserved to indicate which types of threats may be contributing to overall habitat degradation. This measure has been divided into three sub measures to describe habitat degradation on the landscape. Percentages will be calculated as follows:

- **Measure 2a.** Footprint by geographic area of interest: Divide area of the active/direct footprint by the total area of the geographic area of interest (% disturbance in geographic area of interest).
- **Measure 2b.** Active/direct footprint by historical sagebrush potential: Divide area of the active footprint that coincides with areas with historical sagebrush potential (BpS calculation from habitat availability) within a given geographic area of interest by the total area with sagebrush potential within the geographic area of interest (% disturbance on potential historical sagebrush in geographic area of interest).
- **Measure 2c.** Active/direct footprint by current sagebrush: Divide area of the active footprint that coincides with areas of existing sagebrush (EVT calculation from habitat availability) within a given geographic area of interest by the total area that is current sagebrush within the geographic area of interest (% disturbance on current sagebrush in geographic area of interest).

Table D.8. Geospatial Data Sources for Habitat Degradation (Measure 2)

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0 acres (2.0 hectares)	BLM - WO-300
	Power Plants	Platts (power plants)	5.0 acres (2.0 hectares)	BLM - WO-300
Energy (coal)	Mines	BLM; USFS; Office of Surface Mining Reclamation and Envofrement; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/ Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0 acres (1.2 hectares)	BLM - WO-300
	Power Plants	Platts (power plants)	3.0 acres (1.2 hectares)	BLM - WO-300

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3 acres (3.0 hectares)/MW	NREL
Energy (geothermal)	Wells	IHS	3.0 acres (1.2 hectares)	BLM - WO-300
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7 feet (12.4 meters)	USGS
	Major Roads	Esri StreetMap Premium	84.0 feet (25.6 meters)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2 feet (73.2 meters)	USGS
Infrastructure (railroads)	ActiveLines	Federal Railroad Administration	30.8 feet (9.4 meters)	USGS
Infrastructure (powerlines)	1-199 kV Lines	Platts (transmission lines)	100 feet (30.5 meters)	BLM - WO-300
	200-399 kV Lines	Platts (transmission lines)	150 feet (45.7 meters)	BLM - WO-300
	400-699 kV Lines	Platts (transmission lines)	200 feet (61.0 meters)	BLM - WO-300
	700+ kV Lines	Platts (transmission lines)	250 feet (76.2 meters)	BLM - WO-300
Infrastructure (communication	Towers	Federal Communications Commission	2.5 acres (1.0 hectares)	BLM - WO-300

AFMSS Automated Fluid Minerals Support System
BLM Bureau of Land Management
kV Kilovolt
NREL National Renewable Energy Laboratory
USFS United States Forest Service
USGS United States Geological Survey

D.6.3.2.3. Energy and Mining Density (Measure 3)

The measure of density of energy and mining will be calculated by combining the locations of energy and mining threats identified in Table D.4, "Relationship between the 18 Threats and the 3 Habitat Disturbance Measures for Monitoring" (p. 299). This measure will provide an estimate of the intensity of human activity or the intensity of habitat degradation. The number of energy facilities and mining locations will be summed and divided by the area of meaningful geographic areas of interest to calculate density of these activities. Data sources for each threat are found in Table D.8, "Geospatial Data Sources for Habitat Degradation (Measure 2)" (p. 314). Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and 5-year (or longer) trends in habitat degradation.

Energy and Mining Density Datasets and Assumptions

- Energy (oil and gas wells and development facilities) (See Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311))
- Energy (coal mines) (See Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311))
- Energy (wind energy facilities) (See Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311))
- Energy (solar energy facilities) (See Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311))
- Energy (geothermal energy facilities) (See Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311))
- Mining (active developments; locatable, leasable, salable) (See Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311))

Energy and Mining Density Threat Combination and Calculation

Datasets for energy and mining will be collected in two primary forms: point locations (e.g., wells) and polygon areas (e.g., surface coal mining). The following rule set will be used to calculate density for meaningful geographic areas of interest including standard grids and per polygon:

1. Point locations will be preserved; no additional points will be removed beyond the methodology described above. Energy facilities in close proximity (an oil well close to a wind tower) will be retained.
2. Polygons will not be merged, or features further dissolved. Thus, overlapping facilities will be retained, such that each individual threat will be a separate polygon data input for the density calculation.
3. The analysis unit (polygon or 640-acre section in a grid) will be the basis for counting the number of mining or energy facilities per unit area. Within the analysis unit, all point features will be summed, and any individual polygons will be counted as one (e.g., a coal mine will be counted as one facility within population). Where polygon features overlap multiple units (polygons or pixels), the facility will be counted as one in each unit where the polygon occurs (e.g., a polygon crossing multiple 640-acre sections would be counted as one in each 640-acre section for a density per 640-acre-section calculation).
4. In methodologies with different-sized units (e.g., MZs, populations, etc.) raw facility counts will be converted to densities by dividing the raw facility counts by the total area of the unit. Typically this will be measured as facilities per 640 acres.
5. For uniform grids, raw facility counts will be reported. Typically this number will also be converted to facilities per 640 acres.
6. Reporting may include summaries beyond the simple ones above. Zonal statistics may be used to smooth smaller grids to help display and convey information about areas within meaningful geographic areas of interest that have high levels of energy and/or mining activity.
7. Additional statistics for each defined unit may also include adjusting the area to include only the area with the historical potential for sagebrush (BpS) or areas currently sagebrush (EVT).

Individual datasets and threat combination datasets for habitat degradation will be available through the BLM's EGIS web portal and geospatial gateway. Legacy datasets will be preserved so that trends may be calculated.

D.6.3.3. Population (Demographics) Monitoring

State wildlife management agencies are responsible for monitoring Greater Sage-Grouse populations within their respective states. WAFWA will coordinate this collection of annual

population data by state agencies. These data will be made available to the BLM according to the terms of the forthcoming Greater Sage-Grouse Population Monitoring Memorandum of Understanding (MOU) (2014) between WAFWA and the BLM. The MOU outlines a process, timeline, and responsibilities for regular data sharing of Greater Sage-Grouse population and/or habitat information for the purposes of implementing Greater Sage-Grouse LUPs/amendments and subsequent effectiveness monitoring. Population areas were refined from the *"Greater Sage-grouse (Centrocercus urophasianus) Conservation Objectives: Final Report"* (COT 2013) by individual state wildlife agencies to create a consistent naming nomenclature for future data analyses. These population data will be used for analysis at the applicable scale to supplement habitat effectiveness monitoring of management actions and to inform the adaptive management responses.

D.6.3.4. Effectiveness Monitoring

Effectiveness monitoring will provide the data needed to evaluate BLM actions toward reaching the objective of the national planning strategy (BLM IM 2012-044) – to conserve Greater Sage-Grouse populations and their habitat– and the objectives for the land use planning area. Effectiveness monitoring methods described here will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of the Bighorn Basin Planning Area. Effectiveness data used for these larger-scale evaluations will include all lands in the area of interest, regardless of surface ownership/management, and will help inform where finer-scale evaluations are needed, such as population areas smaller than an LUP or PACs within an LUP (described in Section D.6.4, "Fine and Site Scales" (p. 321)). Data will also include the trend of disturbance within these areas of interest to inform the need to initiate adaptive management responses as described in the Worland Approved RMP.

The BLM will coordinate with the State of Wyoming in evaluating the compliance of all actions within Greater Sage-Grouse PHMAs. Evaluation of current disturbance, disruptions and conservation actions within a Greater Sage-Grouse PHMA will be conducted to determine if all entities are in compliance with their specific standards and whether or not it indeed has not caused declines of Greater Sage-Grouse populations. This approach also helps focus scarce resources to areas experiencing habitat loss, degradation, or population declines, without excluding the possibility of concurrent, finer-scale evaluations as needed where habitat or population anomalies have been identified through some other means.

To determine the effectiveness of the Greater Sage-Grouse national planning strategy, the BLM will evaluate the answers to the following questions and prepare a broad- and mid-scale effectiveness report:

1. Sagebrush Availability and Condition:
    a. What is the amount of sagebrush availability and the change in the amount and condition of sagebrush?
    b. What is the existing amount of sagebrush on the landscape and the change in the amount relative to the pre-EuroAmerican historical distribution of sagebrush (BpS)?
    c. What is the trend and condition of the indicators describing sagebrush characteristics important to Greater Sage-Grouse?
2. Habitat Degradation and Intensity of Activities:
    a. What is the amount of habitat degradation and the change in that amount?
    b. What is the intensity of activities and the change in the intensity?

c. What is the amount of reclaimed energy-related degradation and the change in the amount?
d. What is the population estimation of Greater Sage-Grouse and the change in the population estimation?

3. How is the BLM contributing to changes in the amount of sagebrush?
4. How is the BLM contributing to disturbance?

The compilation of broad- and mid-scale data (and population trends as available) into an effectiveness monitoring report will occur on a 5-year reporting schedule (see Attachment A), which may be accelerated to respond to critical emerging issues (in consultation with the USFWS and state wildlife agencies). In addition, effectiveness monitoring results will be used to identify emerging issues and research needs and inform the BLM adaptive management strategy (Section D.6.3.4, "Effectiveness Monitoring" (p. 317)).

To determine the effectiveness of the Greater Sage-Grouse objectives of the land use plan, the BLM will evaluate the answers to the following questions and prepare a plan effectiveness report:

1. Is this plan meeting the Greater Sage-Grouse habitat objectives?
2. Are Greater Sage-Grouse areas within the LUP meeting, or making progress toward meeting, land health standards, including the Special Status Species/wildlife habitat standard?
3. Is the plan meeting the disturbance objective(s) within Greater Sage-Grouse areas?
4. Are the Greater Sage-Grouse populations within this plan boundary and within the Greater Sage-Grouse areas increasing, stable, or declining?

The effectiveness monitoring report for this LUP will occur on a 5-year reporting schedule (see Attachment A) or more often if habitat or population anomalies indicate the need for an evaluation to facilitate adaptive management or respond to critical emerging issues. Data will be made available through the BLM's EGIS web portal and the geospatial gateway.

Methods

At the broad and mid-scales (PACs and above) the BLM will summarize the vegetation, disturbance, and (when available) population data. Although the analysis will try to summarize results for PACs within each Greater Sage-Grouse population, some populations may be too small to report the metrics appropriately and may need to be combined to provide an estimate with an acceptable level of accuracy. Otherwise, they will be flagged for more intensive monitoring by the appropriate landowner or agency. The BLM will then analyze monitoring data to detect the trend in the amount of sagebrush; the condition of the vegetation in the Greater Sage-Grouse areas (MacKinnon et al. 2011); the trend in the amount of disturbance; the change in disturbed areas owing to successful restoration; and the amount of new disturbance the BLM has permitted. These data could be supplemented with population data (when available) to inform an understanding of the correlation between habitat and PACs within a population. This overall effectiveness evaluation must consider the lag effect response of populations to habitat changes (Garton et al. 2011).

Calculating Question 1, National Planning Strategy Effectiveness: The amount of sagebrush available in the large area of interest will use the information from Measure 1a (I.B.1., Sagebrush Availability) and calculate the change from the 2012 baseline to the end date of the reporting period. To calculate the change in the amount of sagebrush on the landscape to compare with the historical areas with potential to support sagebrush, the information from Measure 1b (I.B.1., Sagebrush Availability) will be used. To calculate the trend in the condition of sagebrush at the

mid-scale, three sources of data will be used: the BLM's Grass/Shrub mapping effort (Future Plans in Section D.6.3.2.1, "Sagebrush Availability (Measure 1)" (p. 300)); the results from the calculation of the landscape indicators, such as patch size (described below); and the BLM's Landscape Monitoring Framework (LMF) and Greater Sage-Grouse intensification effort (also described below). The LMF and Greater Sage-Grouse intensification effort data are collected in a statistical sampling framework that allows calculation of indicator values at multiple scales.

Beyond the importance of sagebrush availability to Greater Sage-Grouse, the mix of sagebrush patches on the landscape at the broad and mid-scale provides the life requisite of space for Greater Sage-Grouse dispersal needs (see the HAF). The configuration of sagebrush habitat patches and the land cover or land use between the habitat patches at the broad and mid-scales also defines suitability. There are three significant habitat indicators that influence habitat use, dispersal, and movement across populations: the size and number of habitat patches, the connectivity of habitat patches (linkage areas), and habitat fragmentation (scope of unsuitable and non-habitats between habitat patches). The most appropriate commercial software to measure patch dynamics, connectivity, and fragmentation at the broad and mid-scales will be used, along with the same data layers derived for sagebrush availability.

The BLM initiated the LMF in 2011 in cooperation with the Natural Resources Conservation Service (NRCS). The objective of the LMF effort is to provide unbiased estimates of vegetation and soil condition and trend using a statistically balanced sample design across BLM lands. Recognizing that Greater Sage-Grouse populations are more resilient where the sagebrush plant community has certain characteristics unique to a particular life stage of Greater Sage-Grouse (Knick and Connelly 2011, Stiver et al. 2015), a group of Greater Sage-Grouse habitat and sagebrush plant community subject matter experts identified those vegetation indicators collected at LMF sampling points that inform Greater Sage-Grouse habitat needs. The experts represented the Agricultural Research Service, BLM, NRCS, USFWS, WAFWA, state wildlife agencies, and academia. The common indicators identified include: species composition, foliar cover, height of the tallest sagebrush and herbaceous plant, intercanopy gap, percent of invasive species, sagebrush shape, and bare ground. To increase the precision of estimates of sagebrush conditions within the range of Greater Sage-Grouse, additional plot locations in occupied Greater Sage-Grouse habitat (Sage-Grouse Intensification) were added in 2013. The common indicators are also collected on sampling locations in the NRCS National Resources Inventory Rangeland Resource Assessment (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?&cid=stelprdb1041620).

The Greater Sage-Grouse intensification baseline data will be collected over a 5-year period, and an annual Greater Sage-Grouse intensification report will be prepared describing the status of the indicators. Beginning in year 6, the annual status report will be accompanied with a trend report, which will be available on an annual basis thereafter, contingent on continuation of the current monitoring budget. This information, in combination with the Grass/Shrub mapping information, the mid-scale habitat suitability indicator measures, and the sagebrush availability information will be used to answer Question 1 of the National Planning Strategy Effectiveness Report.

Calculating Question 2, National Planning Strategy Effectiveness: Evaluations of the amount of habitat degradation and the intensity of the activities in the area of interest will use the information from Measure 2 (Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311)) and Measure 3 (Section D.6.3.2.3, "Energy and Mining Density (Measure 3)" (p. 315)). The field office will collect data on the amount of reclaimed energy-related degradation on plugged and abandoned and oil/gas well sites. The data are expected to demonstrate that the reclaimed

sites have yet to meet the habitat restoration objectives for Greater Sage-Grouse habitat. This information, in combination with the amount of habitat degradation, will be used to answer Question 2 of the National Planning Strategy Effectiveness Report.

Calculating Question 3, National Planning Strategy Effectiveness: The change in Greater Sage-Grouse estimated populations will be calculated from data provided by the state wildlife agencies, when available. This population data (Section D.6.3.3, "Population (Demographics) Monitoring" (p. 316)) will be used to answer Question 3 of the National Planning Strategy Effectiveness Report.

Calculating Question 4, National Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of sagebrush in the area of interest will use the information from Measure 1a (Section D.6.3.2.1, "Sagebrush Availability (Measure 1)" (p. 300)). This measure is derived from the national datasets that remove sagebrush (Table D.5, "Datasets for Establishing and Monitoring Changes in Sagebrush Availability" (p. 302)). To determine the relative contribution of BLM, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for this measure in the geographic areas of interest. This information will be used to answer Question 4 of the National Planning Strategy Effectiveness Report.

Calculating Question 5, National Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of disturbance in the area of interest will use the information from Measure 2a (Section D.6.3.2.2, "Habitat Degradation Monitoring (Measure 2)" (p. 311)) and Measure 3 (Section D.6.3.2.3, "Energy and Mining Density (Measure 3)" (p. 315)). These measures are all derived from the national disturbance datasets that degrade habitat (Table D.8, "Geospatial Data Sources for Habitat Degradation (Measure 2)" (p. 314)). To determine the relative contribution of BLM management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for these two measures in the geographic areas of interest. This information will be used to answer Question 5 of the National Planning Strategy Effectiveness Report.

Answers to the five questions for determining the effectiveness of the national planning strategy will identify areas that appear to be meeting the objectives of the strategy and will facilitate identification of population areas for more detailed analysis. Conceptually, if the broad-scale monitoring identifies increasing sagebrush availability and improving vegetation conditions, decreasing disturbance, and a stable or increasing population for the area of interest, there is evidence that the objectives of the national planning strategy to maintain populations and their habitats have been met. Conversely, where information indicates that sagebrush is decreasing and vegetation conditions are degrading, disturbance in Greater Sage-Grouse areas is increasing, and/or populations are declining relative to the baseline, there is evidence that the objectives of the national planning strategy are not being achieved. Such a determination would likely result in a more detailed analysis and could be the basis for implementing more restrictive adaptive management measures.

With respect to the land use plan area, the BLM will summarize the vegetation, disturbance, and population data to determine if the LUP is meeting the plan objectives. Effectiveness information used for these evaluations includes BLM surface management areas and will help inform where finer-scale evaluations are needed, such as seasonal habitats, corridors, or linkage areas. Data will also include the trend of disturbance within the Greater Sage-Grouse areas, which will inform the need to initiate adaptive management responses as described in the Worland Approved RMP.

Calculating Question 1, Land Use Plan Effectiveness: The condition of vegetation and the allotments meeting land health standards (as articulated in "BLM Handbook 4180-1, Rangeland Health Standards") in Greater Sage-Grouse areas will be used to determine the LUP's effectiveness in meeting the vegetation objectives for Greater Sage-Grouse habitat set forth in the plan. The field office/ranger district will be responsible for collecting this data. In order for this data to be consistent and comparable, common indicators, consistent methods, and an unbiased sampling framework will be implemented following the principles in the BLM's AIM strategy (Taylor et al. 2014; Toevs et al. 2011; MacKinnon et al. 2011), in the BLM's Technical Reference "Interpreting Indicators of Rangeland Health" (Pellant et al. 2005), and in the HAF (Stiver et al. 2015) or other approved WAFWA MZ–consistent guidance to measure and monitor Greater Sage-Grouse habitats. This information will be used to answer Question 1 of the Land Use Plan Effectiveness Report.

Calculating Question 2, Land Use Plan Effectiveness: Sage-grouse areas within the LUP that are achieving land health stands (or, if trend data are available, that are making progress toward achieving them)—particularly the Special Status Species/wildlife habitat land health standard—will be used to determine the LUP's effectiveness in achieving the habitat objectives set forth in the plan. Field offices will follow directions in "BLM Handbook 4180-1, Rangeland Health Standards," to ascertain if Greater Sage-Grouse areas are achieving or making progress toward achieving land health standards. One of the recommended criteria for evaluating this land health standard is the HAF indicators.

Calculating Question 3, Land Use Plan Effectiveness: The amount of habitat disturbance in Greater Sage-Grouse areas identified in this LUP will be used to determine the LUP's effectiveness in meeting the plan's disturbance objectives. National datasets can be used to calculate the amount of disturbance, but field office data will likely increase the accuracy of this estimate. This information will be used to answer Question 3 of the Land Use Plan Effectiveness Report.

Calculating Question 4, Land Use Plan Effectiveness: The change in estimated Greater Sage-Grouse populations will be calculated from data provided by the state wildlife agencies, when available, and will be used to determine LUP effectiveness. This population data (Section D.6.3.3, "Population (Demographics) Monitoring" (p. 316)) will be used to answer Question 4 of the Land Use Plan Effectiveness Report.

Results of the effectiveness monitoring process for the LUP will be used to inform the need for finer-scale investigations, initiate adaptive management actions as described in the Worland Approved RMP, initiate causation determination, and/or determine if changes to management decisions are warranted. The measures used at the broad and mid-scales will provide a suite of characteristics for evaluating the effectiveness of the adaptive management strategy.

D.6.4. Fine and Site Scales

Fine-scale (third-order) habitat selected by Greater Sage-Grouse is described as the physical and geographic area within home ranges during breeding, summer, and winter periods. At this level, habitat suitability monitoring should address factors that affect Greater Sage-Grouse use of, and movements between, seasonal use areas. The habitat monitoring at the fine and site scale (fourth order) should focus on indicators to describe seasonal home ranges for Greater Sage-Grouse associated with a lek or lek group within a population or subpopulation area. Fine- and site-scale monitoring will inform LUP effectiveness monitoring (see Section D.6.3.4,

"Effectiveness Monitoring" (p. 317)) and the hard and soft triggers identified in the LUP's adaptive management section.

The BLM will coordinate with the State of Wyoming to share conservation, disturbance and vegetation analysis data to provide a core by core evaluation to make necessary adjustments in activity, priorities and other actions.

Site-scale habitat selected by Greater Sage-Grouse is described as the more detailed vegetation characteristics of seasonal habitats. Habitat suitability characteristics include canopy cover and height of sagebrush and the associated understory vegetation. They also include vegetation associated with riparian areas, wet meadows, and other mesic habitats adjacent to sagebrush that may support Greater Sage-Grouse habitat needs during different stages in their annual cycle.

As described in the Conclusion (Section D.6.5, "Conclusion" (p. 323)), details and application of monitoring at the fine and site scales will be described in the implementation-level monitoring plan for the Worland Approved RMP. The need for fine- and site-scale-specific habitat monitoring will vary by area, depending on proposed projects, existing conditions, habitat variability, threats, and land health. Examples of fine- and site-scale monitoring include: habitat vegetation monitoring to assess current habitat conditions; monitoring and evaluation of the success of projects targeting Greater Sage-Grouse habitat enhancement and/or restoration; and habitat disturbance monitoring to provide localized disturbance measures to inform proposed project review and potential mitigation for project impacts. Monitoring plans should incorporate the principles outlined in the BLM's AIM strategy (Toevs et al. 2011) and in "AIM-Monitoring: A Component of the Assessment, Inventory, and Monitoring Strategy" (Taylor et al. 2014). Approved monitoring methods are:

- "BLM Core Terrestrial Indicators and Methods" (MacKinnon et al. 2011);
- The BLM's Technical Reference "Interpreting Indicators of Rangeland Health" (Pellant et al. 2005); and,
- "Sage-Grouse Habitat Assessment Framework: Multiscale Assessment Tool" (Stiver et al. in press).

Other state-specific disturbance tracking models include: the BLM's Wyoming Density and Disturbance Calculation Tool (http://ddct.wygisc.org/) and the BLM's White River Data Management System in development with the USGS. Population monitoring data (in cooperation with state wildlife agencies) should be included during evaluation of the effectiveness of actions taken at the fine and site scales.

Fine- and site-scale Greater Sage-Grouse habitat suitability indicators for seasonal habitats are identified in the HAF. The HAF has incorporated the Connelly et al. (2000) Greater Sage-Grouse guidelines as well as many of the core indicators in the AIM strategy (Toevs et al. 2011). There may be a need to develop adjustments to height and cover or other site suitability values described in the HAF; any such adjustments should be ecologically defensible. To foster consistency, however, adjustments to site suitability values at the local scale should be avoided unless there is strong, scientific justification for making those adjustments. That justification should be provided. WAFWA MZ adjustments must be supported by regional plant productivity and habitat data for the floristic province. If adjustments are made to the site-scale indicators, they must be made using data from the appropriate seasonal habitat designation (breeding/nesting, brood-rearing, winter) collected from Greater Sage-Grouse studies found in the relevant area and peer-reviewed by the appropriate wildlife management agency(ies) and researchers.

When conducting land heath assessments, the BLM should follow, at a minimum, "Interpreting Indicators of Rangeland Health" (Pellant et. al. 2005) and the "BLM Core Terrestrial Indicators and Methods" (MacKinnon et al. 2011). For assessments being conducted in Greater Sage-Grouse designated management areas, the BLM should collect additional data to inform the HAF indicators that have not been collected using the above methods. Implementation of the principles outlined in the AIM strategy will allow the data to be used to generate unbiased estimates of condition across the area of interest; facilitate consistent data collection and rollup analysis among management units; help provide consistent data to inform the classification and interpretation of imagery; and provide condition and trend of the indicators describing sagebrush characteristics important to Greater Sage-Grouse habitat (see Section D.6.3.4, "Effectiveness Monitoring" (p. 317)).

D.6.5. Conclusion

This Greater Sage-Grouse Monitoring Framework was developed for all of the RMPs involved in the Greater Sage-Grouse planning effort. As such, it describes the monitoring activities at the broad and mid-scales and provides a guide for the BLM to collaborate with partners/other agencies to develop the specific monitoring plan for the Worland Approved RMP.

D.6.6. The BLM Greater Sage-Grouse Disturbance and Monitoring Sub-Team Membership

Gordon Toevs (BLM-WO)
Duane Dippon (BLM-WO)
Frank Quamen (BLM-NOC)
David Wood (BLM-NOC)
Vicki Herren (BLM-NOC)
Matt Bobo (BLM-NOC)
Michael "Sherm" Karl (BLM-NOC)
Emily Kachergis (BLM-NOC)
Doug Havlina (BLM-NIFC)
Mike Pellant (BLM-GBRI)
John Carlson (BLM-MT)
Jenny Morton (BLM-WY)
Robin Sell (BLM-CO)
Paul Makela (BLM-ID)
Renee Chi (BLM-UT)
Sandra Brewer (BLM-NV)
Glenn Frederick (BLM-OR)
Robert Skorkowsky (USFS)
Dalinda Damm (USFS)
Rob Mickelsen (USFS)
Tim Love (USFS)
Pam Bode (USFS)
Lief Wiechman (USFWS)
Lara Juliusson (USFWS)

Bibliography

Baruch-Mordo, S., J.S. Evans, J.P. Severson, D.E. Naugle, J.D. Maestas, J.M. Kiesecker, M.J. Falkowski, C.A. Hagen, and K.P. Reese. 2013. Saving sage-grouse from the trees: A proactive solution to reducing a key threat to a candidate species. Biological Conservation 167:233–241.

Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28:967–985.

Connelly, J.W., K.P. Reese, and M.A. Schroeder. 2003. Monitoring of Greater Sage-grouse habitats and populations. Station Bulletin 80. College of Natural Resources Experiment Station, University of Idaho, Moscow, ID.

Connelly, J.W., S.T Knick, M.A. Schroeder, and S.J. Stiver. 2004. Conservation assessment of Greater Sage-Grouse and sagebrush habitats. Unpublished report. Western Association of Fish and Wildlife Agencies, Cheyenne, WY. Available online: http://sagemap.wr.usgs.gov/docs/Greater_Sage-grouse_Conservation_Assessment_060404.pdf.

Davies, K.W., C.S. Boyd, J.L. Beck, J.D. Bates, T.J. Svejcar, and M.A. Gregg. 2011. Saving the sagebrush sea: An ecosystem conservation plan for big sagebrush plant communities. Biological Conservation 144:2573–2584.

Fry, J.A., G. Xian, S. Jin, J.A. Dewitz, C.G. Homer, L. Yang, C.A. Barnes, N.D. Herold, and J.D. Wickham. 2011. Completion of the 2006 National Land Cover Database for the conterminous United States. PE&RS 77(9):858–864.

Garton, E.O., J.W. Connelly, J.S. Horne, C.A. Hagen, A. Moser, and M. Schroeder. 2011. Greater Sage-Grouse population dynamics and probability of persistence. In: Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats, edited by S.T. Knick and J.W. Connelly, 293–382. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.

Grove, A.J., C.L. Wambolt, and M.R. Frisina. 2005. Douglas-fir's effect on mountain big sagebrush wildlife habitats. Wildlife Society Bulletin 33:74–80.

Gruell, G.E., J.K. Brown, and C.L. Bushey. 1986. Prescribed fire opportunities in grasslands invaded by Douglas-fir: State-of-the-art guidelines. General Technical Report INT-198. U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, UT. 19pp.

Harju, S.M., M.R. Dzialak, R.C. Taylor, L.D. Hayden-Wing, J.B. Winstead. 2010. Thresholds and time lags in effects of energy development on greater sage-grouse populations. Journal of Wildlife Management 74(3):437–448.

Hemstrom, M.A., M.J. Wisdom, M.M. Rowland, B. Wales, W.J. Hann, and R.A. Gravenmier. 2002. Sagebrush-steppe vegetation dynamics and potential for restoration in the Interior Columbia Basin, USA. Conservation Biology 16:1243–1255.

Homer, C.G., C.L. Aldridge, D.K. Meyer, M.J. Coan, and Z.H. Bowen. 2009. Multiscale sagebrush rangeland habitat modeling in southwest Wyoming: U.S. Geological Survey Open-File Report 2008–1027. 14pp.

Johnson, D.H. 1980. The comparison of usage and availability measurements for evaluating resource preference. Ecology 61:65–71.

Knick, S.T., and J.W. Connelly (editors). 2011. Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.

Knick, S.T., and S.E. Hanser. 2011. Connecting pattern and process in Greater Sage-Grouse populations and sagebrush landscapes. In: Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats, edited by S.T. Knick and J.W. Connelly, 383–405. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.

Knick, S.T., S.E. Hanser, R.F. Miller, D.A. Pyke, M.J. Wisdom, S.P. Finn, E.T. Rinkes, and C.J. Henny. 2011. Ecological influence and pathways of land use in sagebrush. In: Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats, edited by S.T. Knick and J.W. Connelly, 203–251. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.

LANDFIRE: LANDFIRE Existing Vegetation Type layer. (2013, June – last update.) U.S. Department of the Interior, U.S. Geological Survey. [Online.] Available online: http://landfire.cr.usgs.gov/viewer/[2013, May 8].

Leu, M., and S.E. Hanser. 2011. Influences of the human footprint on sagebrush landscape patterns: implications for sage-grouse conservation. In: Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats, edited by S.T. Knick and J.W. Connelly, 253–271. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.

MacKinnon, W.C., J.W. Karl, G.R. Toevs, J.J. Taylor, M. Karl, C.S. Spurrier, and J.E. Herrick. 2011. BLM core terrestrial indicators and methods. Tech Note 440. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO.

Manier, D.J., D.J.A Wood, Z.H. Bowen, R.M. Donovan, M.J. Holloran, L.M. Juliusson, K.S. Mayne, S.J. Oyler-McCance, F.R. Quamen, D.J. Saher, and A.J. Titolo. 2013. Summary of science, activities, programs, and policies that influence the rangewide conservation of Greater Sage-Grouse (Centrocercus urophasianus): U.S. Geological Survey Open–File Report 2013–1098. 170pp.

NatureServe. 2011. International ecological classification standard: Terrestrial ecological classifications. NatureServe Central Databases, Arlington, VA. Data current as of July 31, 2011.

Ong, S., C. Campbell, P. Denholm, R. Margolis, and G. Heath. 2013. Land-use requirements for solar power plants in the United States. National Renewable Energy Laboratory, U.S. Department of Energy Technical Report NREL/TP-6A20-56290. 39pp. Available online: http://www.nrel.gov/docs/fy13osti/56290.pdf.

Pellant, M., P. Shaver, D.A. Pyke, and J.E. Herrick. 2005. Interpreting indicators of rangeland health, version 4. Technical Reference 1734-6. U.S. Department of the Interior, Bureau of Land Management, National Science and Technology Center, Denver, CO. BLM/WO/ST-00/001+1734/REV05. 122pp.

Perry, J. Personal communication. February 12, 2014.

Pyke, D.A. 2011. Restoring and rehabilitating sagebrush habitats. In: Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats, edited by S.T. Knick and J.W. Connelly, 531–548. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.

Schroeder, M.A., C.L. Aldridge, A.D. Apa, J.R. Bohne, C.E. Braun, S.D. Bunnell, J.W. Connelly, P.A. Deibert, S.C. Gardner, M.A. Hilliard, G.D. Kobriger, S.M. McAdam, C.W. McCarthy, J.J. McCarthy, D.L. Mitchell, E.V. Rickerson, and S.J. Stiver. 2004. Distribution of sage-grouse in North America. Condor 106: 363–376.

Stiver, S.J., A.D. Apa, J.R. Bohne, S.D. Bunnell, P.A. Deibert, S.C. Gardner, M.A. Hilliard, C.W. McCarthy, and M.A. Schroeder. 2006. Greater Sage-Grouse comprehensive conservation strategy. Unpublished report. Western Association of Fish and Wildlife Agencies, Cheyenne, WY. Available online: http://wdfw.wa.gov/publications/01317/.

Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-grouse habitat assessment framework: Multiscale habitat assessment tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies. Technical Reference. U.S. Department of the Interior, Bureau of Land Management, Denver, CO.

Taylor, J., E. Kachergis, G. Toevs, J. Karl, M. Bobo, M. Karl, S. Miller, and C. Spurrier. 2014. AIM-monitoring: A component of the BLM assessment, inventory, and monitoring strategy. Tech Note 445. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO.

Toevs, G.R., J.J. Taylor, C.S. Spurrier, W.C. MacKinnon, M.R. Bobo. 2011. Bureau of Land Management assessment, inventory, and monitoring strategy: For integrated renewable resources management. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO.

U.S. Department of Agriculture. National Agricultural Statistics Service Cropland Data Layer. 2012. Published crop-specific data layer [online]. USDA-NASS, Washington, D.C. Available online: http://nassgeodata.gmu.edu/CropScape/.

U.S. Department of the Interior, Bureau of Land Management. 2001. Handbook H-4180-1, Release 4-107. Rangeland health standards handbook. Available online: http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.61484.File.dat/h4180-1.pdf.

U.S. Department of the Interior, Bureau of Land Management. 2005. Wind Energy Development Programmatic Environmental Impact Statement (EIS). BLM Washington Office, Washington, D.C.

U.S. Department of the Interior, Bureau of Land Management. 2011. BLM national greater sage-grouse land use planning strategy. Instruction Memorandum No. 2012-044. BLM Washington Office, Washington, D.C.

U.S. Department of the Interior, Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants; 12-month findings for petitions to list the greater sage-grouse

(Centrocercus urophasianus) as threatened or endangered. Proposed Rule. Federal Register 75: 13910–14014 (March 23, 2010).

U.S. Department of the Interior, Fish and Wildlife Service. 2013. Greater Sage-grouse (Centrocercus urophasianus) conservation objectives: Final report. U.S. Fish and Wildlife Service, Denver, CO.

D.6.7. ATTACHMENT A: An Overview of Monitoring Commitments

	Broad and Mid-scales					Fine & Site Scales
	Implementation	Sagebrush Availability	Habitat Degradation	Population	Effectiveness	
How will the data be used?	Tracking and documenting implementation of land use plan decisions and inform adaptive management	Tracking changes in land cover (sagebrush) and inform adaptive management	Tracking changes in disturbance (threats) to Greater Sage-Grouse habitat and inform adaptive management	Tracking trends in Greater Sage-Grouse populations (and/or leks; as determined by state wildlife agencies) and inform adaptive management	Characterizing the relationship among disturbance, implementation actions, and sagebrush metrics and inform adaptive management	Measuring seasonal habitat, connectivity at the fine scale, and habitat conditions at the site scale, calculating disturbance and inform adaptive management
Who is collecting the data?	BLM Field Office and USFS Forest	NOC and NIFC	National data sets (NOC), BLM field offices, and USFS forests as applicable	State wildlife agencies through WAFWA	Comes from other broad and mid-scale monitoring types, analyzed by the NOC	BLM field office and State Office, USFS forests and regional office (with partners) including disturbance
How often are the data collected, reported and made available to USFWS?	Collected and reported annually; summary every 5 years	Updated and changes reported annually; summary reports every 5 years	Collected and changes reported annually; summary reports every 5 years	State data reported annually per WAFWA MOU; summary reports every 5 years	Collected and reported every 5 years (coincident with LUP evaluations)	Collection and trend analysis ongoing, reported every 5 years or as needed to inform adaptive management
What is the spatial scale?	Summarized by LUP with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by management zone, and LUP with flexibility for reporting by other units (e.g., PAC)	Variable (e.g., projects and seasonal habitats)

	Broad and Mid-scales					Fine & Site Scales
	Implementation	Sagebrush Availability	Habitat Degradation	Population	Effectiveness	
What are the potential personnel and budget impacts?	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	At a minimum, current skills and capacity must be maintained; data management cost to be decided	At a minimum, current skills and capacity must be maintained; data management and data layer purchase cost to be decided	No additional personnel or budget impacts for BLM	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment
Who has primary and secondary responsibilities for reporting?	1) BLM field office and State Office 2) BLM Planning	1) NOC 2) Washington Office	1) NOC 2) BLM State Office and appropriate programs	1) WAFWA and state wildlife agencies 2) BLM State Office, NOC	1) Broad and mid-scale at the NOC, LUP at BLM State Office	1) BLM field office 2) BLM State Office
What new processes/ tools are needed?	National implementation data sets and analysis tools	Updates to national land cover data	Data standards and roll-up methods for these data	Standards in population monitoring (WAFWA)	Reporting methodologies	Data standards data storage; and reporting

BLM Bureau of Land Management
LUP Land Use Plan
MOU Memorandum of Understanding
NOC National Operations Center
NIFC National Interagency Fire Center
PAC Priority Area for Conservation
USFS United States Forest Service
USFWS United States Fish and Wildlife Service
WAFWA Western Association of Fish and Wildlife Agencies

D.6.8. ATTACHMENT B: List of All Sagebrush Species and Subspecies Included in the Selection Criteria for Building the EVT and BpS Layers

- *Artemisia arbuscula* subspecies *longicaulis*
- *Artemisia arbuscula* subspecies *longiloba*
- *Artemisia bigelovii*
- *Artemisia nova*
- *Artemisia papposa*
- *Artemisia pygmaea*
- *Artemisia rigida*
- *Artemisia spinescens*
- *Artemisia tripartita* subspecies *rupicola*
- *Artemisia tripartita* subspecies *tripartita*
- *Tanacetum nuttallii*
- *Artemisia cana* subspecies *bolanderi*
- *Artemisia cana* subspecies *cana*
- *Artemisia cana* subspecies *viscidula*

- *Artemisia tridentata* subspecies *wyomingensis*
- *Artemisia tridentata* subspecies *tridentata*
- *Artemisia tridentata* subspecies *vaseyana*
- *Artemisia tridentata* subspecies *spiciformis*
- *Artemisia tridentata* subspecies *xericensis*
- *Artemisia tridentata* variety *pauciflora*
- *Artemisia frigida*
- *Artemisia pedatifida*

D.6.9. ATTACHMENT C: User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones

Table D.9. User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones

LANDFIRE Map Zone Name	User Accuracy	Producer Accuracy	% of Map Zone within Historic Schroeder
Wyoming Basin	76.9%	90.9%	98.5%
Snake River Plain	68.8%	85.2%	98.4%
Missouri River Plateau	57.7%	100.0%	91.3%
Grand Coulee Basin of the Columbia Plateau	80.0%	80.0%	89.3%
Wyoming Highlands	75.3%	85.9%	88.1%
Western Great Basin	69.3%	75.4%	72.9%
Blue Mountain Region of the Columbia Plateau	85.7%	88.7%	72.7%
Eastern Great Basin	62.7%	80.0%	62.8%
Northwestern Great Plains	76.5%	92.9%	46.3%
Northern Rocky Mountains	72.5%	89.2%	42.5%
Utah High Plateaus	81.8%	78.3%	41.5%
Colorado Plateau	65.3%	76.2%	28.8%
Middle Rocky Mountains	78.6%	73.3%	26.4%
Cascade Mountain Range	57.1%	88.9%	17.3%
Sierra Nevada Mountain Range	0.0%	0.0%	12.3%
Northwestern Rocky Mountains	66.7%	60.0%	7.3%
Southern Rocky Mountains	58.6%	56.7%	7.0%
Northern Cascades	75.0%	75.0%	2.6%
Mogollon Rim	66.7%	100.0%	1.7%
Death Valley Basin	0.0%	0.0%	1.2%

There are two anomalous map zones with 0% user and producer accuracies, attributable to no available reference data for the ecological systems of interest.

User accuracy is a map-based accuracy that is computed by looking at the reference data for a class and determining the percentage of correct predictions for these samples. For example, if I select any sagebrush pixel on the classified map, what is the probability that I'll be standing in a sagebrush stand when I visit that pixel location in the field? Commission Error equates to including a pixel in a class when it should have been excluded (i.e., commission error = 1 – user's accuracy).

Producer accuracy is a reference-based accuracy that is computed by looking at the predictions produced for a class and determining the percentage of correct predictions. In other words, if I know that a particular area is sagebrush (I've been out on the ground to check), what is the probability that the digital map will correctly identify that pixel as sagebrush? Omission Error equates to excluding a pixel that should have been included in the class (i.e., omission error = 1 – producer's accuracy).

D.7. COT Objective 6: Prioritize, Fund, and Implement Research To Address Existing Uncertainties

> *Increased funding and support for key research projects that will address uncertainties associated with Greater Sage-Grouse and sagebrush habitat management is essential. Effective amelioration of threats can only be accomplished if the mechanisms by which those threats are imposed on the redundancy, representation, and resilience of the species and its habitats are understood. (COT Report, 2013)*

In accordance with BLM policy, the Record of Decision and Approved Plan will establish intervals and standards for evaluations as part of the implementation strategy. Priorities will be established based on the identified threats in the planning area, the conservation objectives included as part of the Approved Plan, and any potential uncertainties associated with Greater Sage-Grouse and associated habitat management. A part of this strategy will include development of a budget to accomplish each of the identified tasks and fund potential research topics to address any uncertainties.

As new science pertaining to Greater Sage-Grouse and habitat is continuously evolving, refined management strategies may be necessary to ensure that BLM is utilizing the most current science, information, and data regarding Greater Sage-Grouse. It is for this reason that BLM has collaborated with the State of Wyoming and USFWS to develop an adaptive management strategy as a part of the planning process.

D.7.1. Wyoming Greater Sage-Grouse Adaptive Management Plan

The Greater Sage-Grouse adaptive management plan provides regulatory assurance that unintended negative impacts to Greater Sage-Grouse habitat will be addressed before consequences become severe or irreversible. This adaptive management plan:

- utilizes science based soft and hard adaptive management triggers,
- addresses multiple scales of data, and
- utilizes an adaptive management working group.

Adaptive Management Triggers

Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts. The hard and soft

trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.

Soft Triggers:

Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. For population metrics, normal population trends are calculated as the 5-year running mean of annual population counts. BLM field offices, with the assistance of their respective land and resource management plan implementation groups, local WGFD offices, and local Greater Sage-Grouse working groups will evaluate the metrics with the Adaptive Management Working Group (AMWG) on an annual basis. The purpose of these strategies is to address localized Greater Sage-Grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold.

Hard Triggers:

Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect.

Within the range of normal population variables (5-year running mean of annual population counts), hard triggers shall be determined to take effect when two of the three metrics exceeds 60 percent of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40 percent of normal variability for a three year time period within a five-year range of analysis. A minimum of three consecutive years in a five-year period is used to determine trends (i.e., years 1-2-3, years 2-3-4, years 3-4-5).

Adaptive Management Response

Soft Trigger Response:

Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short- or long-term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM) and the AMWG will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or state-wide level.

Hard Trigger Response:

Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the AMWG will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment).

Interim Strategy

An interim response strategy will be developed, and implemented to the extent permitted by law, within 90 days of determination that a hard trigger has been tripped. The technical team (see Implementation Groups below) will be consulted to identify the scope and scale of the interim strategy. Based on the recommendation of the AMWG, the BLM will implement an interim response strategy through an Instruction Memorandum or other management mechanisms to direct management until the causal factor(s) and appropriate response(s) can be determined. The interim response strategy will consist of appropriate management measures undertaken at the project stage, supported by the best available science, to address the specific metric which has been tripped and may include deferral of some activities as appropriate. Measures that were analyzed in this EIS and the COT, NTT reports, and National Policy Team guidance will be reviewed in addition to current science to identify the most appropriate measures to be implemented as part of the interim response strategy. The BLM will comply with all applicable law in implementing such response(s), and, if applicable, will undertake a plan amendment or revision under BLM's planning regulations and policies.

The interim strategy will be implemented for the biologically significant unit, which, in Wyoming, is PHMAs, regardless of whether PHMAs cross multiple planning boundaries. If it has been identified that more than one PHMA has the same hard triggers being tripped, or is trending towards triggers being tripped, the interim strategy will be implemented at the appropriate scale.

Causal Factor Assessment

The causal factor assessment will be completed within 180 days of determination that a hard trigger threshold has been crossed. Once the causal factor assessment is completed by the AMWG, the interim response strategy will be modified to adequately address the causal factors in consultation with the technical team. If a causal factor or factors cannot be identified, the interim response strategy shall stay in place until the cause can be determined and any new planning decision can be implemented.

EIS Level Projects

Each major project (EIS level) will include adaptive management strategies in support of the population management objectives for Greater Sage-Grouse set by the State of Wyoming, and will be consistent with the Wyoming Greater Sage-Grouse Adaptive Management Plan. These adaptive management strategies will be developed in partnership with the AMWG, WGFD, project proponents, partners, and stakeholders, incorporating the best available science.

Implementation Groups

Sage-Grouse Implementation Team

The State of Wyoming's strategy is implemented by the Sage-Grouse Implementation Team (SGIT), established by Executive Order in 2008 and codified in 2014 by the Wyoming Legislature (W.S. § 9-19-101). The SGIT is a Governor appointed body with representation by federal agencies (BLM USFWS, Natural Resources Conservation Service), state agencies (Wyoming Game and Fish Commission, Department of Agriculture, Department of Environmental Quality, Wildlife and Natural Resource Trust Fund, Oil and Gas Conservation Commission, and Office of State Lands and Investments), the Wyoming Legislature, county governments, energy developers, mining companies, landowners, and non- governmental organizations. The BLM, US Fish and Wildlife Service NRCS and the US Forest Service all have an equal role in the SGIT.

Land and Resource Management Plan – Implementation Teams

Land and Resource Management Plans are implemented through implementation teams. These implementation teams include cooperating agencies who participated in the development of this land use plan representing local, state, and federal agencies. These implementation teams will coordinate with the AMWG and others to evaluate metrics and management responses necessary to meet Greater Sage-Grouse conservation objectives within their planning area.

Adaptive Management Working Group and Technical Team

An Adaptive Management Working Group (AMWG) will be established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect Greater Sage-Grouse populations and/or habitat through their permitting authority. The AMWG will include BLM, USFS, USFWS, and State of Wyoming. The purpose of this group will be to initiate a response strategy should it be determined that a hard trigger has been tripped or if soft triggers are showing a trend across a region. A hard trigger may be tripped at any time, thus, upon identification of such event, current available population and habitat data will be reviewed by the AMWG with the assistance of a technical team comprised of agency biologists, scientists familiar with the Management Zone in question, and other individuals as appropriate (e.g., habitat managers, respective landowners, other appropriate representatives) to confirm that a hard trigger has been tripped. Upon verification of data showing that a hard trigger has been tripped, the AMWG will convene within 14 days.

The AMWG will review monitoring data which has been collected by the appropriate local Greater Sage-Grouse working groups in conformance with data collection standards. This group will meet annually to review all data collected in the prior year regarding Greater Sage-Grouse populations and habitats. Monitoring data will have been analyzed (by WGFD for population based metrics (leks, wing counts, etc., and by land managers [BLM, USFS, State of Wyoming] for habitat based metrics [DDCT, etc.]) Should the monitoring data suggest a trend toward a soft or hard trigger being tripped, they will 1. Identify what metric is indicating that trend (population or habitat); and 2. Identify a technical team to review the data and compile a range of activities which may be causing the trend. Should review of the monitoring data identify that multiple soft triggers have been tripped in one PHMA, or the same triggers have been tripped across multiple PHMAs, the technical team will be tasked with verifying the scope and intensity of the trends.

Once the analysis of the trends has been completed by the technical team and reported back to the AMWG, the AMWG will make recommendations to the appropriate land managing agency regarding an interim adaptive management strategy to be implemented. Implementation will occur via the appropriate regulations and policy applicable for that agency. At that time, the State of Wyoming will conduct a review of the regulatory authority implementing the Sage Grouse Core Area Strategy to determine if a State of Wyoming adaptive management strategy is warranted.

Upon review of the annual data by the AMWG and technical team, the State of Wyoming, as part of the AMWG, will contact neighboring states within the respective Management Zone to inform them of any findings. Should a hard trigger be tripped, the trigger which has been tripped and any recommended adaptive management strategy being implemented will be shared with the appropriate neighboring state(s). Should the need arise for implementation of a multi-state adaptive management strategy; the AMWG will coordinate to develop an effective response.

Small Leks

Small leks will be given special consideration. Due to geographic variations a definition of "small" is not provided, rather determination of "small" will be made by the AMWG based upon recommendations of the scientific community. Generally, "small" is considered 10 or fewer males for a three year time period within a five-year range of analysis. If a trigger is hit based upon such a lek, then the adaptive management working group will evaluate the site-specific circumstances and determine appropriate remedial action.

Glossary Terms

Additionality:
The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project. (BLM Manual Section 1794).

Avoidance mitigation:
Avoiding the impact altogether by not taking a certain action or parts of an action (40 CFR 1508.20(a)) (e.g., may also include avoiding the impact by moving the proposed action to a different time or location).

Compensatory mitigation:
The restoration, creation, enhancement, and/or preservation of impacted resources (adopted and modified from 33 CFR 332), such as on-the-ground actions to improve and/or protect habitats (e.g., chemical vegetation treatments, land acquisitions, conservation easements.

Compensatory mitigation projects:
Specific, on-the-ground actions to improve and/or protect habitats (e.g., chemical vegetation treatments, land acquisitions, conservation easements).

Compensatory mitigation sites:
The durable areas where compensatory mitigation projects will occur.

Durability (protective and ecological):
The maintenance of the effectiveness of a mitigation site and project for the duration of the associated impacts, which includes resource, administrative/legal, and financial considerations.

Minimization mitigation:
Minimizing impacts by limiting the degree or magnitude of the action and its implementation (40 CFR 1508.20 (b)).

Residual impacts:
Impacts from an authorized land use that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Timeliness:
The lack of a time lag between impacts and the achievement of compensatory mitigation goals and objectives (BLM Manual Section 1794).

Appendix E. Laws, Regulations, Policies, and Guidance

This appendix lists the various laws, regulations, policies, and directives applicable to management of Bureau of Land Management-administered lands within the planning area, including the following:

- Table E.1, "Federal Laws and Statutes" (p. 335);
- Table E.2, "Bureau of Land Management Regulations and Policies" (p. 338);
- Table E.3, "Applicable Wyoming State Laws and Regulations" (p. 343); and
- Table E.4, "Memoranda and Agreements" (p. 344).

Please note the lists of laws, regulations, policies, and directives included in this appendix are not all inclusive.

Table E.1. Federal Laws and Statutes

Federal Law or Statute	Year
Acquired Lands Act – Act of August 7, 1947; 61 Stat. 913	1947
Act of April 23, 1932; 47 Stat. 136	1932
Act of August 13, 1954 (68 Stat. 708, 30 U.S.C. 521 subpart)	1954
Act of July 23, 1955 (Pub. L. 167; 43 CFR 3710)	1955
Act of June 30, 1950 (16 U.S.C. 508(C) and (e))	1950
Act of October 30, 1978 (92 Stat. 2073-2075)	1978
Act of September 1, 1949, Section 3 (30 U.S.C. 192c)	1949
Act of September 28, 1962 (Pub. L. 87-713, 76 Stat. 652)	1962
American Indian Religious Freedom Act (42 U.S.C. 1996)	1978
Antiquities Act (P.L. 59-209; 34 Stat. 225; 16 U.S.C. 431-433)	1906
Archaeological Resources Protection Act (P.L. 96-95; 93 Stat. 721; 16 U.S.C. 47Oaa et seq.) as amended (P.L. 100-555; P.L. 100-588)	1979
Archeological and Historic Preservation Act (16 U.S.C. 469-469c-1, P.L. 86-523, 74 Stat. 220, 88 Stat. 174)	1974
Archeological and Paleontological Salvage for Federal Highway Projects (23 U.S.C. 305; 72 Stat. 913 (1958), 74 Stat. 525 (1960)	1960
Bald Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250)	1940
Carey Act of August 18, 1894 as amended (43 U.S.C. 641 et seq.)	1894
Carlson-Foley Act of 1968 (42 U.S.C. 1241-1243)	1968
Classification and Multiple Use Act of September 19, 1964 (78 Stat. 986, 43 U.S.C. 1411–18)	1964
Clean Air Act, as amended	1963
Coastal Zone Management Act (P.L. 92-583, 16 U.S.C. 1451-1456)	1972
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601)	1980
Department of the Interior Secretarial Order 3226, Climate Change and the Department of the Interior	2001
Department of the Interior Secretarial Order 3336, Rangeland Fire Prevention, Management and Restoration	2015
Desert Land Act (19 Stat. 377; 43 U.S.C. 321-323), as amended	1877
Domestic Minerals Program Extension Act	1953
Earl Douglass, 44 L.D. 325, August 6, 1915	1915
Economy Act 1932, as amended, (P.L. 72-211; 47 Stat. 417; 31 U.S.C. 686)	1932
Emergency Planning and Community Right-to-Know Act (42 U.S.C. 11001-11050)	1986
Emergency Wetland Resources Act	1986
Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884), as amended	1973

Federal Law or Statute	Year
Energy Independence and Security Act	2007
Energy Policy Act (P.L. 109–58)	2005
Executive Order – Public Water Reserve 107	1926
Executive Order 10355 – Delegating to the Secretary of the Interior the Authority of the President to withdraw or reserve lands of the United States for public purposes	1952
Executive Order 11514 – Protection and Enhancement of Environmental Quality	1970
Executive Order 11593 – Protection and Enhancement of the Cultural Environment	1971
Executive Order 11644 – Use of Off-Road Vehicles on the Public Lands	1972
Executive Order 11738 – Administration of the Clean Air Act and the Federal Water Pollution Control Act	1973
Executive Order 11987 – Exotic Organisms	1977
Executive Order 11988 – Floodplain Management	1977
Executive Order 11989 – Off-road Vehicles on Public Lands	1977
Executive Order 11990 – Protection of Wetlands	1977
Executive Order 11991 – Relating to protection and Enhancement of Environmental Quality	1977
Executive Order 12088 – Federal Compliance with Applicable Pollution Control	1978
Executive Order 12580 – Superfund Implementation and 13016 – Amendment to Executive Orders 12580	1987 and 1996
Executive Order 13007 – Indian Sacred Sites	1996
Executive Order 13084 – Consultation and Coordination with Indian Tribal Governments	1998
Executive Order 13112 – Invasive Species	1999
Executive Order 13148 – Greening of the Government through Leadership in Environmental Management	2000
Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments	2000
Executive Order 13816 – Responsibilities of Federal Agencies to Protect Migratory Birds	2001
Executive Order 13195 – Trails for America in the 21st Century	2001
Executive Order 13212 – Actions to Expedite Energy-Related Projects	2003
Executive Order 13287 – Preserve America	2003
Executive Order 6910 and Executive Order 6964, and amendments	1934
Federal Aid Highway Act (23 U.S.C. 107(d) and 317)	1958
Federal Cave Resources Preservation Act (16 U.S.C. 4301 – 4309)	1988
Federal Coal Leasing Amendments Act (90 Stat. 1083-1092), as amended	1976
Federal Coal Management Program Coal Screening Process (43 Code of Federal Regulations [CFR] 3420.1-4)	1997
Federal Facilities Compliance Act of 1992	1992
Federal Land Policy and Management Act	1976
Federal Lands Recreation Enhancement Act	2004
Federal Noxious Weed Act of 1974 (section 15), as amended (7 U.S.C. 2801 et seq.); the first section and section 15 of that Act (7 U.S.C. 2801 note and 7 U.S.C. 2814)	1974
Federal Oil and Gas Royalty Management Act	1982
Federal Plant Pest Act (7 U.S.C. 150aa et seq.)	1957
Federal Property and Administrative Services Act of 1949	1949
Federal Water Pollution Control Act (33 U.S.C. 1251 - 1376), as amended	1948
Federal Water Projects Recreation Act (16 U.S.C 460(L)(12)- 460(L)(21)), as amended	1965
Federal Wildland Fire Management Policy	2001
Fish and Wildlife Conservation Act (16 U.S.C. 2901-2911)	1980
Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-667e), as amended	1934
Food Security Act of 1985 (16 U.S.C. 3801-3862)	1985
General Allotment Act, Section 4 (25 U.S.C 334), as amended	1887
General Mining Law of 1872, as amended	1872
Healthy Forests Restoration Act (P.L. 108-148)	2003
Historic Sites Act of 1935 (16 U.S.C. 461 et seq.)	1935
Independent Offices Appropriation Act of 1952 (31 United States Code [U.S.C.] 9701)	1952
Lacey Act (18 U.S.C. 42), as amended	1988

Federal Law or Statute	Year
Land and Water Conservation Act, as amended (16 U.S.C. 4601-4)	1965
Lode Law Act of 1866 (14 Statute 251)	1866
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715r)	1929
Migratory Bird Treaty Act of 1918 (16 U.S.C. 703 et seq.)	1918
Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. 351 et seq.)	1947
Mineral Leasing Act of 1920, as amended (30 U.S.C. 181 et seq.)	1920
Mining and Mineral Policy Act of 1970 (30 U.S.C. 181 et seq.)	1970
Mining Claim Rights Restoration Act (30 U.S.C. 621-625)	1955
Multiple Mineral Development Act of August 13, 1954 (30 U.S.C. 521-531 et seq.)	1954
National Environmental Policy Act	1969
National Fire Plan	2000
National Historic Preservation Act of 1966 (16 U.S.C. 470)	1966
National Trails System Act (16 U.S.C. 1241-1249), as amended	1968
National Materials and Minerals Policy, Research and Development Act of 1980 (Pub. L. 96-479, 94 Stat. 2305)	1980
National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300)	1998
National Parks and Recreation Act of 1978 (16 U.S.C. 1242 and 1243)	1978
National Trails System Act of 1968 (16 U.S.C. 1241 et seq.), as amended	1968
National Wild & Scenic Rivers Act (16 U.S.C. 1271 et seq.)	1968
Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq.)	1990
Naval Petroleum Reserves Production Act (43 CFR 2361.1(f))	1976
Neotropical Migratory Bird Conservation Act (P.L. 106-247)	2000
Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 et seq.)	1990
Noxious Weed Control Act of 2004 (P.L. 108-412)	2004
O&C Lands Act of 1937 (62 Stat. 162)	1948
Occupational Safety and Health Act (29 U.S.C. 651 et seq.)	1970
Oil Pollution Act (33 U.S.C. 2701 et seq.)	1990
Paleontological Resources Preservation Act of 2009 (P.L.111–11)	2009
Placer Law - Act of July 9, 1870 (16 Stat. 217)	1870
Plant Protection Act (7 U.S.C. 7701-7772)	2000
Pollution Prevention Act (42 U.S.C. 13101)	1990
Public Range Improvement Act (43 U.S.C. 1901 et seq.)	1978
Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.)	1978
Reorganization Plan No. 3 of 1946 (5 U.S.C. Section 402)	1946
Reservoir Salvage Act of 1960 (16 U.S.C. 469), as amended by Archeological and Historic Preservation Act of 1974	1960
Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.) and the Bevill Amendment (Section 3001(b) (3) (A) (ii) and 40 CFR 261.4(b)(7))	1976
Riparian-Wetlands Initiative for the 1990s, The U.S. Department of the Interior, Bureau of Land Management, January 22, 1992	1992
Rivers and Harbors Act of 1899 (10 U.S.C. 1899, Section 10)	1899
Safe Drinking Water Act, as amended 1977 (Pub. L. 95-190; 42 U.S.C. 201, 300 et seq.)	1977
San Juan Basin Wilderness Protection Act of 1984 (16 U.S.C. § 1132)	1984
Sikes Act of 1974, as amended (16 U.S.C. 670 et seq.)	1974
Soil and Water Resources Conservation Act of 1977 (16 U.S.C. 2001 et seq.)	1977
Soil Conservation and Domestic Allotment Act of 1935, as amended (16 U.S.C. 590)	1935
Soil Information Assistance for Community Planning and Resource Development Act of 1966 (42 U.S.C. 3271)	1966
Stock Raising Homestead Act of 1916 as amended (43 U.S.C. 299)	1916
Surface Mining Control and Reclamation Act (30 U.S.C. 1201 et seq.)	1977
Surface Resources Act of 1955 (30 U.S.C. 611-614)	1955
The Act of June 28, 1934; Section 7 (43 U.S.C. 315f), as amended	1934
The Airport and Airway Improvement Act, Section 516 (49 U.S.C. 2215)	1982

Federal Law or Statute	Year
The Department of Energy Organization Act (42 U.S.C. 7101 et seq.)	1977
The Engle Act (43 U.S.C. 155 et seq.)	1958
The Geothermal Steam Act of 1970 (30 U.S.C. 1001 et seq.), as amended	1970
The Land and Water Conservation Fund (43 U.S.C. 460 et seq.)	1965
The Materials Act of July 31, 1947 (30 U.S.C. 601-604), as amended	1947
The Mining and Minerals Policy Act of 1970	1970
The Multiple Mineral Development Act (30 U.S.C. 521-531 et seq.)	1954
The Recreation and Public Purposes Act (43 U.S.C. 869), as amended in 1988	1926
The Wilderness Act of 1964 (16 U.S.C. 1131), as amended	1964
Toxic Substance and Control Act of 1976 (PL104-66), as amended in 1995	1976
U.S. v. Peck, No. 97-8122, 1999 WL 33022	1999
Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management	2000
U.S. Onshore Orders: Onshore Order No. 1 – Approval of operations on onshore Federal and Indian oil and gas leases Onshore Order No. 2 – Onshore oil and gas drilling operations on Federal and Indian oil and gas leases Onshore Order No. 3 – Site security on Federal oil and gas leases Onshore Order No. 4 – Measurement of oil on Federal oil and gas leases Onshore Order No. 5 – Measurement of gas on Federal oil and gas leases Onshore Order No. 6 – Hydrogen sulfide operations on Federal oil and gas leases Onshore Order No. 7 – Disposal of produced water from Federal oil and gas leases	2007 1988 1989 1989 1989 1991 1993
Water Quality Act of 1987, as amended from the Federal Water Pollution Control Act of 1977 (Clean Water Act) as amended (33 U.S.C. 1251 et seq.)	1987
Water Resources Development Act	1974
Water Resources Planning Act (42 U.S.C. 1962a - 1962(a)(4)(e)), as amended	1965
Watershed Protection and Flood Protection Act, as amended (16 U.S.C. 1001 et seq.)	1954
Watershed Restoration and Enhancement Agreements ("Wyden Amendment") (Public Law (PL)-104-208, Sec. 124, PL 10-5-277, Sec. 136 of the 1999 Interior Appropriations Act of 1998)	1998
Wild and Free Roaming Horse and Burro Act (P.L. 92-195)	1971
Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.)	1968

Table E.2. Bureau of Land Management Regulations and Policies

BLM Directive	Year
Abandoned Mine Lands (AML) National Strategic Plan	2006
Applications for Permit to Drill (APD)	2007
Applications for Permit to Drill Fees	2007
BLM National Greater Sage-Grouse Habitat Conservation Strategy	2004
BLM National Greater Sage-Grouse Planning Strategy Charter	2011
BLM Policy Statement on Riparian Area Management	1987
BLM Wyoming Riparian Management Activity Guide	1991
BLM Wyoming Sensitive Species Policy and List	2002
Cave Management (43 CFR 37.4(c)) and (37.11(c)(3)(iii))	1988
Competitive Leasing (43 CFR 3120)	2002
Delegation of Authority, Cooperative Agreements, & Contracts for Oil & Gas Inspection (43 CFR 3190)	1987
Federal Coal Management Program Regulations (43 CFR Group 3400)	1979
Federal Manual for Identifying and Delineating Jurisdictional Wetlands	1991
Fish and Wildlife 2000 BLM National, State and District policies	2000
Geothermal Resource Leasing (43 CFR 3200)	1998
Geothermal Resources Unit Agreements (43 CFR 3280)	1973
Grazing Administration Range Improvements and Water Rights (43 CFR 4100 et seq.)	2002 (revised)
Handbook H-1112-2, Safety and Health for Field Operations Manual	1998

BLM Directive	Year
Handbook H-1601-1, Land Use Planning	2005
Handbook H-1703-1, Response Actions NCP/CERCLA	2001
Handbook H-1734-1, Interagency Ecological Site Handbook for Rangelands	2013
Handbook H-1740-2, Integrated Vegetation Management	2008
Handbook H-1741-1, Fencing	1989
Handbook H-1741-2, Water Developments	1990
Handbook H-1742-1, Burned Area Emergency Stabilization and Rehabilitation Handbook	2007
Handbook H-1745-1, Introduction, Transplant, Augmentation and Reestablishment of Fish, Wildlife & Plants	2001
Handbook H-1790-1, National Environmental Policy Act	2008
Handbook H-2101-4, Pre-Acquisition Environmental Site Assessments	2000
Handbook H-2101-5, Environmental Site Assessments for Disposal of Real Property	2004
Handbook H-2200-1, Land Exchange Handbook	2005
Handbook H-3042-1, Solid Minerals Reclamation Handbook	1992
Handbook H-3101-1, Issuance of Leases	1987
Handbook H-3109-1, Leasing under Special Acts	1995
Handbook H-3110-1, Noncompetitive Leases	1993
Handbook H-3120-1, Competitive Leases (Revised)	2013
Handbook H-3150-1, Onshore Oil and Gas Geophysical Exploration Surface Management Requirements	2007
Handbook H-3160-9, Communitization	1988
Handbook H-3600-1, Mineral Materials Disposal	2002
Handbook H-3720-1, Abandoned Mine Land Program Policy	2007
Handbook H-3809-1, for Mineral Examiners, v. 3-332, Sept., 11, 2007	2007
Handbook H-3809-3, Validity Mineral Reports, June 1969	1969
Handbook H-4180-1, Rangeland Health Standards	2001
Handbook H-4700-1, Wild Horses and Burros Management Handbook	2010
Handbook H-8120-1, General Procedural Guidance for Native American Consultation	2004
Handbook H-8270-1, General Procedural Guidance for Paleontological Resource Management	1998
Handbook H-8342, Travel and Transportation Handbook	2012
Handbook H-9011, Chemical Pest Control	2013
Handbook H-9112, Bridges and Major Culverts	2011
Handbook H-9113-1, Roads Design Handbook	2011
Handbook H-9211-1, Fire Planning Handbook	2012
Instruction Memorandum 1989-201, Legal Responsibilities of BLM for Oil and Gas Leasing and Operations on Split Estate Lands	1989
Instruction Memorandum 99-039, Issuance of Grazing Permits in Compliance with Applicable Laws, Regulations and Policy	1999
Instruction Memorandum 1999-076, Policy on the Use of Certified Weed-Free Hay, Straw, and Mulch on BLM Lands	1999
Information Bulletin 2002-101, Cultural Resource Considerations in Resource Management Plans	2002
Instruction Memorandum 2002-034, Recent Changes in Management Direction: Federal Wildland Fire Management Policy, National Fire Plan	2002
Instruction Memorandum 2002-164, Guidance to Address Environmental Justice (EJ) in Land Use Plans and Related National Environmental Policy Act (NEPA) Documents	2002
Instruction Memorandum 2002-196, Right-of-Way Management-Land Use Planning	2002
Instruction Memorandum 2003-020, Interim Wind Energy Development Policy	2003
Instruction Memorandum 2003-131, Permitting Oil and Gas on Split Estate Lands and Guidance for Onshore Oil and Gas Order No. 1	2003
Instruction Memorandum 2003-147, Application for Permit to Drill – Process Improvement #3 – Cultural Resources	2003
Instruction Memorandum 2005-003, Cultural Resources and Tribal Consultation for Fluid Minerals Leasing	2005

BLM Directive	Year
Instruction Memorandum 2005-014, Water Disposal and Land Application Disposal (LAD) in the Powder River Basin	2005
Instruction Memorandum 2005-069, Offsite Compensatory Mitigation Guidelines	2005
Instruction Memorandum 2005-176, Filing of Protests on lands Included in Oil and Gas Lease Sales	2005
Instruction Memorandum 2005-210, Energy Policy and Conservation Act (EPCA) Inventory – Data Compilation for Phases III and IV	2005
Instruction Memorandum 2005-227, NHPA Section 106 and Oil and Gas Permitting	2005
Instruction Memorandum 2005-247, National Environmental Policy Act (NEPA) Compliance for Oil, Gas, and Geothermal Development	2005
Instruction Memorandum 2006-071, Process Improvement for Oil, Gas, Geothermal, Geophysical, and Related Rights-of-Way Approvals	2006
Instruction Memorandum 2006-073, Weed-Free Seed Use on Lands Administered by the Bureau of Land Management	2006
Instruction Memorandum 2006-145, Cooperative Conservation Based Strategic Plan for the Abandoned Mine Lands Program	2006
Instruction Memorandum 2006-060, Incorporating Benefits-Based Management within Recreation and Visitor Services Program Policy Change	2006
Instruction Memorandum 2006-197, BLM Energy and Non-Energy Mineral Policy	2006
Instruction Memorandum 2006-206, Oil and Gas Bond Adequacy Reviews	2006
Instruction Memorandum 2006-216, Wind Energy Development Policy	2006
Instruction Memorandum 2007-043, A Unified Strategy to Implement "BLM's Priorities for Recreation and Visitor Services" Workplan (Purple Book)	2007
Instruction Memorandum 2007-096, Refinement of the Methodology to Identify Abandoned Mine Land Sites Near Populated Places and High Use Areas	2007
Instruction Memorandum 2007-097, Solar Energy Development Policy	2007
Instruction Memorandum 2008-009, Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands	2007
Instruction Memorandum 2008-014, Clarification of Guidance and Integration of Comprehensive Travel and Transportation Management Planning into Land Use Planning	2008
Instruction Memorandum 2008-030, Instructions for Implementing the Final Programmatic Environmental Impact Statement (Final PEIS) Record of Decision	2008
Instruction Memorandum 2008-032, Exceptions, Waivers, and Modifications of Fluid Minerals Stipulations and Conditions of Approval, and Associated Rights-of-way Terms and Conditions	2007
Instruction Memorandum 2008-190, Ensuring Compliance with all Abandoned Mine Lands (AML) Program Policies and Procedures	2008
Instruction Memorandum 2009-011, Assessment and Mitigation of Potential Impacts to Paleontological Resources	2008
Instruction Memorandum 2009-113, Casual Collecting of Common Invertebrate and Plant Paleontological Resources under the Paleontological Resources Preservation Act of 2009	2009
Instruction Memorandum 2009-018, Process for Setting Priorities for Issuing Grazing Permits and Leases	2008
Instruction Memorandum 2009-039, Transmittal of Revised 6840 Special Status Species Manual and Direction for State Directors to Review and Revise Existing Bureau Sensitive Species Lists	2009
Instruction Memorandum 2009-043, Wind Energy Development Policy	2009
Instruction Memorandum 2009-078, Processing Oil and Gas Applications for Permit to Drill for Directional Drilling into Federal Mineral Estate from Multiple-Well Pads on Non-Federal Surface and Mineral Estate Locations	2009
Instruction Memorandum 2009-153, Financial Guarantees for Notices and Plans of Operations	2009
Instruction Memorandum 2010-022, Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken	2010
Instruction Memorandum 2010-088, Guidance on 43 CFR 3809.100 and its Application	2010
Instruction Memorandum 2010-113, Areas of Critical Environmental Concern Boundary Data Standard	2010

BLM Directive	Year
Instruction Memorandum 2010-117, Oil and Gas Leasing Reform Land Use Planning and Lease Parcel Reviews	2010
Instruction Memorandum 2010-181, White-nose Syndrome	2010
Instruction Memorandum 2011-004, Transmittal of Revised Recreation and Visitor Services Land Use Planning Guidance	2010
Instruction Memorandum 2012-043, Greater Sage-Grouse Interim Management Policies and Procedures	2011
Instruction Memorandum 2012-044, BLM National Greater Sage-Grouse Land Use Planning Strategy	2011
Instruction Memorandum 2012-067, Clarification of Cultural Resource Considerations for Off-Highway Vehicle Designations and Travel Management	2012
Instruction Memorandum 2012-140, Collecting Paleontological Resources Under the Paleontological Resources Preservation Act of 2009	2012
Instruction Memorandum 2012-141, Confidentiality of Paleontological Locality Information Under the Omnibus Public Lands Act of 2009	2012
Instruction Memorandum 2012-169, Resource Management Plan Alternative Development for Livestock Grazing	2012
Instruction Memorandum 2013-106, Bureau of Land Management Manual No. 6310 and 6320 - Additional Guidance Regarding Public and Cooperating Agency Involvement in and Access to Wilderness Characteristics Inventory Information and the Land Use Planning Process	2013
Instruction Memorandum 2013-128, Sage-Grouse Conservation in Fire Operations and Fuels Management	2013
Instruction Memorandum 2013-142, Interim Policy, Draft - Regional Mitigation Manual Section - 1794	2013
Instruction Memorandum 2013-184, Relinquishment of Grazing Permitted Use on the Bureau of Land Management Administered Lands	2013
Instruction Memorandum WY-98-061, Guidance for Water Quality Assessment and Monitoring for the Implementation of Standard Number Five of the Wyoming Standards for Healthy Rangelands and Guidelines for Livestock Grazing	1998
Instruction Memorandum WY-2001-040, Issuance of BLM (Wyoming) Sensitive Species Policy and List	2001
Instruction Memorandum WY-2003-011	2002
Instruction Memorandum WY-2005-034, Travel Management Guidelines for the Public Lands in Wyoming	2005
Instruction Memorandum WY-2005-046, Conservation Measures and Best Management Practices for the Management of Potential Gray Wolf Habitat	2005
Instruction Memorandum WY-2005-058, Conservation Measures and Best Management Practices for the Management of Potential Canada Lynx Habitat	2005
Instruction Memorandum WY-2006-009, Mass Appraisal – Wyoming Minimum Rental Rates (Small Site Appraisals) – Appraisal Services Directorate	2006
Instruction Memorandum WY-2006-037, Conservation Measures and Best Management Practices for the Management of Potential Black-footed Ferret Habitat	2006
Instruction Memorandum WY-2006-049, Conservation Measures and Best Management Practices for the Management of Grizzly Bear Habitat	2006
Instruction Memorandum WY-2007-018, Conservation Measures and Best Management Practices for the Management of Mountain Plover Habitat	2007
Instruction Memorandum WY-2010-012, Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management Administered Public Lands including the Federal Mineral Estate	2010
Instruction Memorandum WY-2010-013, Oil and Gas Leasing Screen for Greater Sage-Grouse	2010
Instructional Memorandum WY-2012-019, Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management Administered Public Lands Including the Federal Mineral Estate	2011
Instruction Memorandum WY-2012-032, Wyoming BLM Reclamation Policy	2012

BLM Directive	Year
Instruction Memorandum WY-2013-046, Transmittal of Mineral Materials Memorandum of Understanding	2013
Instruction Memorandum WY-87-672, August 26, 1987	1987
Instruction Memorandum WY-89-402, Inspection and Enforcement Program for Locatable Minerals Activities	1989
Instruction Memorandum WY-97-111, Report of Conformance of BLM Land Use Plans with the Standards and Guidelines on the Public Lands; Follow-up Maintenance of Land Use Plans	1997
Instruction Memorandum WY-99-20, Complying with Section 106 in Conformance with IM-99-039	1999
Manual Section 1601, Land Use Planning	2000
Manual Section 1613, Areas of Critical Environmental Concern	1988
Manual Section 1626, Travel and Transportation Manual	2011
Manual Section 1703, Hazardous Materials Management	2007
Manual Section 1734, Rangeland Interagency Ecological Site Manual	2010
Manual Section 1740, Renewable Resource Improvements and Treatments	2008
Manual Section 1745, Introduction, Transplant, Augmentation & Reestablishment of Fish, Wildlife & Plants	1992
Manual Section 2220, Land Exchanges	2005
Manual Section 2800, Cadastral Surveys – General	1985
Manual Section 2880, Mineral Leasing Act Rights-of-Way, Glossary of Terms	2012
Manual Section 3060, Mineral Reports – Preparation and Review, April 7, 1994	1994
Manual Section 3809, Surface Management (1985, revised 2001, 2012)	2012
Manual Section 4100, Grazing Administration – Exclusive of Alaska	2009
Manual Section 4180, Land Health	2001
Manual Section 4700, Wild Free-Roaming Horses and Burros Management	2010
Manual Section 3600, Mineral Materials Disposal	2013
Manual Section 6250, National Scenic and Historic Trail Administration	2012
Manual Section 6280, Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation	2012
Manual Section 6301, Wilderness Characteristics Inventory	2011
Manual Section 6310, Conducting Wilderness Characteristics Inventory on BLM Lands	2012
Manual Section 6320, Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process	2012
Manual Section 6330, Management of Wilderness Study Areas	2012
Manual Section 6400, Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, Planning, and Management	2012
Manual Section 6500, Manual of Wildlife, Fish and Plant Resources	2002
Manual Section 6840, Special Status Species Management	1988
Manual Section 6840, Special Status Species Policy	2008
Manual Section 7240, Water Quality	1978
Manual Section 7250, Water Rights	1984
Manual Section 7300 Air Resource Management Program Manual	2009
Manual Section 8100, Cultural Resource Management	2004
Manual Section 8110, Identifying Cultural Resources	2004
Manual Section 8120, Tribal Consultation Under Cultural Resource Authorities	2004
Manual Section 8130, Planning for Uses of Cultural Resources	2004
Manual Section 8140, Protecting Cultural Resources	2004
Manual Section 8160, Native American Consultation and Coordination	1990
Manual Section 8270, Paleontological Resource Management	1998
Manual Section 8340, Off-Road Vehicles	1982
Manual Section 8341, Conditions of Use (Off-Road Vehicles)	1979
Manual Section 8342, Designation of Roads and Trails	1988
Manual Section 8343, Vehicle Operations	1979
Manual Section 8344, Permits	1979

BLM Directive	Year
Manual Section 8380, Cave and Karst Resources Management	2008
Manual Section 8400, Visual Resource Management	1980
Manual Section 8410-1, Visual Resource Inventory	1986
Manual Section 8431-1, Visual Resource Contrast Rating	1986
Manual Section 9112, Bridges and Major Culverts	2011
Manual Section 9113, Roads Manual	2011
Manual Section 9211, Fire Planning Manual	2012
Mineral Leasing Act of 1920 (43 CFR 2006 3425.1-7(a)(2)(iv, v))	1920
Mineral Leasing Act of 1920 (43 CFR 2006 3461.5(h)(2)(i))	1920
Mineral Leasing Act of 1920 (43 CFR From 3100-11 (July 2006), 43 CFR Part 3160)	1920
Mineral Leasing Act of 1920 and others (43 CFR 2006 3591.1(b)(10))	1920
Mineral Leasing Act of 1920 and others (43 CFR 2006 3430.4-4(a)(10); 43 CFR 2006 3430.4-4(b)(8))	1920
Minerals Management, Generally (43 CFR 3000)	1983
National Contingency Plan Regulations (40 CFR 300)	1994
National Management Strategy for Motorized Off-highway Vehicle Use on BLM Public Lands	2001
National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties	1990
Natural Resource Damage Assessment Regulations (43 CFR Part 11)	1986
Noncompetitive Leasing (43 CFR 3110)	1988
Off-Road Vehicle Implementation Strategy Washakie Resource Area	1994
Oil and Gas Leasing (43 CFR 3100)	1983
Onshore Oil and Gas Geophysical Exploration (43 CFR 3150)	1988
Onshore Oil and Gas Operations (43 CFR 3160)	1982
Onshore Oil and Gas Unit Agreements; Unproven Areas (43 CFR 3180)	1983
Permits for Recreation on Public Lands (43 CFR 2930)	2004
Riparian-Wetlands Initiative for the 1990's, The U.S. Department of the Interior, Bureau of Land Management	1992
Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming	2004
Standards for Healthy Rangelands, Standard #2	1997
Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book	2007
Technical Reference 1734-6 Version 4: Interpreting Indicators of Rangeland Health	2005
Technical Reference 1737 Series: Riparian Area Management Assessing Proper Functioning Condition (PFC) for Lotic and Lentic areas	1998
The Standards for Healthy Rangelands and Guidance for Livestock Grazing Management (43 CFR 4180)	1997
Wyoming BLM Coal/Coal Bed Methane Policy	2000
Wyoming Bureau of Land Management Soil Program Ten Year Strategy	2003

Table E.3. Applicable Wyoming State Laws and Regulations

Wyoming State Laws and Regulations
State of Wyoming Occupational Health and Safety Rules and Regulations
State of Wyoming Oil and Gas Conservation Commission Rules and Regulations
Wyoming Department of Environmental Quality Rules and Regulations
Wyoming State Engineer's Office Statutes, Rules and Regulations
State of Wyoming Water Quality Rules and Regulations
Wyoming Executive Order 2013-3, Greater Sage-Grouse Core Area – Grazing Adjustments
Wyoming Executive Order 2015-4, Greater Sage-Grouse Core Area Protection

Table E.4. Memoranda and Agreements

Memoranda and Agreements	Description	Year
Assistance agreement KAA990028-Abandoned Mine Land (AML) Reclamation Agreement	The AML program in Wyoming currently operates pursuant to this assistance agreement between the Wyoming State Office of the Bureau of Land Management (BLM) and the Wyoming Department of Environmental Quality (DEQ). It provides for the cooperative effort between the two agencies for a long-term relationship to efficiently and economically plan for, and share responsibilities to ensure, effective abandoned mine land reclamation on public lands in Wyoming.	
Association of Fish and Wildlife Agencies (AFWA), United States Forest Service (USFS), BLM, United States Fish and Wildlife Service (USFWS)	Policies and guidelines for fish and wildlife management in National Forest and BLM Wilderness.	2006
BLM Memorandum of Understanding WO-300-2006-07, April 2006	Facilitate interagency coordination and establish policies and procedures to implement Section 225 of the Energy Policy Act of 2005.	2006
BLM Memorandum of Understanding WO-230-2010-04	Between the U.S. Department of the Interior, BLM and the USFWS to Promote the Conservation of Migratory Birds.	2010
Memorandum of Understanding among federal land managers and EPA on oil and gas development and NEPA	Memorandum of Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior (DOI), and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process.	2011
Clean and Diversified Energy Initiative	Recommends initiatives to facilitate the timely leasing and permitting of geothermal resources.	2005
Cooperative Agreements with Weed and Pest Districts: Big Horn County, Hot Springs County, Park County, Washakie County	Details cooperative efforts for noxious weed control on BLM-administered lands by the county weed and pest districts.	
Cooperative Management Agreement between BLM, Worland District, LU Sheep Company, Wyoming Game and Fish Department (WGFD), Wyoming State Board of Land Commissioners	Details cooperative efforts for road and motor vehicle management for the benefit of watershed and big game within the upper Grass and Enos creek drainages.	1989

Memoranda and Agreements	Description	Year
Cooperative Management Agreement between BLM, Worland District, WGFD, Wyoming State Board of Land Commissioners, Double-H Ranch	Details cooperative efforts for road and motor vehicle management for the benefit of watershed and big game within the upper Grass, Enos, Lefthand and Middle creek drainages.	June 1994
Double H Ranch Access Area	BLM, Double H Ranch, WG&F – Public Access.	
Grass Creek Travel Management Area	BLM, Wyoming State Board of Land Commissioners, WGFD, LU Sheep Company, Travel Management in Grass Creek area.	
Interagency Agreement between the USFS and the BLM	Establishes procedures for the administration of oil and gas operations on federal leases within the National Forest System.	2006
Interagency between BLM and Bureau of Reclamation Agreement	The BLM has jurisdiction over NOIs to conduct geophysical exploration which involve Bureau of Reclamation (BOR) lands. The BOR will be contacted for their conditions of approval.	
Medicine Lodge Habitat Management Unit Areas	BLM, WGFD – Public Access.	
Memorandum of Agreement WY-117	Memorandum of Agreement among the BLM and the Wyoming Board of Land Commissioners, the Wyoming State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation, addresses cultural resource protection in state exchanges.	
Memorandum of Agreement WY-118	Memorandum of Agreement between the BLM and the Wyoming Board of Land Commissioners, addresses processing state exchanges.	
Memorandum of Agreement WY-119	Memorandum of Agreement between the BLM and the Agricultural Stabilization and Conservation Service (ASCS), addresses management of agricultural trespass.	
Memorandum of Agreement WY-121	Memorandum of Agreement between the BLM and the National Park Service, addresses management of the Oregon National Historic Trails.	
Memorandum of Agreement WY-122	Memorandum of Agreement among the BLM and the USFS, Wyoming Department of Public Lands, Wyoming Game and Fish Commission, Wyoming Recreation Commission, Wyoming Department of Agriculture, and the Wyoming State Planning Coordinator's Office, addresses access to public land.	
Memorandum of Agreement WY-131	Memorandum of Agreement between the BLM and the WGFD, addresses overall coordination on land and resource management.	
Memorandum of Agreement WY-19	Memorandum of Agreement between the BLM and the Wyoming Governor, addresses overall cooperation in public and state land management efforts.	
Memorandum of Agreement WY-20	Memorandum of Agreement between the BLM and the Wyoming Game and Fish Commission, addresses a myriad of land and resource management issues, including classifications, land acquisition and disposal, and access.	
Memorandum of Agreement WY-21	Memorandum of Agreement between the BLM and Region II and Region IV of the USFS, addresses overall coordination on a myriad of land and resource management issues.	
Memorandum of Agreement WY-63	Memorandum of Agreement among the BLM, the USFS, Wyoming Department of Public Lands and the Wyoming Game and Fish Commission, addresses public land access and management of access problems.	
Memorandum of Agreement WY-65	Memorandum of Agreement between the BLM and the ASCS, addresses overall coordination on a myriad of land and resource management issues.	

Memoranda and Agreements	Description	Year
Memorandum of Agreement WY-7	Memorandum of Agreement between the BLM and the Wyoming Recreation Commission; addresses land classifications and withdrawals to protect public lands generally, and specifically to protect historic trails.	
Memorandum of Agreement WY-77	Memorandum of Agreement among the BLM, the ASCS, USFS, AES, and Wyoming State Conservation Commission, addresses overall coordination on conservation planning projects.	
Memorandum of Agreement WY930-91-06-38	Memorandum of Agreement between the BLM and the Wyoming Board of Land Commissioners, addresses exchange pooling.	
Memorandum of Agreement WY930-91-06-39	Memorandum of Agreement between the BLM and the Wyoming Board of Land Commissioners, addresses exchange of state land in holdings in wilderness areas.	
Memorandum of Agreement, between the Wyoming DEQ and the State of Wyoming Oil and Gas Conservation Commission	Wyoming DEQ delegated permitting of road applications for oilfield wastes when the wastes are to be applied on the lease, unit, or communitized area. Wyoming DEQ still has the jurisdiction for permitting road application of oil field wastes outside of the lease, unit, or communitized area.	1999
Memorandum of Understanding between BLM and State of Wyoming Oil and Gas Conservation Commission	Outlines the handling of Notices of Intent (NOIs) to conduct geophysical exploration and sharing of information and compliance inspections. The State of Wyoming Oil and Gas Conservation Commission has jurisdiction over injection wells and spacing.	
Memorandum of Understanding between the BLM and the Department of Agriculture (60F26045-48)	Predator control protocols were formalized in this Interagency Memorandum of Understanding.	1995
Memorandum of Understanding BLM/ APHIS-Wildlife Services (ADC)	Detailing cooperative efforts between the two groups on suppression of grasshoppers and Mormon crickets on BLM lands (Document #03-8100-0870-MU, February 27, 2003), and local National Resource Conservation Service (NRCS).	2003
Memorandum of Understanding No. WY 19	Between the BLM and the Wyoming DEQ-Land Quality Division (LQD) and addresses Management Of Surface Mining and Exploration for Locatable Minerals On Public Lands. It was signed November 11, 2003. This is a Supplemental Memorandum to the General Statewide Memorandum of Understanding (Memorandum of Understanding) dated October, 1975, between the Governor of Wyoming and the United States, by and through the State Director, BLM, United States DOI.	2003
Memorandum of Understanding No. WY-920-1301	Between the BLM and the Wyoming DEQ-LQD for Management of Surface Mining and Exploration for Mineral Materials (Salable Minerals) on Public Lands, signed on September 11, 2013. This is a Supplemental Memorandum to the General Statewide Memorandum of Understanding (Memorandum of Understanding) dated October, 1975, between the Governor of Wyoming and the United States, by and through the State Director, BLM, United States DOI.	2013
Memorandum of Understanding WY920-02-09-108	Between the BLM, the Federal Highway Administration (FHWA), and the Wyoming Department of Transportation that defines each agency's responsibilities in regard to processing federal-aid highway appropriations.	2002

Memoranda and Agreements	Description	Year
Memorandum of Understanding WY920-08-07-192	Memorandum of Understanding WY920-08-07-192 between BLM, the FHWA, and the Wyoming Department of Transportation, addresses each agency's responsibilities in regard to processing federal-aid highway appropriations. To implement Sections 107(d) and 317 of the federal Aid Highway Act (23 U.S.C. 107(d) and 317), as amended, the agencies operate under this Memorandum of Understanding (updated in August 2007). All appropriations under the Federal Aid Highway Act are required to be consistent with the referenced Memorandum of Understanding.	2007
National Memorandum of Understanding between the BLM and the Department of Defense	This Memorandum of Understanding outlines procedures for processing NOIs to conduct geophysical operations when Air Force, Army, and Navy lands are involved. The Department of Defense will be the lead agency when their lands are involved in an NOI.	
Nowater Off-highway Vehicle (OHV) Trail System	BLM, Wyoming State Trails Program, Worland chamber of Commerce, Ten Sleep Chamber of Commerce.	
Programmatic Agreement Among BLM, the Advisory Council on Historic Preservation, and the National Conference of SHPOs	Regarding the Manner in which BLM will meet its Responsibilities Under the National Historic Preservation Act (NHPA).	2012
Public Access Area Agreements Between BLM and WGFD	Public access area agreements to numerous BLM parcels on South Fork, Shoshone, North Fork Shoshone, Clarks Fork of the Yellowstone River, and Luce and Hogan Reservoirs.	
Renner, Carter Billy Miles Tensleep Public Access Area	BLM, WGFD – Public Access.	
State Protocol Agreement Between the Wyoming BLM State Director and the Wyoming SHPO	Programmatic agreement among the BLM Advisory Council on Historic Preservation, and the national conference of SHPO regarding the manner in which BLM will meet its responsibilities under the NHPA.	2014
Western Association of Fish and Wildlife Agencies (WAFWA)/ USFS/BLM/USFWS Memorandum of Understanding (08-31-2000)	Involving the management of Greater Sage-Grouse and their habitat.	2000
Wyoming DEQ	There are currently no agreements between BLM and the State of Wyoming DEQ-LQD regarding exploration for or development of non-energy leasable minerals. Wyoming DEQ-LQD processes applications for these minerals under their "Non-Coal" rules and regulations. It is possible that the same Memorandum of Understanding between BLM and Wyoming DEQ-LQD for locatable minerals would have some valuable application should these two agencies need to work together to process applications related to non-energy leasable minerals.	
Yellowstone River Compact	Between the states of Wyoming, Montana, and North Dakota was agreed upon to create an equitable division and apportionment of such waters; this compact ultimately controls the future and current uses of water resources in the basin.	1950

This page intentionally
left blank

Appendix F. Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities

F.1. Introduction

Wyoming Mitigation Guidelines are a compilation of practices employed by Bureau of Land Management (BLM) to mitigate impacts from surface disturbance. They apply to activities such as, but not limited to, road or pipeline construction, range improvements, and permitted recreation activities. The guidelines are designed to protect resources such as soils and vegetation, wildlife habitat, and cultural or historic properties. The guidelines are presented as an appendix of this Approved Resource Management Plan (RMP) for easy reference as they apply to many resources and derive from many laws. All BLM RMPs have included these guidelines as appendices. The guidelines are not land use decisions; rather they are examples of mitigation measures that could be applied, as appropriate, based on site-specific National Environmental Policy Act (NEPA) analysis for individual proposals. Comment on the use and application of specific mitigation measures can be made during the NEPA process for individual proposals. Because mitigation measures change or are modified, based on new information, the guidelines are updated periodically for all field offices in Wyoming.

These guidelines are primarily for the purpose of attaining statewide consistency in how requirements are determined for avoiding and mitigating environmental impacts and resource and land use conflicts. Consistency in this sense does not mean that identical requirements would be applied for all similar types of land use activities that may cause similar types of impacts. Nor does it mean that the requirements or guidelines for a single land use activity would be identical in all areas.

The Environmental Impact Statement (EIS) for the RMP does not decide or dictate the exact wording or inclusion of these guidelines. Rather, the guidelines are used in the RMP EIS process as a tool to help develop the RMP alternatives and to provide a baseline for comparative impact analysis in arriving at RMP decisions. These guidelines will be used in the same manner in analyzing activity plans and other site-specific proposals. These guidelines and their wording are matters of policy. As such, specific wording is subject to change primarily through administrative review, not through the RMP EIS process. Any further changes that may be made in the continuing refinement of these guidelines and any development of program-specific standard stipulations will be handled in another forum, including appropriate public involvement and input.

F.2. Purpose

The purpose of the “Wyoming BLM Mitigation Guidelines” is to inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands. These guidelines have been written in a format that will allow for the addition of specific or specialized mitigation following the submission of a detailed plan of development or other project proposal, and an environmental analysis.

Those resource activities or programs currently without a standardized set of permit or operation stipulations can use the mitigation guidelines as stipulations or as conditions of approval, or as a baseline for developing specific stipulations for a given activity or program.

Because use of the mitigation guidelines was integrated into the RMP EIS process and will be integrated into the site-specific environmental analysis process, the application of stipulations or mitigation requirements derived through the guidelines will facilitate consistency with planning decisions at plan implementation.

F.3. Mitigation Guidelines

F.3.1. Surface Disturbance Mitigation Guideline

Surface disturbance will be controlled or prohibited in the following areas or conditions. For federal oil and gas lease operations, under 43 CFR 3101.1-2 and the terms of the lease (BLM Form 3100-11), the authorized officer may require reasonable measures to minimize adverse impacts to other resource values, land uses, and users not addressed in lease stipulations at the time operations are proposed. Such reasonable measures may include, but are not limited to, modification of siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. At a minimum, measures shall be deemed consistent with lease rights granted provided they do not: require relocation of proposed operations by more than 200 meters; require that operations be sited off the leasehold; or prohibit new surface-disturbing operations for a period in excess of 60 days in any lease year.

- Slopes in excess of 25 percent.
- Within important scenic areas (Class I and II Visual Resource Management Areas).
- Within 500 feet of surface water and/or riparian areas.
- Construction with frozen material or during periods when the soil material is saturated or when watershed damage is likely to occur.
- Within 500 feet of Interstate highways and 200 feet of other existing rights-of-way (i.e., U.S. and State highways, roads, railroads, pipelines, power lines).
- Within ¼-mile of occupied dwellings.

Guidance

The intent of the surface disturbance mitigation guideline is to inform interested parties (potential lessees, permittees, or operators) that when one or more of the above conditions exist, surface-disturbing activities will be prohibited unless or until a permittee or the designated representative and the surface management agency arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development.

Specific criteria (e.g., 500 feet from water) have been established based upon the best information available. However, geographical areas and time periods must be delineated at the field level.

F.3.2. Wildlife Mitigation Guideline

1. To protect important big game winter habitat, activities or surface use will not be allowed from November 15 to April 30 within certain areas encompassed by the authorization.

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

1. To protect important raptor and/or sage and sharp-tailed grouse nesting habitat, activities or surface use will not be allowed from February 1 to July 31 within certain areas encompassed by the authorization. The same criteria apply to defined raptor and game bird winter concentration areas from November 15 to April 30.

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

1. No activities or surface use will be allowed on that portion of the authorization area identified within (legal description) for the purpose of protecting (e.g., sage/sharp-tailed grouse breeding grounds, and/or other species/activities) habitat.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

1. Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name) which is a threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and United States Fish and Wildlife Service guidelines to verify the presence or absence of this species. In the event that (name) occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications).

Guidance

The Wildlife Mitigation Guideline is intended to provide two basic types of protection: seasonal restriction and prohibition of activities or surface use (2c). Item 2d is specific to situations involving threatened or endangered species. Legal descriptions will ultimately be required and should be measurable and legally definable. There are no minimum subdivision requirements at this time. The area delineated can and should be defined as necessary, based upon current biological data, prior to the time of processing an application and issuing the use authorization. The legal description must eventually become a part of the condition for approval of the permit, plan of development, and/or other use authorization.

The seasonal restriction section identifies three example groups of species and delineates three similar timeframe restrictions. The big game species including elk, moose, deer, pronghorn, and bighorn sheep, all require protection of crucial winter range between November 15 and April 30. Elk and bighorn sheep also require protection from disturbance from May 1 to June 30, when they typically occupy distinct calving and lambing areas. Raptors include eagles, accipiters, falcons (peregrine, prairie, and merlin), buteos (ferruginous and Swainson's hawks), osprey, and burrowing owls. Refer to Appendix N, *Seasonal Raptor Stipulations for All Surface-Disturbing*

and Disruptive Activities (p. 561) for additional information on raptor nesting and winter concentration periods.

Item 2c, the prohibition of activity or surface use, is intended for protection of specific wildlife habitat areas or values within the use area that cannot be protected by using seasonal restrictions. These areas or values must be factors that limit life-cycle activities (e.g., Greater Sage-Grouse strutting grounds, known threatened and endangered species habitat).

Exception, waiver, or modification of requirements developed from this guideline must be based upon environmental analysis of proposals (e.g., activity plans, plans of development, plans of operation, applications for permit to drill) and, if necessary, must allow for other mitigation to be applied on a site-specific basis.

F.3.3. Cultural Resource Mitigation Guideline

When a proposed land use has potential for affecting the characteristics which qualify a cultural property for the National Register of Historic Places (NRHP), mitigation will be considered. In accordance with Section 106 of the National Historic Preservation Act, procedures specified in 36 Code of Federal Regulation (CFR) 800 will be used in consultation with the Wyoming State Historic Preservation Officer and the Advisory Council on Historic Preservation in arriving at determinations regarding the need and type of mitigation to be required.

Guidance

The preferred strategy for treating potential adverse effects on cultural properties is "avoidance." If avoidance involves project relocation, the new project area may also require cultural resources survey. If avoidance is imprudent or unfeasible, appropriate mitigation may include excavation (data recovery), stabilization, monitoring, protection barriers and signs, or other physical and administrative measures.

Reports documenting results of cultural resources survey, evaluation, and the establishment of mitigation alternatives (if necessary) shall be written according to standards contained in BLM Manuals, the cultural resource permit stipulations, and in other policy issued by the BLM. These reports must provide sufficient information for Section 106 consultation. Reports shall be reviewed for adequacy by the appropriate BLM cultural resource specialist. If cultural properties on, or eligible for, the NRHP are located within these areas of potential impact and cannot be avoided, the authorized officer shall begin the Section 106 consultation process in accordance with the procedures contained in 36 CFR 800.

Mitigation measures shall be implemented according to the mitigation plan approved by the BLM authorized officer. Such plans are usually prepared by the land use applicant according to BLM specifications. Mitigation plans will be reviewed as part of Section 106 consultation for NRHP eligible or listed properties. The extent and nature of recommended mitigation shall be commensurate with the significance of the cultural resource involved and the anticipated extent of damage. Reasonable costs for mitigation will be borne by the land use applicant. Mitigation must be cost effective and realistic. It must consider project requirements and limitations, input from concerned parties, and be BLM approved or BLM formulated.

Mitigation of paleontological and natural history sites will be treated on a case-by-case basis. Factors such as site significance, economics, safety, and project urgency must be taken into account when making a decision to mitigate. Authority to protect (through mitigation) such

values is provided for in Federal Land Policy and Management Act, Section 102(a)(8). When avoidance is not possible, appropriate mitigation may include excavation (data recovery), stabilization, monitoring, protection barriers and signs, or other physical and administrative protection measures.

F.3.4. Special Resource Mitigation Guideline

To protect (resource value), activities or surface use will not be allowed (i.e., within a specific distance of the resource value or between date to date) in (legal description).

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the authorized officer.

Example Resource Categories (Select or identify category and specific resource value):
- Recreation areas
- Special natural history or paleontological features
- Special management areas
- Sections of major rivers
- Prior existing rights-of-way
- Occupied dwellings
- Other (specify)

Guidance

The *Special Resource Mitigation Guideline* is intended for use only in site-specific situations where one of the first three general mitigation guidelines will not adequately address the concern. The resource value, location, and specific restrictions must be clearly identified. A detailed plan addressing specific mitigation and special restrictions will be required prior to disturbance or development and will become a condition for approval of the permit, plan of development, or other use authorization.

Exception, waiver, or modification of requirements developed from this guideline must be based upon environmental analysis of proposals (e.g., activity plans, plans of development, plans of operation, applications for permit to drill) and, if necessary, must allow for other mitigation to be applied on a site-specific basis.

F.3.5. No Surface Occupancy Guideline

No Surface Occupancy (NSO) will be allowed on the following described lands (legal description) because of (resource value).

Example Resource Categories (Select or identify category and specific resource value):
- Recreation areas (e.g., campgrounds, historic trails, national monuments)
- Major reservoirs/dams
- Special management area (e.g., known threatened or endangered species habitat, areas suitable for consideration for wild and scenic rivers designation)
- Other (specify)

Guidance

The *No Surface Occupancy Mitigation Guideline* is intended for use only when other mitigation is determined insufficient to adequately protect the public interest and is the only alternative to "no development" or "no leasing." The legal description and resource value of concern must be identified and be tied to an NSO land use planning decision.

Waiver of, or exception(s) to, the NSO requirement will be subject to the same test used to initially justify its imposition. If, upon evaluation of a site-specific proposal, it is found that less restrictive mitigation would adequately protect the public interest or value of concern, then a waiver or exception to the NSO requirement is possible. The record must show that because conditions or uses have changed, less restrictive requirements will protect the public interest. An environmental analysis must be conducted and documented (e.g., environmental assessment, environmental impact statement, etc., as necessary) in order to provide the basis for a waiver or exception to an NSO planning decision. Modification of the NSO requirement will pertain only to refinement or correction of the location(s) to which it applied. If the waiver, exception, or modification is found to be consistent with the intent of the planning decision, it may be granted. If found inconsistent with the intent of the planning decision, a plan amendment would be required before the waiver, exception, or modification could be granted.

When considering the "no development" or "no leasing" option, a rigorous test must be met and fully documented in the record. This test must be based upon stringent standards described in the land use planning document. Since rejection of all development rights is more severe than the most restrictive mitigation requirement, the record must show that consideration was given to development subject to reasonable mitigation, including "no surface occupancy." The record must also show that other mitigation was determined to be insufficient to adequately protect the public interest. A "no development" or "no leasing" decision should not be made solely because it appears that conventional methods of development would be unfeasible, especially where an NSO restriction may be acceptable to a potential permittee. In such cases, the potential permittee should have the opportunity to decide whether or not to go ahead with the proposal (or accept the use authorization), recognizing that an NSO restriction is involved.

F.3.6. Regional Mitigation Guideline

For information on Regional Mitigation, please refer to Section 2.3.6 of the Bighorn Basin Proposed RMP and Final EIS.

Appendix G. Federal Oil and Gas Operations on Split-Estate Lands

G.1. Purpose

The purpose of this appendix is to summarize the Bureau of Land Management's (BLM) procedures for considering proposals to conduct exploration and production operations on split-estate federal oil and gas leases. This appendix is provided for information purposes only, and is not necessarily a complete statement of rights, obligations, or processes. This appendix is not a part of the BLM's land use plan decision for the Resource Management Plan (RMP). Any conflict with any statute or regulation is unintentional. In the event of a conflict, the statute or regulation controls. Federal oil and gas lessees and operators, and private surface owners, are advised to confer with the BLM at the time an action is proposed for BLM's consideration, in order to obtain information about the current regulations and policies that may apply to the proposal. Nothing in this appendix affects the authority of any tribe or of the Bureau of Indian Affairs in any way. This RMP applies to federal lands as defined by Federal Land Policy and Management Act, and does not apply to lands held in trust for any Tribe or for any individual Indian or Indians.

G.2. Definitions

Casual use (operations): "Casual use means activities involving practices that do not ordinarily lead to any appreciable disturbance or damage to lands, resources, or improvements. This term does not apply to private surface. Casual use includes surveying activities." (Onshore Oil and Gas Order No. 1, part II).

Lease: "means any contract, profit share arrangement, joint venture or other agreement issued or approved by the United States under a mineral leasing law that authorizes exploration for, extraction of or removal of oil or gas." (Onshore Oil and Gas Order No. 1, part II).

Lease facility or production facility: "Production facilities means a lessee's or lease operator's pipes and equipment used on the leasehold to aid in extracting, processing, and storing oil and gas…" (64 FR 32140). See also BLM Manual Section 2880 ("Mineral Leasing Act Rights-of-Way") at Page 9.

Lease site: "means any lands, including the surface of a severed mineral estate, on which exploration for, or extraction and removal of, oil or gas is authorized under a lease." (43 CFR 3160.0-5).

Lessee: "means any person holding record title or owning operating rights in a lease issued or approved by the United States." (43 CFR 3160.0-5).

Operator: "means any person or entity including but not limited to the lessee or operating rights owner, who has stated in writing to the authorized officer that it is responsible under the terms and conditions of the lease for the operations conducted on the leased lands or a portion thereof." (43 CFR 3160.0-5).

Public lands: "means any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management…" (Federal Land Policy Management Act of 1976, Sec. 103(e)).

Private surface owner: "Private Surface Owner means a non-Federal or non-state owner of the surface estate and includes any Indian owner of surface estate not held in trust by the United States." (Onshore Oil and Gas Order No. 1, part II).

Split-estate: "Split-estate means lands where the surface is owned by an entity or person other than the owner of the Federal or Indian oil and gas." (Onshore Oil and Gas Order No. 1, part II). "When tribal lands are held in trust or are subject to Federal restrictions against alienation the BIA is the Surface Managing Agency, but if lands are held in unrestricted fee, those lands are treated the same as private surface." (Preamble to Onshore Oil and Gas Order No. 1 revisions, 72 FR 10322-10323, March 7, 2007).

Surface Managing Agency: "Surface Managing Agency means any Federal or state agency having jurisdiction over the surface overlying Federal or Indian oil and gas." (Onshore Oil and Gas Order No. 1, part II).

G.3. General

In considering and authorizing exploration and development of split-estate federal oil and gas leases, the BLM prefers that the operator and split-estate surface owner reach a Surface Access Agreement for proposed oil and gas operations. The BLM coordinates with both the operator and surface owner, in accordance with the requirements of Onshore Oil and Gas Order No. 1, and generally provides the surface owner's lands the same level of resource (soil, water, vegetation, air, visual, cultural, etc.) protection as would be required on BLM-administered public lands.

"The BLM will offer the surface owner the same level of surface protection that the BLM provides on federal surface. The BLM will not apply standards or conditions that exceed those that would normally be applied to federal surface, even when requested by the surface owner." (The Gold Book, page 12).

Federal mineral lessees may enter onto a privately-owned surface to the extent necessary to explore and produce the federal minerals in compliance with the relevant statutes and BLM regulations and land use designations. The BLM does not have the authority to regulate a surface owner's use of the surface estate, but does have the authority to regulate the activities of federal mineral lessees and mining claimants. The BLM adds lease stipulations to split-estate federal oil and gas leases, in order to ensure that leasing decisions conform to the approved RMP for the area.

G.4. Operations

G.4.1. Geophysical

The BLM's authority to permit geophysical operations is described under 43 CFR §3150.0-1:

Geophysical exploration on public lands, the surface of which is administered by the Bureau, requires Bureau approval. The procedures in this part also apply to geophysical exploration

conducted under the rights granted by any federal oil and gas lease unless the surface is administered by the U.S. Forest Service. However, a lessee may elect to conduct exploration operations outside the rights granted by the lease, in which case authorization from the surface managing agency or surface owner may be required… The procedures of this part do not apply to… operations conducted on private surface overlying public lands unless such operations are conducted by a lessee under the rights granted by the federal oil and gas lease…

As BLM Handbook H-3150-1[1] at pages 1–2 explains:

In those situations where federal minerals are underlying private surface and the private surface owner's consent is obtained, the BLM is not to become involved. However, when landowner consent for access to the surface cannot be obtained for geophysical exploration operations on a federal lease by the lease operator, the geophysical operation is to be authorized using the Sundry Notice process…[2]

When the geophysical exploration operator is the federal lessee or designated operator of the lessee, it is to file a Sundry Notice… with the BLM and provide notification to the surface owner by certified mail that it intends to enter onto the lands and conduct lease operations. The lessee/operator must then submit proof to the BLM authorized officer that the surface owner has been notified. The lessee or operator must also submit proof to the BLM authorized officer that it has a current and adequate bond payable to the United States for use by the surface owner for damages caused during exploration operations. The authorized officer must give the surface owner 30 days to comment on the proposed action before approving the Sundry Notice.

When a surface access agreement is reached to conduct geophysical operations on split-estate lands with leased or unleased federal oil and gas, the BLM does not become involved. The BLM will not accept a Notice of Intent to Conduct Geophysical Operations (NOI), BLM Form 3150-4 or bond to permit entry to split-estate lands with unleased federal oil and gas, since the BLM has not issued an oil and gas lease to allow for operations under 43 CFR Part 3160 (see 43 CFR 3150.0-1).

In order to conduct geophysical operations on split-estate lands where a federal oil and gas lease has been issued and where an agreement with the surface owner has not been reached, the lessee or the operator must first obtain BLM authorization through an NOI that proposes entry to those lands in order to conduct geophysical operations. The lessee or designated operator must provide to the BLM a certification (see Attachment 1) that a good-faith effort was made to: (a) notify the landowner prior to entry; (b) obtain a Surface Access Agreement; and (c) deliver a copy of the proposed NOI to the surface owner.[3] The NOI must also identify the surface owner and include the owner's name, address, and telephone number, if known. A good and sufficient bond to secure payment of applicable damages for the use and benefit of the surface owner must be provided to the BLM on BLM Form 3160-19. The lessee or designated operator must also submit to the BLM evidence of service of a copy of the bond upon the surface owner. Prior to authorizing the NOI proposing entry to the lands for which the bond has been submitted, the BLM notifies the surface owner and provides a 30-day period during which the surface owner may protest the sufficiency

[1]Onshore Oil and Gas Geophysical Exploration Surface Management Requirements. January 9, 2007.
[2]In BLM Washington Office Instruction Memorandum (IM) 2009-121, "Approval of Notice of Intent to Conduct Geophysical Exploration to Federal Oil and Gas Lessee on Split Estate", dated May 8, 2009, the BLM recognized that the Sundry Notice form (BLM Form 3160-5) is an imperfect form to use for permitting of geophysical operations. This policy clarified that the BLM will "no longer require the lessee or its operator to file a Sundry Notice" for the purpose of proposing entry to federal leases where a surface owner denies access to the lessee or its operator. In its place the BLM would use the NOI form (BLM Form 3150-4).
[3]See Onshore Oil and Gas Order No. 1, Part VI.

of the bond. If the sufficiency of the bond is protested, the BLM reviews the bond amount and determines if it is adequate. That decision by the BLM is subject to State Director Review upon a request by any adversely affected party and the State Director's decision is subject to appeal to the Interior Board of Land Appeals (IBLA).[4]

G.4.2. Notice of Staking/Application for Permit to Drill

G.4.2.1. Surveying and Staking Activities

The lessee or operator is encouraged to contact the surface owner of split-estate lands early in the process of planning for exploration and development of a federal lease. This facilitates early discussion about the goals and objectives of both the surface owner and operator. Communication between the lessee or operator and surface owner can reduce potential conflicts, thereby reducing misunderstandings and permit processing times.

For surveying and staking activities, "[t]he operator is responsible for making access arrangements with the appropriate Surface Managing Agency (other than the BLM and the FS) or private surface owner." (Onshore Oil and Gas Order No. 1, part III.D.2.a).

"No entry on split-estate lands for surveying and staking should occur without the operator first making a good faith effort to notify the surface owner. Also, operators are encouraged to notify the BLM or the Forest Service, as appropriate, before entering private lands to stake for federal mineral estate locations." (Onshore Oil and Gas Order No. 1, part III.D.2.b).

Aside from surveying and staking the proposed well location, road, pipeline, and/or other lease facilities, the operator may also be required to conduct resource condition surveys of the leased lands.

"As provided in the oil and gas lease, the BLM may request that the applicant conduct surveys or otherwise provide information needed for the BLM's National Historic Preservation Act consultation with the State Historic Preservation Officer or Indian tribe or its Endangered Species Act consultation with the relevant fisheries agency. The federal mineral lessee has the right to enter the property for this purpose, since it is a necessary prerequisite to development of the dominant mineral estate. Nevertheless, the lessee or operator should seek to reach agreement with the surface owner about the time and method by which any survey would be conducted." (Onshore Oil and Gas Order No. 1, part VI).

G.4.2.2. Onsite Inspection(s)

On split-estate lands, the onsite inspection provides the opportunity for the BLM, operator, and surface owner to evaluate and discuss the proposed well location or lease facility in the field.

"Within 10 days of receiving the application, the BLM, in coordination with the operator and Surface Managing Agency, including the private surface owner in the case of split-estate minerals, will schedule a date for the onsite inspection (unless the onsite inspection has already been conducted as part of a Notice of Staking)." (Onshore Oil and Gas Order No. 1, part III.E.2.a).

[4]See 43 CFR §3165.3(b). See, e.g., William P. Maycock, 176 IBLA 206 (2008).

"On non-NFS lands, the BLM will invite the Surface Managing Agency and private surface owner, if applicable, to participate in the onsite inspection. If the surface is privately owned, the operator must furnish to the BLM the name, address, and telephone number of the surface owner if known." (Onshore Oil and Gas Order No. 1, part III.C).

At the onsite inspection, the BLM will consider applicable Best Management Practices (BMPs) that would avoid or mitigate environmental impacts to natural resources. The onsite inspection provides the surface owner with the opportunity to review the proposed well location and/or lease facilities; provide information to the BLM and operator about resources, improvements, and land uses; and express preferences for BMPs to be used for lease operations.

"All parties who attend the onsite inspection will jointly develop a list of resource concerns that the operator must address in the Application for Permit to Drill (APD). The operator will be provided a list of these concerns either during the onsite inspection or within 7 days of the onsite inspection. Surface owner concerns will be considered to the extent practical within the law." (Onshore Oil and Gas Order No. 1, part III.C).

"The BLM will invite the surface owner to the onsite inspection to assure that their concerns are considered." (Onshore Oil and Gas Order No. 1, part VI).

G.4.2.3. Required Components of a Complete Application for Permit to Drill for Split-estate Operations

G.4.2.3.1. Description of Surface Ownership

A description of the surface ownership (with name, address, and telephone number, if known) along with a certification must be included in the APD submitted by the operator to the BLM.

"The operator must indicate (in a narrative) the surface ownership at the well location, and of all lands crossed by roads that the operator plans to construct or upgrade, including, if known, the name of the agency or owner, phone number, and address. The operator must certify that they have provided a copy of the Surface Use Plan of Operations required in this section to the private surface owner of the well site location, if applicable, or that they made a good faith effort if unable to provide the document to the surface owner." (Onshore Oil and Gas Order No. 1, part III.D.4.k).

G.4.2.3.2. Surface Access Agreement or Waiver

For operations on leased split-estate lands, the operator must undertake a good faith effort to reach a Surface Access Agreement.

"[I]n the case of actual oil and gas operations, the operator must make a good faith effort to notify the private surface owner before entry and make a good faith effort to obtain a Surface Access Agreement from the surface owner… The Surface Access Agreement may include terms or conditions of use, be a waiver, or an agreement for compensation. The operator must certify to the BLM that: (1) It made a good faith effort to notify the surface owner before entry; and (2) That an agreement with the surface owner has been reached or that a good faith effort to reach an agreement failed." (Onshore Oil and Gas Order No. 1, part VI).

"The operator must make a good faith effort to provide a copy of their Surface Use Plan of Operations to the surface owner." (Onshore Oil and Gas Order No. 1, part VI). The operator must

also provide a copy of any revisions to the SUPO to the surface owner. If required under Onshore Oil and Gas Order No. 6 ("Hydrogen Sulfide Operations"), the BLM requires the operator to provide a copy of the Public Protection Plan to the surface owner.

"The surface use agreement between the surface owner and the operator is confidential. However, the APD Surface Use Plan of Operations must contain sufficient detail about any aspects of the agreement necessary for NEPA documentation and to determine that the operations will be in compliance with laws, regulations, Onshore Orders, and agency policies." (The Gold Book, page 12).

"If the BLM's requirements conflict with provisions in the Surface [Access] Agreement, the operator or surface owner should disclose that conflict at the onsite or to the BLM in writing, and the BLM should consider those conflicts in making its final decision." (BLM's Split Estate Report to Congress at page 15). Thus, to the extent terms of the agreement may conflict with Conditions of Approval, or COAs, to the APD, the BLM should be made aware of those terms, so that they can be considered in the BLM's final decision.

"The BLM does not review the Surface Use Agreement and does not enforce portions of the Surface Use Agreement that are not contained within the approved APD." (BLM's Split Estate Report to Congress at page 17).

G.4.2.3.3. Bonding In Lieu of a Surface Access Agreement or Waiver

It is the preference of the BLM that the operator and surface owner reach a Surface Access Agreement. However, in those cases where an agreement is not reached, the BLM follows the procedural requirements in the BLM's regulations and policies. A good and sufficient bond to secure payment of applicable damages for the use and benefit of the surface owner must be provided to the BLM on BLM Form 3160-19. The lessee or designated operator must also submit to the BLM evidence of service of a copy of the bond upon the surface owner. Prior to authorizing the APD proposing entry to the lands for which the bond has been submitted, the BLM notifies the surface owner and provides a 30-day period during which the surface owner may protest the sufficiency of the bond. If the sufficiency of the bond is protested, the BLM reviews the bond amount and determine if it is adequate. That decision by the BLM is subject to State Director Review upon a request by any adversely affected party and the State Director's decision is subject to appeal to the IBLA.[5]

"If no agreement was reached with the surface owner, the operator must submit an adequate bond (minimum of $1,000) to the BLM for the benefit of the surface owner sufficient to: (1) Pay for loss or damages; or (2) As otherwise required by the specific statutory authority under which the surface was patented and the terms of the lease. Surface owners have the right to appeal the sufficiency of the bond. Before the approval of the APD, the BLM will make a good faith effort to contact the surface owner to assure that they understand their rights to appeal." (Onshore Oil and Gas Order No. 1, part VI).

"The bond amount will be reviewed by the BLM to assure that it is sufficient based on the appropriate law." (Preamble to Onshore Oil and Gas Order No. 1 revisions, 72 FR 10323, March 7, 2007).

[5]See 43 CFR §3165.3(b). See, e.g., William P. Maycock, 176 IBLA 206 (2008).

If operations under an approved APD result in loss or damages that are compensable under the statutes by which the lands were patented, the surface owner may obtain judgment from a court of competent jurisdiction. The BLM will then release from the bond the amount ordered by the court to the surface owner.

G.4.2.4. Approval of the Application for Permit to Drill

The BLM considers the views of the surface owner before approving the APD. The BLM must prepare an environmental record of review (43 CFR 3162.5-1(a)) to document its evaluation of potential resource impacts, including documentation of NEPA compliance.

"The BLM must comply with NEPA, the National Historic Preservation Act, the Endangered Species Act, and related Federal statutes when authorizing lease operations on split-estate lands where the surface is not federally owned and the oil and gas is federal. For split-estate lands within FS administrative boundaries, the BLM has the lead responsibility, unless there is a local BLM/FS agreement that gives the FS this responsibility." (Onshore Oil and Gas Order No. 1, part VI).

"After the APD is approved the operator must make a good faith effort to provide a copy of the Conditions of Approval to the surface owner. The APD approval is not contingent upon delivery of a copy of the Conditions of Approval to the surface owner." (Onshore Oil and Gas Order No. 1, part VI).

G.4.3. Sundry Notices

Operations proposed by Sundry Notice that will result in additional surface disturbance or re-disturbance of previously reclaimed areas require a Surface Use Plan of Operations.

"Prior to commencing any operation on the leasehold which will result in additional surface disturbance, other than those authorized under § 3162.3–1 or § 3162.3–2 of this title, the operator shall submit a proposal on Form 3160–5 to the authorized officer for approval. The proposal shall include a surface use plan of operations." (43 CFR 3162.3-3).

"The operator must certify on Form 3160–5 that they have made a good faith effort to provide a copy of any proposal involving new surface disturbance to the private surface owner in the case of split-estate." (Onshore Oil and Gas Order No. 1, part VIII.A).

For review of Final Abandonment Notices (FANs) submitted by an operator on split-estate lands, the BLM will consider the views of the surface owner.

"If applicable, the private surface owner will be notified and their views will be carefully considered." (Onshore Oil and Gas Order No. 1, part XII).

"In cases where the Surface Managing Agency or private surface owner desires to acquire an oil and gas well and convert it to a water supply well or acquire a water supply well that was drilled by the operator to support lease operations, the Surface Managing Agency or private surface owner must inform the appropriate BLM office of its intent before the approval of the APD in the case of a dry hole and no later than the time a Notice of Intent to Abandon is submitted for a depleted production well… The Surface Managing Agency or private surface owner must reach agreement with the operator as to the satisfactory completion of reclamation operations before the BLM will approve any abandonment or reclamation. The BLM approval of the partial abandonment under this section, completion of any required reclamation operations, and the

signed release agreement will relieve the operator of further obligation for the well. If the Surface Managing Agency or private surface owner acquires the well for water use purposes, the party acquiring the well assumes liability for the well." (Onshore Oil and Gas Order No. 1, part IX.B).

"Completion of a well as plugged and abandoned may also include conditioning the well as water supply source for lease operations or for use by the surface owner or appropriate Government Agency, when authorized by the authorized officer. All costs over and above the normal plugging and abandonment expense will be paid by the party accepting the water well." (43 CFR 3162.3-4(b)).

G.4.3.1. Emergency Operations

"In the event of an emergency, the operator may take immediate action without prior Surface Managing Agency approval to safeguard life or to prevent significant environmental degradation. The BLM or the FS must receive notification of the emergency situation and the remedial action taken by the operator as soon as possible, but not later than 24 hours after the emergency occurred. If the emergency only affected drilling operations and had no surface impacts, only the BLM must be notified. If the emergency involved surface resources on other Surface Managing Agency lands, the operator should also notify the Surface Managing Agency and private surface owner within 24 hours." (Onshore Oil and Gas Order No. 1, part IV.d).

Bibliography

BLM. 1994. Wyoming BLM MOU WY920-94-09-79 Wyoming Oil and Gas Conservation Commission Memorandum of Understanding. September 13.

BLM. 1989. Washington Office Instruction Memorandum 1989-201 Legal Responsibilities of BLM for Oil and Gas Leasing and Operations on Split Estate Lands. January 4.

BLM. 2003. Washington Office Instruction Memorandum 2003-131 Permitting Oil and Gas on Split Estate Lands and Guidance for Onshore Oil and Gas Order No. 1. April 2. Available online: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html.

BLM. 2006. Energy Policy Act of 2005 – Section 1835 Split Estate Federal Oil and Gas Leasing and Development Practices– A Report to Congress. December. Available online: http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/bmps.Par.65158.File.tmp/1-Split-Estate%20Report%20to%20Congress%202006.doc.

BLM. 2007a. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development ("The Gold Book"). Available online: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/gold_book.html.

BLM. 2007b. Handbook H-3150-1, Onshore Oil and Gas Geophysical Exploration Surface Management Requirements. Available online: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/blm_handbooks.html.

BLM. 2007c. Split Estate – Rights, Responsibilities, and Opportunities. Available online: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html.

BLM. 2007d. Washington Office Instruction Memorandum 2007-165 Split Estate Report to Congress – Implementation of Fluid Mineral Leasing and Land Use Planning Recommendations. July 26. Available online: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2007/im_2007-165.html.

BLM. 2008. Split Estate – Cultural Resource Requirements on Private Surface – Federal Minerals for Oil and Gas Development. Available online: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html.

BLM. 2010. BLM Form 3160-019, Bond for Surface Owner Protection. Available online: http://www.blm.gov/noc/st/en/business/eForms/og.html.

This page intentionally
left blank

Appendix H. Monitoring and Evaluation

H.1. Introduction

This appendix provides an overview of the Bureau of Land Management (BLM) Worland Field Office Monitoring and Evaluation protocol. Conditions may change over the life of the land use plan and these changes may require different management actions to protect resources and minimize resource conflicts. To address the changing conditions and provide management flexibility that incorporates best management practices (BMP), the BLM reviews effectiveness of management actions, assesses the current resource conditions and, if needed, alters management actions.

Due to staffing and funding levels, monitoring will be prioritized consistent with the goals and objectives of the Resource Management Plan (RMP) in cooperation with local, state, and other federal agencies. A system should be established to regularly collect, coordinate and distribute monitoring data collected by other federal and state agencies. Changes to monitoring may result from developing technologies or a better understanding of information.

The monitoring framework for Greater Sage-Grouse is provided in Appendix D, *Greater Sage-Grouse Habitat Management Strategy* (p. 271).

H.2. Data Collection

In cooperation with local, state and other federal agencies, the BLM will collect, analyze, and report monitoring data that allows for the determination of cause and effect, conditions, trends and predictive modeling of land use authorizations. Monitoring methods are implemented to collect data that establish current conditions and reveal any change in the indicators. Monitoring techniques consider when, where, and frequency. The data collected through monitoring provide a variety of information applicable to one or more resource uses. To increase effectiveness, efficiency and eliminate duplication, monitoring methods should be designed to address as many uses as possible. The BLM will collaborate with cooperating agencies and permittees to assist in or perform this data collection.

H.3. Data Analysis

Data will be analyzed to determine the change that has occurred as a result of management actions. Data analysis will be conducted on a predetermined schedule that considers the data collection frequency for detecting change. Data will also be recorded and organized to facilitate analysis to be used in assessing management actions. Analyzed data will be assessed to determine whether the resource conditions are meeting the planned goals; whether a change has occurred, and if so, identify the cause; and what appropriate action should be taken to achieve the desired outcome if the objective is not being met. New technology and management methods will be reviewed to determine their applicability in modifying or replacing current management actions. The BLM will collaborate with cooperating agencies to assist in or perform this data analysis.

H.4. Decision

When the assessment shows that the goals are still valid but the outcome is not being achieved, the cause of non-achievement will be documented and a change or modification in management actions would be warranted to address the causal factors. The assessment will develop recommendations to be considered by management for continuation, modification, or replacement of current management actions. Because adoption of a new management action may require changes in the monitoring plan, the assessment will also evaluate the effectiveness of the monitoring and data collection methods and recommend continued use, modification, or elimination of those methods.

H.5. Establishment of Monitoring Protocols

Establishing monitoring protocols will follow BLM program specific policy and, where appropriate, the general seven step principles outlined in the Regional Framework for Water-Resources Monitoring Related to Energy Exploration and Development. Those steps are:

1. Specify monitoring goals and objectives.
2. Characterize anthropogenic stressors that may affect receptors and parameters of interest.
3. Develop regional questions and conceptual models to describe the process and pathways anthropogenic stressors may affect receptors.
4. Suggest indicators to measure the effects of anthropogenic stressors, and define existing information availability and needs.
5. Estimate the sensitivity of the indicators to detect change, to guide final indicator choice, and monitoring design.
6. Describe a process by which management can identify thresholds of change requiring a management response as indicated by causal factors.
7. Identify clear connections between the overall monitoring program and management decision process.

H.6. Resource Monitoring Table

The resource monitoring table (Table H.1, “Resource Monitoring Table” (p. 367)) identifies the indicator that will be monitored to detect change in resource conditions, the method or technique of monitoring, the locations for monitoring, the unit of measurement for monitoring, the frequency for monitoring, and the action triggers that indicate the effectiveness of the management action. Footnotes in Table H.1, “Resource Monitoring Table” (p. 367) indicate where monitoring is generally conducted by stakeholders or cooperating agencies.

Table H.1. Resource Monitoring Table

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Air Quality[1]	M-1	Air quality.	Ambient air sampling and air quality modeling.	Established Monitoring Stations.	Parts per million.	Hourly to 24-hour samples in accordance with standards.	Samples exceeding National Ambient Air Quality Standards.
	M-2	Gaseous and particulate critical air pollutants.	Emission inventory.	Established Monitoring Stations.	Pounds per hour and tons per year.	Annually.	Samples exceeding Ambient Air Quality Standards or levels of concern.
Cultural[2]	M-3	National Register eligible sites.	Site inspection.	Area wide.	Disturbance.	Annually.	Disturbance as a result of land uses or vandalism, fire, and severe weather events such as flooding and erosion.
Fire	M-4	Fire fuels.	Site inspection.	Wildland-urban interface and industrial interface areas.	Acres.	Annually.	Presence of fire fuels that present a risk to communities and industrial sites.
	M-5	Vegetation condition.	Ecological site condition and trend studies.	Vegetation types where there is a history of fire in the ecosystem.	Representa-tive sample.	Annually.	Vegetation growth trend is moving away from desired conditions for the vegetation type.
	M-6	Resource and property damage.	Fire behavior.	Individual fire.	Fire temperature, flame length, burn rate, and acres burned.	While the fire is burning.	Acres burned and fire intensity that exceed prescription.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Forestry	M-7	Forest Health.	Ecological site condition and trend.	Forested lands.	Representative sample area.	Every 3 to 5 years.	Disease, insect infestation, or encroachment of undesirable plant species threatens forest health.
	M-8	Timber stands.	Timber stand examination.	Commercial forested areas.	Board feet, age class, and damages.	Every 10 to 20 years.	Basal area growth does not meet timber type standards.
Lands and Realty	M-9	Realty authorization compliance.	Site compliance inspection.	Area wide.	Number of site inspections.	Annually.	Non-compliance or non-use.
Livestock Grazing	M-10	Vegetation condition	BLM approved monitoring methods; monitoring plans are included in Allotment Management Plans.	All areas being grazed.	Representative sample of grazed area.	Every 5 to 10 years On a priority basis monitor allotments before livestock turnout.	Conditions are not meeting goals and objectives for vegetation due specifically to livestock grazing management. Inconsistent with Guidelines for Livestock Grazing Management, and Wyoming Rangeland Monitoring Guide, and similar guidance updated over time. Not meeting or moving towards Wyoming Standards for Healthy Rangelands.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Livestock Grazing	M-11	Forage utilization	Utilization study plot or site visit; monitoring plans are included in Allotment Management Plans.	Priority allotments or as needed.	Representative sample of grazed area.	On a priority basis, monitor during and after the area has been grazed.	Utilization consistently exceeds prescribed levels identified in the utilization Appendix W (of the Proposed RMP and Final EIS) or the vigor of key plant species is declining.
	M-12	Livestock numbers.	Counts and site visits; monitoring plans are included in Allotment Management Plans.	Varies by allotment.	Number of allotments or operators inspected.	Annually or when livestock are moved on or off the allotment.	Livestock numbers exceeding permitted numbers or in areas unauthorized.
Minerals	M-13	Surface disturbance.	Remote sensing or site inspection.	Mineral development sites.	Acres disturbed.	Bi-annual or more.	Acres disturbed exceeding the range established for the area.
	M-14	Compliance with authorization.	Area inspection.	Area wide.	Compliance.	During operations at least bi-annually.	Non-compliance.
Off-Highway Vehicles	M-15	Off-highway vehicle disturbance; establishment of unauthorized vehicle routes.	Remote sensing or site visit; traffic counter data.	Travel Management Area; site-specific to area of disturbance.	Miles of routes; acres of disturbance.	Prioritize areas and monitor higher priority areas every 1-3 years and lower priority areas every 2-4 years.	Disturbance exceeding the baseline, accelerated soil erosion occurring, and vegetation being removed.
Paleontology	M-16	Significant paleontological resources.	Site inspection.	Site.	Degradation or loss of significant fossil resources.	Annually.	Loss or damage to significant fossil resources as a result of human or natural causes.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Recreation	M-17	General recreation use; realization of desired beneficial outcomes.	Onsite Inspection, visitor use data, surveys; document user conflicts or complaints.	Area wide with emphasis on SRMAs and ERMAs with high visitation; areas not managed as recreation management areas but recognized for recreational use and resources.	Changes to desired recreation setting characteristics; changes in experiences and realized desired beneficial outcomes; changes in types, seasons or levels of use.	Prioritize areas and monitor higher priority areas (SRMAs and ERMAs) every 1-3 years and lower priority areas every 3-5 years.	When visitor surveys or public comments indicate that recreation area management objectives are not met; when desired settings, experiences, and beneficial outcomes are not realized; when change is causing undue or unnecessary degradation of the site or area; when change is causing goal interference and conflicts.
	M-18	Concentrated recreation use.	Inspect developed recreation sites or areas that have facilities.	Recreation site.	Condition of recreation site, facilities, visits and visitor days.	Annually.	When change is causing undue or unnecessary degradation of facilities and use areas; public complaints.
	M-19	Compliance with commercial authorization.	Administrative review, site inspection.	Activity site.	Permit stipulations, resource conditions, and site restoration.	During and after an event; annually for other commercial users.	When non-compliance is determined or degradation of resources is occurring.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Special Designations and Management Areas	M-20	Resource condition.	Site visit or remote sensing.	Special designation and management area.	Amount of degradation or loss of resources; impacts to important and relevant resources.	The BLM will monitor the impacts that Resource Management Plan implementation and other approved projects have on National Trail resources, qualities, values, and associated settings and the primary use or uses, including determining the effectiveness of design features, project stipulations, and mitigation measures on a regular basis as the Resource Management Plan and projects are implemented.	Undue or unnecessary degradation or loss of resources or important and relevant resources as a result of human or natural causes.
Wilderness Study Areas	M-21	Wilderness Characteristics (size, naturalness, outstanding opportunities for primitive and unconfined recreation or solitude, supplemental values).	Site visits; aerial monitoring.	Wilderness Study Areas.	Miles of linear human intrusions; acres disturbed; impacts to wilderness characteristics identified by onsite visit or public comment.	Annually.	Failure to meet the non-impairment standard or other objectives outlined in Manual 6330.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Travel and Transportation Management	M-22	Roads and trails.[3]	Route management categories and maintenance levels; onsite inspection or remote sensing; traffic counter data.	Area wide.	Miles.	Per Facility Asset Management System Condition Assessment Plans.	Conditions represent a hazard to life and property; route conditions do not meet identified road standards.
	M-23	Seasonal closures.[6]	Aerial and field inspections.	Travel Management Areas with seasonal closures for wildlife.	Acres.	Every 5 years.	Changes in use of seasonal habitat requiring closure.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Vegetation	M-24	Trend.	BLM approved monitoring methods.	Area wide.	Representative sample.	Every 2 to 10 years.	Not meeting or moving towards the goals and objectives for 4000 Biological Resources (BR) Vegetation-Grassland and Shrubland Communities or the Wyoming Standards for Healthy Rangelands.
	M-25	Precipitation.[1]	Weather stations.	Representative sample to detect precipitation patterns.	Inches of precipitation.	Monthly and annually.	N/A.
	M-26	Climate.[1]	Weather stations.	Representative sample to detect patterns.	Degrees.	Monthly and annually.	N/A.
	M-27	Noxious weed and invasive plant trends.[4]	Remote sensing or site visit.	Priority areas.	Acres of established weeds and potential habitat areas.	Annually.	Spreading or establishment of invasive species in new areas.
	M-28	Special Status Species.	Site inspection.	Special Status Species' habitats.	Population and trend.	Annually.	A declining trend in populations.
	M-29	Wetland/ riparian condition.	Proper Functioning Condition.	Priority wetlands/ riparian areas.	Stream miles and acres along with rating.	Every 1 to 3 years.	Not achieving Proper Functioning Condition or not exhibiting and upward trend.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Visual Resource Management	M-30	Project conformance with VRM Class Objectives.	Remote sensing or site visit; Visual Resource Contrast Rating from Key Observation Points; Visual simulations.	Class I, II, and sensitive III and IV areas.	Measure the degree of contrasting elements against the surrounding natural elements of the landscape (color, form, line, etc.) before and after implementation of an action.	Visual Contrast Ratings will be prepared for projects in visually sensitive areas; comparison of pre and post implementation data will evaluate the sufficiency of project design features in meeting VRM Class Objectives.	Intrusion that exceeds thresholds for meeting VRM Class Objectives.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Water Quality, Watershed and Soils Management	M-31	Surface water quality.[5]	Water sampling.	All surface water.	Milligrams per liter and tons per day.	On a priority basis.	Water quality does not meet state standards.
	M-32	Groundwater quality.[5]	Groundwater sampling.	Established monitoring stations.	Representative sample of water quality.	Annually.	Water quality does not meet state standards and water is migrating from one aquifer to another.
	M-33	Channel geometry.	Riparian cross sections.	Priority streams.	Change in stream channel (width, depth, side channel modification, and bank sloughing).	Every 1 to 3 years.	Conditions are moving away from Proper Functioning Condition.
	M-34	Soil erosion uplands.	Visual observation and surveyed erosion pins.	Area wide where land use activities are occurring.	Soil loss in tons per acre.	Visual examination while land use activity is active and annual site surveys.	When soil loss is accelerated beyond natural levels.
	M-35	Soil erosion on stream banks and floodplains.	Visual observation and surveyed erosion pins.	Area wide where land use activities are occurring.	Area affected in square feet or acres.	Visual examination while land use activity is active and annual site surveys.	Water table is shrinking beyond average precipitation fluctuations.
	M-36	Soil compaction.	Penetrometer or visual inspection.	Area affected by land use activities.	Pounds per square inch.	1 to 2 times annually.	Compaction restricts water infiltration and plant growth.
	M-37	Soil compaction, porosity, permeability, and depth to water.	Monitoring wells (peizometers).	Riparian areas.	Depth to water table.	Every 2 to 3 years.	Accelerated stream bank soil loss.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers
Wildlife and Fisheries[6]	M-38	Big game seasonal habitat.	Aerial and field inspections.	Crucial wildlife habitat areas.	Numbers during occupancy periods.	Annually.	A change in numbers beyond the normal fluctuations.
	M-39	Special Status Species occupancy and productivity.	Aerial and field inspections.	Habitat areas and established buffer zones.	Numbers during occupancy periods.	Annually.	A decline in numbers beyond the normal fluctuations.
	M-40	Threatened and endangered species occupancy and productivity.	Aerial and field inspections.	Habitat areas and established buffer zones.	Numbers during occupancy periods.	Annually.	A decline in numbers beyond the normal fluctuations.
	M-41	Macroinvertebrate indicator species.	Collecting macroinvertebrate species.	Perennial streams.	Species and condition of macroinvertebrates.	Every 2 to 10 years.	No presence of macroinvertebrates that represent good quality water in the stream.
	M-42	Migratory bird habitat.	Site visit.	Area wide.	Numbers during occupancy period.	Every 2 to 3 years.	Declining trend in habitat occupancy.
	M-43	Raptors.	Site visit.	Area wide.	Nest occupancy rate.	Every 2 to 5 years.	Declining trend in nest site occupancy.
Waterway corridors eligible for inclusion into the National Wild and Scenic River System	M-44	Waterway-specific identified ORV.	Site visits, monitoring, and project proposals.	Eligible waterway corridors.	Miles of linear human intrusions; acres disturbed, impacts to corridor specific ORVs as observed by onsite visit, public comment, or project proposals.	Annually, or when site specific issue arises.	Impacts to corridor specific identified ORVs.

Resource	Record Number	Indicator	Method or Technique	Location	Unit of Measure	Frequency	Action Triggers

[1]Wyoming Department of Environmental Quality, Air Quality Division is responsible for data collection.
[2]The State Historic Preservation Officer is responsible for data collection.
[3]The County with jurisdiction is responsible for data collection.
[4]The Weed and Pest District and the Animal and Plant Health Inspection Service are responsible for data collection.
[5]Wyoming Department of Environmental Quality, Water Division is responsible for data collection.
[6]Wyoming Game and Fish Department is responsible for data collection.

BLM Bureau of Land Management
BR Biological Resources
ERMA Extensive Recreation Management Area
EIS Environmental Impact Statement
N/A Not Applicable
RMP Resource Management Plan
ORV Outstandingly Remarkable Value
SRMA Special Recreation Management Area
VRM Visual Resource Management

This page intentionally
left blank

Appendix I. Land Disposal and Acquisition

I.1. Land Tenure Descriptions

The Approved Resource Management Plan (RMP) for the Bureau of Land Management (BLM) Worland Field Office identifies land retention and disposal as defined in Table I.1, "Land Tenure Descriptions" (p. 379) below.

Table I.1. Land Tenure Descriptions

Land Tenure	Description
Retention	Not available for disposal, except by R&PP or only by exchange if land with better resource values could be obtained.
Disposal	Available for disposal. Could include community expansion or to adjust property boundaries or to meet agriculture needs. Example: Sale of land having an existing gas processing plant. *A FLPMA sale to a local government or private party. Airport Grant to a local government. Patent of R&PP lease1. Public lands without resource conflicts within 2 miles of communities.*
Other (Disposal for the Westside Irrigation Project)	Pursuant to an act of Congress, convey all right, title, and interest (excluding mineral interest) to the Westside Irrigation District after completion of an environmental analysis under NEPA. Lands within the boundary which are not conveyed under the final decision for this transfer (patent) would be retained in federal ownership and would not be available for other disposal actions. (Public Law 106-485 [November 9, 2000; 114 Stat. 2199])
[1]The planning area is open to applications for conveyances to qualified applicants under the Recreation and Public Purpose Act or Federal Public Airport Act. FLPMA Federal Land Policy and Management Act NEPA National Environmental Policy Act R&PP Recreation and Public Purposes	

I.2. Lands Available for Disposal

Properties listed in Table I.2, "Properties Identified for Disposal in the Planning Area" (p. 380) below, were identified in the Worland Field Office Approved RMP as areas available for consideration for disposal by employing the "isolated, difficult or expensive to manage, or needed-for community expansion" disposal criteria in the Federal Land Policy and Management Act (FLPMA). The areas below were identified during the RMP revision process as complying with FLPMA disposal criteria. Inclusion in this table does not constitute a decision that the land will be disposed. Before taking any disposal action, consideration will be given to each individual tract and will include public involvement. The preferred method of disposal or acquisition of lands is through exchanges. Proposals for disposal of lands not identified in this table will be considered if they are consistent with the objectives of the Approved RMP and may require a land use plan amendment.

Table I.2. Properties Identified for Disposal in the Planning Area

Legal Description and (Acreage)[1]
T. 41N., R. 87W., sec. 1, lot 11 (5.15)
T. 41N., R. 87W., sec. 7, E2SE (79.64)
T. 41N., R. 87W., sec. 8, lot 1, S2S2 (172.89)
T. 41N., R. 87W., sec. 11, lot 5, NENW (64.27)
T. 41N., R. 87W., sec. 14, lots 5-7, N2SE, NESW (145.19)
T. 41N., R. 87W., sec. 16, lot 1 (105.28)
T. 41N., R. 87W., sec. 19, SENE (40.52)
T. 41N., R. 87W., sec. 20, lot 1, SWNW, N2SW, NWSE (193.59)
T. 41N., R. 87W., sec. 22, lot 4, SENE (50.00)
T. 41N., R. 87W., sec. 23, lots 9,10 (70.56)
T. 41N., R. 88W., sec. 13, NWSE (42.07)
T. 41N., R. 88W., sec. 15, NENE (39.17)
T. 41N., R. 88W., sec. 22, lot 5, SESW (58.59)
T. 41N., R. 88W., sec. 24, W2NE, SENW, N2SW (203.87)
T. 41N., R. 90W., sec. 2, lot 1, S2NE, NWSE (159.72)
T. 41N., R. 90W., sec. 13, E2SE (86.41)
T. 41N., R. 90W., sec. 20, SENE (40.12)
T. 41N., R. 90W., sec. 21, NWNW (40.18)
T. 41N., R. 90W., sec. 23, W2SW (82.33)
T. 41N., R. 90W., sec. 24, N2NE, SENE, SENW, NESW (214.37)
T. 41N., R. 90W., sec. 26, NENW (40.26)
T. 41N., R. 90W., sec. 27, NWNE (40.23)
T. 41N., R. 91W., sec. 9, E2SW, SE (227.20)
T. 41N., R. 91W., sec. 11, SESW (41.19)
T. 41N., R. 91W., sec. 17, E2NE, NESE (126.16)
T. 41N., R. 91W., sec. 18, NESE (42.17)
T. 41N., R. 91W., sec. 24, SWNW (42.26)
T. 41N., R. 91W., sec. 29, NESW (40.66)
T. 41N., R. 91W., sec. 35, SWNW (39.46)
T. 41N., R. 92W., sec. 9, SWSW (40.32)
T. 41N., R. 92W., sec. 11, SENW (38.81)
T. 41N., R. 92W., sec. 15, SESW (38.39)
T. 41N., R. 92W., sec. 21, SWNE, NWSE (81.19)
T. 41N., R. 92W., sec. 22, W2NE, E2NW, SW, SESE (247.76)
T. 41N., R. 92W., sec. 27, NENE, SWNE, S2NW (162.69)
T. 41N., R. 92W., sec. 28, S2NE, SENW (121.63)
T. 41N., R. 93W., sec. 3, lots 1,4, SWNW (121.06)
T. 41N., R. 93W., sec. 4, SENE (39.98)
T. 41N., R. 93W., sec. 14, W2NW, N2SW (160.51)
T. 41N., R. 93W., sec. 15, E2NE (80.65)
T. 41N., R. 93W., sec. 22, S2NW, W2SE, NESW (205.08)
T. 41N., R. 93W., sec. 23, E2W2 (157.69)
T. 41N., R. 93W., sec. 34, SESE (38.17)
T. 41N., R. 93W., sec. 35, S2SW (78.83)
T. 42N., R. 86W., sec. 20, SWNW (39.29)
T. 42N., R. 86W., sec. 30, N2NE, W2W2, SENW (269.65)
T. 42N., R. 86W., sec. 31, N2N2 (155.69)
T. 42N., R. 86W., sec. 32, S2SW (78.43)
T. 42N., R. 86W., sec. 22, SESE (39.84)
T. 42N., R. 86W., sec. 32, W2NW, NWSW (118.79)
T. 42N., R. 87W., sec. 10, SWNE, W2SE (120.83)

Legal Description and (Acreage)[1]
T. 42N., R. 87W., sec. 15, NWNE (40.27)
T. 42N., R. 87W., sec. 25, E2SE (84.39)
T. 42N., R. 87W., sec. 34, NWNE, SWNW, N2S2 (240.69)
T. 42N., R. 90W., sec. 30, E2NE (80.56)
T. 42N., R. 91W., sec. 1, NWSE (40.39)
T. 42N., R. 93W., sec. 15, NWSW (40.07)
T. 42N., R. 93W., sec. 20, SWSE (40.12)
T. 42N., R. 93W., sec. 21, NENW (39.98)
T. 42N., R. 93W., sec. 27, N2SE (79.99)
T. 42N., R. 93W., sec. 29, SWNE, NESW, NWSE (119.08)
T. 42N., R. 93W., sec. 28, NE, E2SE (239.12)
T. 42N., R. 93W., sec. 32, SE (158.22)
T. 42N., R. 93W., sec. 33, SW, NWSE, S2NW, NWNW (318.48)
T. 42N., R. 93W., sec. 34, NENW (39.83)
T. 42N., R. 96W., sec. 1, W2SE, SESE (119.83)
T. 42N., R. 96W., sec. 11, lot 4, NWNE, S2NE, SE, SESW (362.92)
T. 42N., R. 96W., sec. 23, lot 1 (43.30)
T. 43N., R. 86W., sec. 2, lot 4, SW, S2NW (278.99)
T. 43N., R. 86W., sec. 3, lot 1, SESE (80.58)
T. 43N., R. 86W., sec. 11, NWNE, NWNW, N2NW, (156.03)
T. 43N., R. 86W., sec. 12, E2SE (78.20)
T. 43N., R. 86W., sec. 24, SESE (39.39)
T. 43N., R. 87W., sec. 4, lot 2, SWSE, E2SE (160.29)
T. 43N., R. 87W., sec. 5, E2SW, W2SE (161.37)
T. 43N., R. 87W., sec. 7, E2NE (78.86)
T. 43N., R. 87W., sec. 8, NENW, E2SW (120.60)
T. 43N., R. 87W., sec. 9, NESE (40.02)
T. 43N., R. 87W., sec. 17, E2NE, S2SW (161.34)
T. 43N., R. 87W., sec. 19, NESE (40.20)
T. 43N., R. 87W., sec. 20, NWNE, E2NW, SWNW, NWSW (201.99)
T. 43N., R. 87W., sec. 30, E2SE (80.48)
T. 43N., R. 87W., sec. 31, NENE (39.84)
T. 43N., R. 90W., sec. 15, E2SE (80.00)
T. 43N., R. 90W., sec. 26, NW (160.34)
T. 43N., R. 90W., sec. 30, lots 5,6 (24.02)
T. 43N., R. 92W., sec. 22, 51D (10.00)
T. 43N., R. 95W., sec. 26, SWNW (39.58)
T. 43N., R. 95W., sec. 27, SENE (39.60)
T. 43N., R. 96W., sec. 26, lot 4, SESW (84.38)
T. 43N., R. 96W., sec. 35, lots 1-3, NENW (169.43)
T. 43N., R. 99W., sec. 1, SWNE (40.14)
T. 43N., R. 99W., sec. 9, S2SW, SWSE (120.04)
T. 43N., R. 99W., sec. 17, S2SE (79.75)
T. 43N., R. 99W., sec. 18, SESW (40.60)
T. 43N., R. 99W., sec. 19, NENW (40.40)
T. 43N., R. 99W., sec. 20, NENW, N2NE (119.61)
T. 43N., R. 99W., sec. 21, NWNW (40.05)
T. 43N., R. 100W., sec. 9, E2NE, SE (239.98)
T. 43N., R. 100W., sec. 10, W2SW (81.72)
T. 43N., R. 100W., sec. 11, SWNE (39.92)
T. 43N., R. 100W., sec. 15, NW, W2NE (237.96)
T. 43N., R. 100W., sec. 17, N2NE, SENE (119.36)
T. 43N., R. 100W., sec. 21, S2NW, N2SW, SWNE (202.43)

Legal Description and (Acreage)[1]
T. 43N., R. 100W., sec. 23, SESE (40.54)
T. 44N., R. 86W., sec. 1, S2SW (79.22)
T. 44N., R. 86W., sec. 2, SESW, E2SE (117.33)
T. 44N., R. 86W., sec. 11, N2NE, S2SW, NESE (194.74)
T. 44N., R. 86W., sec. 12, NW, N2SW, SESW (279.53)
T. 44N., R. 86W., sec. 14, SWNE, SENW, NWSE, NESW (159.51)
T. 44N., R. 86W., sec. 15, SESW, W2SE (120.69)
T. 44N., R. 86W., sec. 22, NENW (40.51)
T. 44N., R. 86W., sec. 24, E2NE, SENW, SESE (161.89)
T. 44N., R. 86W., sec. 25, S2SE (82.47)
T. 44N., R. 86W., sec. 33, SESE (39.65)
T. 44N., R. 86W., sec. 34, NWSW (40.64)
T. 44N., R. 86W., sec. 35, E2NE, NESE (122.22)
T. 44N., R. 87W., sec. 1, lot 3, SENW, SESW (123.63)
T. 44N., R. 87W., sec. 6, lots 3,4 (73.64)
T. 44N., R. 87W., sec. 8, SWNW, W2SW, SESW (157.01)
T. 44N., R. 87W., sec. 17, N2NW (81.06)
T. 44N., R. 87W., sec. 29, S2NE, SENW, NESW, SE (309.50)
T. 44N., R. 87W., sec. 32, NE, SENW (191.39)
T. 44N., R. 87W., sec. 33, S2NW, SENE, W2SE (198.55)
T. 44N., R. 88W., sec. 1, 38A (39.80)
T. 44N., R. 94W., sec. 17, W2NW (73.92)
T. 44N., R. 94W., sec. 18, NENE, S2NE, N2SE, SESE (212.29)
T. 44N., R. 94W., sec. 19, lots 1,2, SENW (128.03)
T. 44N., R. 98W., sec. 27, SESE, W2E2, SENW, NESW, NWSW (321.00)
T. 44N., R. 98W., sec. 22, NESE, S2SE (120.52)
T. 44N., R. 98W., sec. 26, NESW, S2SW (121.93)
T. 44N., R. 98W., sec. 34, E2NE, NESE (120.45)
T. 44N., R. 99W., sec. 22, N2SE (79.40)
T. 44N., R. 99W., sec. 23, N2SW, NWSE (120.36)
T. 45N., R. 86W., sec. 1, S2NE, NESE (122.35)
T. 45N., R. 86W., sec. 4, lot 3, SENW (83.66)
T. 45N., R. 86W., sec. 31, lots 3,4, E2SW (155.79)
T. 45N., R. 86W., sec. 32, S2NE (80.54)
T. 45N., R. 86W., sec. 35, NWNW (38.90)
T. 45N., R. 97W., sec. 23, S2SE (78.37)
T. 45N., R. 97W., sec. 28, SENE (39.48)
T. 45N., R. 97W., sec. 29, SENW, E2SW, SESE (159.23)
T. 45N., R. 97W., sec. 32, NENW, SWNW (79.97)
T. 45N., R. 98W., sec. 5, lots 1,2, SWNE (119.07)
T. 45N., R. 99W., sec. 5, lots 3,4, SWNW (124.14)
T. 45N., R. 99W., sec. 14, S2NE (78.09)
T. 45N., R. 100W., sec. 8, SWSW (40.90)
T. 45N., R. 100W., sec. 9, NESW (39.85)
T. 45N., R. 100W., sec. 10, SESW (41.01)
T. 45N., R. 100W., sec. 12, S2NE, NWSE, SW (283.17)
T. 45N., R. 100W., sec. 13, NWNW, NESE (81.68)
T. 45N., R. 100W., sec. 14, W2 (321.40)
T. 45N., R. 100W., sec. 15, N2N2 (160.63)
T. 45N., R. 100W., sec. 31, SESE (40.12)
T. 46N., R. 86W., sec. 1, SWNE (39.87)
T. 46N., R. 86W., sec. 3, lots 5-8* (171.40)
T. 46N., R. 86W., sec. 4, lots 1,4 (82.62)

Legal Description and (Acreage)[1]
T. 46N., R. 86W., sec. 12, NENW (42.37)
T. 46N., R. 86W., sec. 13, SWSW (40.94)
T. 46N., R. 86W., sec. 14, SESE (40.72)
T. 46N., R. 86W., sec. 26, NENE (39.91)
T. 46N., R. 87W., sec. 1, S2NWNW, SWNW, NESE (102.05)
T. 46N., R. 87W., sec. 10, N2NE, NENW (120.00)
T. 46N., R. 87W., sec. 20, NE, N2NW (240.00)
T. 46N., R. 87W., sec. 21, W2NW, (40.00)
T. 46N., R. 87W., sec. 25, SESW, SWSE (80.83)
T. 46N., R. 87W., sec. 29, NESW, NWSE, S2SW (161.20)
T. 46N., R. 87W., sec. 30, NESW (40.75)
T. 46N., R. 88W., sec. 2, lots 6-9, SESE (210.79)
T. 46N., R. 88W., sec. 11, lot 1 (3.73)
T. 46N., R. 88W., sec. 13, lots 2,3,5,6,7 (103.11)
T. 46N., R. 88W., sec. 14, lots 1,7,8 (20.29)
T. 46N., R. 94W., sec. 5, lot 16 (39.71)
T. 46N., R. 94W., sec. 9, NWSW (40.12)
T. 46N., R. 98W., sec. 27, S2NW (81.63)
T. 46N., R. 98W., sec. 32, SWSE (40.65)
T. 46N., R. 99W., sec. 13, SESE (31.24)
T. 46N., R. 99W., sec. 22, S2SW (78.44)
T. 46N., R. 99W., sec. 24, lot 3 (2.50)
T. 46N., R. 99W., sec. 27, NW, NWSW (199.30)
T. 46N., R. 99W., sec. 32, NWSE (41.75)
T. 46N., R. 100W., sec. 3, lots 1-4, SWNW, NWSW (248.09)
T. 46N., R. 100W., sec. 4, SWNW, SW, NESE (247.34)
T. 46N., R. 100W., sec. 6, E2SW (81.62)
T. 46N., R. 100W., sec. 7, lot 2, NENW (80.39)
T. 46N., R. 100W., sec. 11, NENE, NWSE (82.20)
T. 46N., R. 100W., sec. 18, SENW, SWNE (81.35)
T. 46N., R. 100W., sec. 20, NENE (40.69)
T. 46N., R. 100W., sec. 21, NWNW, SENW (82.25)
T. 46N., R. 101W., sec. 1, lots 9-11 (50.55)
T. 46N., R. 101W., sec. 3, lot 11 (20.93)
T. 46N., R. 101W., sec. 4, lot 9, S2SW (102.36)
T. 46N., R. 101W., sec. 5, lot 6 (39.36)
T. 47N., R. 86W., sec. 1, lot 3, SENW, E2SE (160.13)
T. 47N., R. 86W., sec. 10, NENE (39.84)
T. 47N., R. 86W., sec. 11, NWNW, SESW, SE (239.64)
T. 47N., R. 86W., sec. 12, N2NE, SWNE, SW, SESE (319.42)
T. 47N., R. 86W., sec. 13, lots 1,2, NWNW (124.38)
T. 47N., R. 86W., sec. 14, NENE (39.86)
T. 47N., R. 86W., sec. 15, SWSE (40.37)
T. 47N., R. 86W., sec. 24, SE (159.21)
T. 47N., R. 86W., sec. 25, E2NE (83.00)
T. 47N., R. 86W., sec. 25, E2NE, S2NW, W2SW (245.94)
T. 47N., R. 86W., sec. 34, NENW (40.08)
T. 47N., R. 88W., sec. 17, Tr. 64 B-D (139.30)
T. 47N., R. 88W., sec. 21, lots 2,3 (75.37)
T. 47N., R. 87W., sec. 21, S2SE (77.61)
T. 47N., R. 87W., sec. 28, SESW (40.68)
T. 47N., R. 87W., sec. 33, NENW (40.57)
T. 47N., R. 87W., sec. 34, S2SWNE, S2NW, N2SE (181.57)

Legal Description and (Acreage)[1]
T. 47N., R. 87W., sec. 35, W2SWSW, SESWSW (30.18)
T. 47N., R. 89W., sec. 3, lots 7,8 (89.42)
T. 47N., R. 92W., sec. 10, NWSW (40.20)
T. 47N., R. 92.5W., sec. 13, Tr. 65 B, C (66.15)
T. 47N., R. 93W., sec. 12, lot 15; Tr. 63 Clot, Dlot; Tr. 65 A (19.27)
T. 47N., R. 93W., sec. 13, Tr. 63 Clot-Hlot; Tr. 65 D, E; Tr. 65 A, D, E (256.46)
T. 47N., R. 93W., sec. 23, lots 1-3, S2NE, NWSE (216.75)
T. 47N., R. 93W., sec. 24, lots 3,4 (59.46)
T. 47N., R. 93W., sec. 26, lot 1 (27.95)
T. 47N., R. 100W., sec. 7, lot 4 (41.41)
T. 47N., R. 100W., sec. 15, S2SW (82.43)
T. 47N., R. 100W., sec. 17, SWSE (40.64)
T. 47N., R. 100W., sec. 19, lot 2 (41.29)
T. 47N., R. 100W., sec. 20, N2NW, SENW, NESW, S2SW, W2E2, (401.68)
T. 47N., R. 100W., sec. 21, NE, SENW (205.11)
T. 47N., R. 100W., sec. 22, NW, N2SW (246.40)
T. 47N., R. 100W., sec. 25, NWNW, NESW (89.04)
T. 47N., R. 100W., sec. 26, NENW, S2N2, SESE (241.74)
T. 47N., R. 100W., sec. 27, NENW, S2SW, SESE, (168.84)
T. 47N., R. 100W., sec. 28, E2SW, W2SE, SESE (207.01)
T. 47N., R. 100W., sec. 29, NW, NWSW (196.84)
T. 47N., R. 100W., sec. 30, lots 2-4, SESW (159.19)
T. 47N., R. 100W., sec. 31, lot 1, NENW, S2NE (160.18)
T. 47N., R. 100W., sec. 32, E2, E2NW, SWNW, SW (691.55)
T. 47N., R. 100W., sec. 33, NW, N2NE, SWNE, N2SW (372.84)
T. 47N., R. 100W., sec. 34, S2S2, N2NW (248.66)
T. 47N., R. 100W., sec. 35, E2SE, SWSW (124.57)
T. 47N., R. 101W., sec. 1, lots 3,4 (79.81)
T. 47N., R. 101W., sec. 2, lot 1 (39.75)
T. 47N., R. 101W., sec. 11, NENE (40.16)
T. 47N., R. 101W., sec. 24, S2SW (80.54)
T. 47N., R. 101W., sec. 25, SWNW, NWSW (78.34)
T. 47N., R. 101W., sec. 35, SWNE (40.28)
T. 48N., R. 88W., sec. 29, lot 2 (20.98)
T. 48N., R. 89W., sec. 18, N2SWNE, NENW, N2SENW (80.00)
T. 48N., R. 89W., sec. 25, N2N2 (76.77)
T. 48N., R. 89W., sec. 26, N2N2NE (38.37)
T. 48N., R. 90W., sec. 2, Tr. 91-93 (109.94)
T. 48N., R. 90W., sec. 3, lots 5-8 (119.69)
T. 48N., R. 90W., sec. 4, lots 6-8, T49-51; T61-63 (235.24)
T. 48N., R. 90W., sec. 5, Tr. 51 (33.97)
T. 48N., R. 90W., sec. 10, lot 1 (25.39)
T. 48N., R. 90W., sec. 11, lots 1-6; Tr. 103, 104 (225.38)
T. 48N., R. 90W., sec. 13, lots 3,6 (51.17)
T. 48N., R. 99W., sec. 3, All (678.78)
T. 48N., R. 99W., sec. 4, lots 5-8 (62.03)
T. 48N., R. 99W., sec. 5, lots 5-8 (58.53)
T. 48N., R. 99W., sec. 6, lots 8-11, SESE (95.89)
T. 48N., R. 99W., sec. 7, lot 4, SESW, SE (246.73)
T. 48N., R. 99W., sec. 10, lots 1-3, lot 5, NWNE, N2NW, SWNW, SWSW (310.03)
T. 48N., R. 99W., sec. 11, lot 2 (35.31)
T. 48N., R. 99W., sec. 17, N2NE, SENE, NESE (163.55)
T. 48N., R. 99W., sec. 18, lot 1, NENW (82.97)

Legal Description and (Acreage)[1]
T. 48N., R. 89W., sec. 21, SW1/4SW1/4NW1/4 (10)
T. 48N., R. 100W., sec. 1, lots 5-8 (72.52)
T. 48N., R. 100W., sec. 3, lot 1, SENE, S2SE (161.86)
T. 48N., R. 100W., sec. 10, E2NE, NWNE (125.93)
T. 48N., R. 100W., sec. 11, NW, N2SW, S2SE, SESW (379.47)
T. 48N., R. 100W., sec. 12, E2, S2SW (400.00)
T. 48N., R. 100W., sec. 13, NW, N2NE, NESW (293.44)
T. 48N., R. 100W., sec. 14, NE (167.56)
T. 48N., R. 100W., sec. 21, S2NE, NWSE, NESW (164.49)
T. 48N., R. 100W., sec. 22, NESW (40.75)
T. 48N., R. 100W., sec. 23, N2NW (82.12)
T. 48N., R. 101W., sec. 35, E2W2 (163.85)
T. 49N., R. 90W., sec. 4, lots 9,15 (40.19)
T. 49N., R. 90W., sec. 8, Tr. 61 B, 61 I (76.18)
T. 49N., R. 90W., sec. 19, lot 6 (29.50)
T. 49N., R. 90W., sec. 29, lots 1,2, E2SW, SWNW (185.15)
T. 49N., R. 90W., sec. 30, lots 5,6 (47.48)
T. 49N., R. 90W., sec. 32, lots 1,2 (63.83)
T. 49N., R. 90W., sec. 33, lots 2,4,5 (128.50)
T. 49N., R. 98W., sec. 19, E2E2, SWSE (199.89)
T. 49N., R. 98W., sec. 29, NENE, N2NW (120.00)
T. 49N., R. 98W., sec. 20, SW (160.18)
T. 49N., R. 98W., sec. 30, N2NE (79.95)
T. 49N., R. 99W., sec. 19, lot 8 (39.60)
T. 49N., R. 99W., sec. 30, lots 5,6, E2NW (159.03)
T. 49N., R. 100W., sec. 24, S2SE (77.87)
T. 49N., R. 100W., sec. 25, S2 (314.23)
T. 49N., R. 100W., sec. 36, lots 1-4 (110.68)
T. 49N., R. 100W., sec. 35, lots 1,5, NWNE (102.37)
T. 50N., R. 93W., sec. 9, lot 6 (39.16)
T. 50N., R. 98W., sec. 7, E2SW, S2SE (160.0)
T. 50N., R. 99W., sec. 15, lot 31 (9.56)
T. 51N., R. 89W., sec. 6, E2 (312.03)
T. 51N., R. 94W., sec. 17, lots 1-6, NESW, SWSW (288.32)
T. 51N., R. 94W., sec. 18, lots 7,8 (72.17)
T. 51N., R. 95W., sec. 27, lot 24 (36.51)
T. 51N., R. 95W., sec. 28, lots 7,12,13,15,20,21,23,27,28, SWNE, NWSE (217.23)
T. 51N., R. 95W., sec. 29, E2NENE, E2NW, W2NE, S2NWNENE, SWNENE (195.00)
T. 51N., R. 96W., sec. 21, lot 33,41,42 (38.07)
T. 51N., R. 97W., sec. 2, lots 42,43 (8.02)
T. 51N., R. 97W., sec. 3, lots 33-36 (10.03)
T. 51N., R. 97W., sec. 9, lots 10,13,14,17,18,19,20; Tr. 47 D, E2SE (242.21)
T. 51N., R. 97W., sec. 10, lot 2, NE, NENW, S2NW, N2SE (356.20)
T. 51N., R. 97W., sec. 11, S2SW, N2NW (80.00)
T. 51N., R. 97W., sec. 14, lots 4,5 (72.89)
T. 52N., R. 88W., sec. 9, SWNW (39.94)
T. 52N., R. 88W., sec. 29, SESE (40.06)
T. 52N., R. 88W., sec. 33, NWSW (40.03)
T. 52N., R. 88W., sec. 32, N2NE, SWNE, N2SE (200.58)
T. 52N., R. 89W., sec. 30, SW (160.00)
T. 52N., R. 89W., sec. 31, N2SE (81.28)
T. 52N., R. 92W., sec. 1, lot 5; Tr. 66 A-D (184.66)
T. 52N., R. 93W., sec. 1, lot 2 (18.91)

Legal Description and (Acreage)[1]
T. 52N., R. 93W., sec. 31, W2NE, E2NW, NESW, NWSE (224.54)
T. 53N., R. 91W., sec. 31, SESE (40.00)
T. 53N., R. 91W., sec. 32, SWSW (40.00)
T. 53N., R. 91W., sec. 35, E2NE (80.00)

[1]Some legal descriptions encompass more land than is intended for possible disposal, resulting in smaller map polygons than the area listed in the legal description.

E East
N North
R Range
S South
Sec. Section
T Township
Tr. Tract
W West

I.3. Criteria for Retention, Acquisition, or Disposal

The FLPMA provides for retention of the public lands in federal ownership and management by the Bureau of Land Management for multiple uses. The FLPMA and other federal laws, executive orders, and policies suggest criteria to use when categorizing public lands for retention or disposal, and for identifying acquisition priorities. Disposal by sale, exchange, airport grant, or Recreation and Public Purpose (R&PP) patent remains an option if such an action would serve an important objective and have a public benefit.

Site-specific environmental review and documentation in conformance with National Environmental Policy Act (NEPA), including completion of categorical exclusions and plan conformance determinations where appropriate, will be accomplished for each proposed land program action. Interdisciplinary impact analysis will be tiered within the framework of this and other applicable environmental documents. Many of the foregoing provisions of this appendix are based upon current policy. Future shifts in policy and national priorities may result in modifications of these provisions and changes in addressing priority lands actions. Land tenure adjustments must serve the public interest.

The following is suggested criteria to consider in land tenure adjustment proposals, but it is not considered all-inclusive. These criteria are meant to guide and streamline consideration of land tenure adjustment proposals.

I.3.1. Criteria for Retention or Acquisition

Acquisition of lands will be considered, if in compliance with the RMP, to facilitate various resource management objectives and to acquire lands with high resource values including, but not limited to:

- Important, crucial, or critical habitat for fish, wildlife, and plants;
- Riparian areas, wetlands, and designated floodplains;
- Parcels that provide access to larger blocks of public land;
- Lands with special designation or management emphasis;
- Important cultural resources;
- Recreation opportunities and benefits;
- Mineral development potential;
- Visual Resource Management Class I and Class II areas;

- The preferred method for acquisition will be through exchange;
- Acquisitions, including easements, can be completed through exchange, Land and Water Conservation Funds purchases, or donations; and
- Acquisitions of private lands will be pursued only with willing landowners. The Bighorn River is identified as a priority area for acquisition.

I.3.1.1. Criteria for Disposal

Current policy prescribes general priorities for land disposal actions that include:

- BLM and other federal jurisdictional transfers;
- Transfers to state and local agencies (e.g., R&PP patents, airport patents);
- State exchanges;
- Private exchanges;
- Sales;
- Desert land entries;
- Parcels difficult or costly to administer;
- Parcels of special importance to local communities; and
- Parcels more suitable for management by another federal or state agency.

Transfer to other public agencies will also be considered if improved management efficiency would result. Prior to any disposal, a site-specific analysis must determine that the lands considered contain no significant wildlife, recreation, or other resource values the loss of which could not be mitigated; have no overriding public values; and represent no substantial public investments. Exchange will be the preferred method for disposals.

I.3.1.1.1. Exchanges

Land exchanges that serve the national interest and are beneficial to BLM programs or that support the programs of other agencies (reference Sections 102, 205, and 206 of FLPMA) will be promoted.

- Transfer of leasable minerals out of federal ownership should be avoided except when non-federal leasable minerals are to be received in return. It is preferable to trade both surface and subsurface (mineral) estates.
- Exchanges should involve lands similar in character and/or value. Lands acquired by the BLM in an exchange will generally be retained under federal ownership or control, unless there is a compelling reason for doing so.
- Exchanges should not be made solely for the purpose of blocking up federal land ownership.

Sales

Public land sale proposals are the result of a BLM initiative or in response to expressed public interest or need. Lands to be considered for disposal, at a minimum, must meet the following criteria as outlined in Section 203 of the FLPMA:

- They are difficult and uneconomical to manage and are not suitable for management by another federal department or agency;
- Disposal would serve important public objectives, including but not limited to, community expansion or economic development, that could not be achieved prudently or feasibly on land other than public lands and that outweigh other public objectives or values; or

- The tract was acquired for a specific purpose, and the tract is no longer required for that purpose or any other federal purpose.

Generally, exchanges are the preferred method of disposal but sales will be used when: it is required by national policy; or it is required to achieve disposal objectives on a timely basis, and where disposal through exchange would cause unacceptable delays, or disposal through exchange is not feasible. The preferred method of selling public land will be by competitive bidding at public auction to qualifying purchasers. However, modified competitive bidding procedures and direct sales may be used in certain situations.

Sales and Exchanges Involving Wetlands

BLM policy is to retain wetlands in federal ownership unless federal, state, public, and private institutions and parties have demonstrated the ability to maintain, restore, and protect wetlands and riparian habitats on a continuous basis (BLM Manual 6740). Sales and exchanges may be authorized when:

- The tract of public wetlands is either so small or remote that it is uneconomical to manage; or
- The tract of public wetlands is not suitable for management by another federal agency.

I.3.1.2. Recreation and Public Purposes Lease/Patent

The objective of the R&PP Act is to meet the needs of state and local governmental agencies and other qualified organizations for public lands required for recreational and public purposes. Use of the R&PP Act protects public values in the land through its reversionary provisions and helps qualified entities obtain the more liberal pricing authorized under the R&PP Act.

Public lands shall be conveyed or leased only for an established or definitely proposed project for which there is a reasonable timetable of development and satisfactory development and management plans. No more land than is reasonably necessary for the proposed use shall be conveyed.

I.3.1.3. Airport Grants

Grants of public land for airports and airways are available to public agencies through the Federal Aviation Administration under the Airport and Airway Improvement Act (reference 43 Code of Federal Regulations [CFR] §2640). Use of this act protects public values in the land through its reversionary provisions and helps qualified entities obtain land at no cost (except for administrative processing charges) as authorized under this act.

I.3.1.4. Desert Land Entries

The purpose of the Desert Land Law is to permit the reclamation by irrigation of arid public land through individual effort and private capital (reference 43 CFR §2520).

Lands that will not produce any reasonably remunerative agricultural crop by the usual means or methods of cultivation, without artificial irrigation, may be considered for a desert land entry. The lands must be surveyed, unreserved, unappropriated, non-mineral, non-timber, and incapable of producing an agricultural crop without irrigation. The lands must be suitable for agricultural purposes and more valuable for that purpose than for any other. Tracts need not be contiguous, but shall be sufficiently close to each other to be managed satisfactorily as an economic unit.

The proposed crop may include any agricultural product to which the land under consideration is generally adapted and which would return a fair reward for the expense of producing it.

All Desert Land Entry applications will be coordinated with the Wyoming State Water Engineer and the Natural Resources Conservation Service.

I.4. Access and Easements

Access/improved access or easements have been identified in the following areas:

- Shell/Webber Canyon
- Hyattville logging road area
- Tatman/Fenton Pass
- Hamilton Dome
- Upper Owl Creek
- Bighorn River
- Neiber Road (off of South Flat)
- Road 1406 in Sand draw (east of Cedar Mountain WSA)
- South Rim Shell Canyon to South Rim Trapper Canyon (south to Alkali Road)
- Upper White Creek Drainage
- West of Hamilton Dome between Cottonwood and Owl Creek
- South Fork Owl Creek
- Rock Creek
- South Fork North Fork Owl Creek
- Dutch Nick Flats Road (across Dave Slover property, T. 47N., R. 97W. sec. 23)

Access for Recreation:

- Upper Grass Creek Area
- Enos Creek
- Upper Cottonwood Creek
- Upper South Fork of Owl Creeks of the Absaroka Mountain Foothills

Foot/horseback Access:

- Shoshone National Forest

Limited motorized vehicle access on roads in the Red Canyon Creek Area (Thermopolis Community Pit).

Access to public lands on the Bighorn and Greybull Rivers:

- Basin Ridge, Dry Bear Creek, Heron West, Kane East, Kane West, Lovell Draw, Manderson Bridge, Perkins Bottom-East, Rairden Bridge, Red Bluff View, Red Rim Meadows-South, Sheep Mountain West, South Flat Bridge, Stucco South

Access in the **15-Mile Badlands Area** Includes the following – but not limited to:

- Burlington Pass Road, Fenton Pass Road, Badger Gulch Road, 15-Mile Road, Dorsey Creek Road, Murphy Draw Road, Elk Creek Road

Access in the **Trapper Creek Recreation Management Zone (RMZ)** (includes Shell Canyon to Red Gulch Road, to the Bighorn National Forest):

- Horse Mountain, Trapper Creek, White Creek

Access into the **Paint Rock RMZ** (Alkali Road, Bighorn National Forest, Luman Creek Road area to Wyoming Route 31):

- Laddie Creek and Paint Rock Creek

Access to the **Brokenback RMZ** (Luman Creek Area, Bighorn National Forest, Highway 16, Hyattville-Ten Sleep Road):

- Laddie Creek, Military Creek, Luman Creek, Dorn Draw Road, additional access into North and South Brokenbacks, yearlong public access on North and South Brokenback

South Bighorns RMZ (Rome Hill Road, Hazelton Road, Upper Nowood, South WFO boundary):

- Access into upper Nowood area, Otter Creek, Deep Creek, Little Canyon Creek, Public land tracts along the Nowood River, Cherry Creek Road/Split Rock Road to Hazelton Road, Lysite Mountain, Land parcels within Spring Creek, Spring Creek Road to Rome Hill Road

Access into **Canyon Creek RMZ** (Highway 16 to Rome Hill Road, Smilo Road to BLM Road 1417).

Appendix J. Recreation Management

This appendix displays the details of the management action prescriptions in the Approved Resource Management Plan (RMP) for the Bureau of Land Management (BLM) Worland Field Office. Recreation management in the Worland Field Office is separated into two types of recreation management units; Special Recreation Management Areas (SRMA), and Extensive Recreation Management Areas (ERMA). These units are delineated and managed accordingly to the desired recreational setting character conditions, activities, experiences, and beneficial outcomes. Data collected to arrive at allocating these areas as separate recreation management areas were from intensive public outreach including formal BLM public scoping meetings, on the ground visitor surveys, field monitoring and observations, and work with stakeholders such as tourism entities and industries, Special Recreation Permit (SRP) permittees, and others who rely heavily on BLM-administered public lands.

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness, especially as compared to other areas used for recreation. SRMAs are managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics. SRMAs may be divided into recreation management zones (RMZ) to further delineate specific recreation opportunities. Recreation Management is prescribed and implemented at the RMZ level. For example; the Badlands SRMA is further divided into three RMZs; one managed for recreational touring activities and associated experiences and benefits; one managed to enhance back-country types of activities and associated experiences and benefits; and one managed for primitive activities, experiences, and benefits. Not all SRMAs within the planning area are divided into RMZs because of the commonality of desired settings, activities, experiences, and beneficial outcomes. Canyon Creek SRMA and Middle Fork of the Powder River SRMA are such examples. Within an SRMA, recreation and visitor services management is recognized as the predominant land use planning focus, where specific recreation opportunities and recreation setting characteristics are managed and protected on a long-term basis.

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or recreation and visitor services program investments. Management objectives under an ERMA are to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. Management of ERMA areas is commensurate with the management of other resources and resource uses. While generally unnecessary, ERMAs may be subdivided into recreation management zones (RMZ) to ensure recreation and visitor services are managed commensurate with the management of other resources and resource uses.

Public lands that are not designated a Recreation Management Area (SRMA or ERMA) are managed to meet basic recreation and visitor services and resource stewardship needs. Recreation is not emphasized, however recreation activities may occur except on those lands closed to public use. The recreation and visitor services are managed to allow recreation uses that are not in conflict with the primary uses of these lands. Management actions and allowable use decisions will still be necessary to address visitor health and safety, use user conflicts, the type(s), activities and locations where special recreation permits would be issued or not issued, and mitigation of recreation impacts on cultural and natural resources.

Recreational activities are popular within the planning area for both residents and non-residents. Popular recreational activities include but are not limited to camping, hunting, fishing, hiking,

rock hounding, spelunking, floating and rafting, cross country skiing, wildlife viewing, driving for pleasure, all-terrain vehicle (ATV)/four-wheel drive touring, motocross and endurance sports, mountain biking, target shooting, and sightseeing. A spike in recreational use on BLM-administered public lands is observed during the summer months, and especially during the big game hunting season, which attracts most of the recreational users, not just within the region, but visitors from outside of Wyoming.

Recreational uses inherently contain conflicting uses which compromises health and safety, user conflicts, goal interference, un-realization of desired experiences and beneficial outcomes, and ultimately natural resource damage. Allocating, or dividing the planning area into sub-recreational units, based off of desired settings, activities, experiences, and beneficial outcomes will aid in appropriate recreational marketing, niche-matching, diminish user conflicts, and ultimately an appreciation of the recreational resources which fosters resource protection.

Recreation and visitor services scoping meetings were conducted throughout the Bighorn Basin Planning Area, resulting in a stand-alone Recreation and Travel Management review report. The BLM will use this land use planning process to gather additional data to support managing areas as either an SRMA or an ERMA, and to further identify the desired recreation settings character conditions, activities, experiences, and beneficial outcomes. Recreation management designation or prescriptions may be modified if deemed necessary as a result of public comments.

The *Bighorn Basin Resource Management Plan Revision Project Summary of the Recreation and Travel Management Workshops* reports may be viewed under the Documents Library at: http://www.blm.gov/wy/st/en/programs/Planning/rmps/bighorn/docs.html.

Table J.1, "Recreation Management Area Prescriptions" (p. 392) further details the allocation of recreation management based on desired settings, activities, experiences, and beneficial outcomes.

Table J.1. Recreation Management Area Prescriptions

Absaroka Mountain Foothills SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
SUPPORTING INFORMATION
Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This SRMA is necessary to accommodate back to middle country recreational experiences in a recreational resource rich environment. The Absaroka Mountain Foothills area is a very popular destination for both local residents and out-or-region visitors due to the openness, and naturalness of the area. The area is abundant in a wide variety of wildlife including grizzly bears, major access into the Shoshone National Forest and the Washakie Wilderness, and dramatic scenery.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS
SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.

Objective Statement: Manage the Absaroka Mountain Foothills as an undeveloped SRMA for nonmotorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing so that they realize a "moderate" level of the targeted experience and benefit outcomes listed below in these Back Country and Middle Country settings. **Activities:** Wildlife viewing, nature viewing, hiking, hunting, horseback riding. **Experiences:** Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Learning more about things here. **Benefits:** Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance. Improved mental well-being and physical fitness and health maintenance. Heightened sense of satisfaction with our area as a place to live. Positive contributions to local-regional economic stability. Maintenance of community's distinctive recreation/tourism market niche or character.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Back Country.
Implement/maintain road closures to maintain back country settings.

Naturalness:
Back Country.
Manage for back country and middle country settings where natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Back Country.
Allow for primitive motorized routes and nonmotorized trails to exist. Facilities and structures are rare and often accessible via unimproved routes. Horse and hiking trailheads will be constructed at major key access points.

Social

Contacts and Group size:
Back Country.
Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:
Back to Middle Country.
Main access roads are crowned and ditched gravel roads accessed by 2-wheel and 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use. Roads within the LU Sheep Company area are closed, but available for public access during hunting season. Trails for nonmotorized use will be constructed so as to access public lands.

Management Controls and Visitor Services:
Middle Country.
Signs present at key access points.
Patrolled periodically by law enforcement officer, and other
BLM employees. Spike in BLM presence during hunting season.
Some use restrictions, limit motorized travel to designated roads and trails, and seasonal closures within the LU Sheep Company area.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads and trails, trailheads, camp sites, and information
regarding the LU Ranch cooperative agreement.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.
Visitor reports of crowding.
Informal visitor surveys and formal focus groups as funding allow.
Visitor surveys will be available in register boxes at trailheads.
If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Signs present at key access points, but limited within the SRMA.
Interpretive signs at trailheads and parking areas.
Develop trailheads for foot and horse travel. Potential locations will include the Blue Creek Trail, and sites along the South fork of the Owl Creek. Additional sites may be identified throughout the life of the plan.

Administrative

Visual Resource Management:
Class II.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Absaroka Mountain Foothills SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
For lands within the Absaroka Front Management Area, oil and gas leasing is subject to those management actions. Outside of the Absaroka Front Management Area, allow surface-disturbing activities in the Absaroka Mountain Foothills SRMA such as geophysical exploration, salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis. A CSU will be stipulated within the SRMA.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Agreements:
Maintain cooperative agreement with Wyoming State Land Board, Wyoming State Game and Fish, and LU Sheep Company.
Seek other agreements and partnerships as appropriate.

Partners:
Surrounding private land owners, Shoshone National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Rocky Mountain Elk Foundation, LU Sheep Company, and other sports groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.
Pack goats are prohibited.

Absaroka ERMA

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

This separate ERMA is necessary to accommodate back to middle country recreational experiences in a recreational resource rich environment. The Absaroka Mountain Foothills area is a very popular destination for both local residents and out-or-region visitors due to the openness, and naturalness of the area. The area is abundant in a wide variety of wildlife including grizzly bears, major access into the Shoshone National Forest and the Washakie Wilderness, and dramatic scenery. However, despite the natural recreational resources, access is very challenging due to the scattered parcels of BLM-administered public land which invites user conflicts.

ERMA OBJECTIVE(S) DECISION

ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.

Objective Statement:
Manage the Absaroka Foothills as an ERMA for nonmotorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing these Back Country and Middle Country settings. Recreation management will focus on addressing resource protection, minimizing use and user conflicts, and public health and safety.

MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS

Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.

Physical

Remoteness:
Middle Country.
Implement a Travel Management Plan so as to maintain the back to middle country settings. Maintain Back Country settings within the South Owl Creek Canyon.

Naturalness:
Back Country.
Manage for back country settings where natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Middle Country.
Allow for primitive motorized routes and nonmotorized trails to exist. Facilities and structures are rare and often accessible via unimproved routes. Horse and hiking trailheads will be constructed at major key access points. Maintain primitive setting within the South Owl Creek canyons where trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare.

Social

Contacts and Group size:
Back Country.
Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:
Back to Middle Country.
Main access roads are crowned and ditched gravel roads accessed by 2-wheel and 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use. Trails for nonmotorized use will be constructed so as to access public lands.

Management Controls and Visitor Services:
Middle Country.
Signs present at key access points.
Patrolled periodically by law enforcement officer, and other
BLM employees. Spike in BLM presence during hunting season.
Some use restrictions, limit motorized travel to designated roads and trails.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
Information and Education Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management. Provide stewardship information to help preserve the special landscape character. Provide for a map with designated roads and trails, easements, trailheads, and surface ownership. Make available for special outdoor educational programs such as CORE and Take it Outside! Monitoring Monitor visitor use, visitor safety, and resource conditions through; BLM staff, volunteers and recreation-tourism partnerships (e.g., towns, outfitters, recreation organizations, etc.). Vehicle counters with routine surveys and observation. Visitor reports of crowding. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails. Management Signs present at key access points, but limited within the ERMA. Interpretive signs at trailheads and parking areas. Develop recreational facilities so as to address resource protection, use and user conflicts, and public health and safety. Administrative

Visual Resource Management:
Manage VRM consistent with other resource objectives.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Absaroka ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
For lands within the Absaroka Front Management Area, oil and gas leasing is subject to those management actions. Outside of the Absaroka Front Management Area, allow surface-disturbing activities in the Absaroka ERMA such as geophysical exploration, salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis. A CSU will be stipulated within the ERMA.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Surrounding private land owners, Shoshone National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups and stakeholders.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.
Pack goats are prohibited.

Bighorn River ERMA

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

The Bighorn River has been a very popular area known for river recreation such as boating/floating, diverse fishery, hunting, and even motor boating. The southern river segments (from Wedding of the Waters to Skelton Bridge) are managed as a blue-ribbon fishery with many Wyoming Game and Fish managed put-in and take-outs. The river contains BLM-administered islands, as well as other scattered tracts of land that provide for river access. Recently, the BLM acquired the Eggert tract which has enhanced user access to the river, as well as extend float trips from boaters putting-in upstream of the tract. The Bighorn River tracts are currently managed under the Bighorn River Habitat Management Plan and Recreation Area Management Plan (2/23/1989). The HMP/RAMP prescribes management from other resources such as wildlife, vegetation, fisheries, and invasive and noxious weed management. Most river access is via the Wyoming Game and Fish access points. Readily accessible BLM-administered public lands are located outside of the "blue-ribbon" section of the Bighorn River, and the tracts are scattered. Primary objectives for these tracts are to enhance wildlife habitat.

ERMA OBJECTIVE(S) DECISION

ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.

Objective Statement:
Manage access to the Bighorn River ERMA for river recreation use for visitors to engage in sightseeing, hunting, photography, fishing, and floating. Manage recreation use for enhanced recreational opportunities, as well as to manage for resource protection, and to minimize use and user conflicts, and public health and safety consistent with the HMP/RAMP.

MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS

Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.

Physical

Remoteness:
Front Country.
The tracts provide for main access points to the Bighorn River, which are on or near improved county roads, but at least 0.5 mile from any highway.

Naturalness:
Back Country.
Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area. Some tracts along the Bighorn River (Durkee Boat Ramp) are Front Country due to adjacent land uses.

Facilities and Structures:
Front Country.
Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:
Back Country settings.
Most of the Bighorn River Tracts are usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on travel routes. Usually group size is small. Most of the time, social settings will reflect primitive definition. Visitor encounters can be high during peak use periods at the boat ramps located in the southern sections of the Bighorn River (Wedding of the Waters to Skelton Bridge). Encounters diminish the further downstream (north).

Operational

Mechanized Use:
Front Country.
Manage the majority of the river tracts for a Front Country setting where 2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and nonmotorized mechanized use.

Management Controls and Visitor Services:
Back Country.
On site controls and services are present but subtle.
Personnel periodic. Minimum amount necessary to achieve planning objectives.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on user ethics, nonnative invasive weed species found within the area, history, hunting, and other current resource programs. Use information and interpretation to lessen visitor conflicts, resource impacts, and to increase visitor awareness of wildlife habitat and wetland management.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads, boat ramps, hazards, and BLM-administered public land tracts.
Make available for special outdoor educational programs such as CORE and Take it Outside!
Work closely with the gateway communities of Thermopolis, Worland, Basin, and Greybull, and other partners in the region in marketing and outreach.

Monitoring

Vehicle counters at access points with routine surveys and observation.
Solicit partnerships and cooperative agreements to: Monitor recreation setting condition through on-site patrols. Informal visitor surveys and formal focus groups as funding allow.
Visitor reports of crowding. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other river segments, institute fee areas, or limit river use.

Management

Continue to provide for a day use experience and associated facilities with an emphasis on maintaining a middle country recreation setting.
Continue to provide opportunities that contribute to meeting recreation demand while protecting resources.
Provide and maintain visitor facilities, services, signing, and programs.

Administrative

Visual Resource Management:
Manage visual resources consistent with adjacent resource prescriptions.

Comprehensive Trails and Travel Management:
Manage trails and travel management consistent with adjacent resource prescriptions.

Lands and Realty:
Lands within the Bighorn River ERMA are ROW avoidance areas. ROWs are collocated whenever possible.
The Bighorn River ERMA is an alternative energy avoidance area for realty actions (i.e., wind, solar, etc.).
Pursue legal and physical access to maximize recreational opportunities.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Bighorn River ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Apply an NSO restriction on lands within the Bighorn River ERMA.
Avoid surface-disturbing activities within the Bighorn River ERMA such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Communities of Thermopolis, Worland, Basin, and Greybull, Wyoming Game and Fish, and other interested groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Badlands SRMA
SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
Tour de Badlands RMZ
SUPPORTING INFORMATION Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is contained within the Badlands SRMA, which is popular for motorized touring to explore the scenic desert basin. Natural recreational resources within the SRMA contain wildlife, open spaces, wild horses, and an erratic landscape which offers outstanding scenic quality.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Tour de Badlands RMZ for motorized recreationists to engage in motorized sightseeing touring, hunting, wildlife viewing, and nature viewing so that affected community residents report realizing a "moderate" level of recreation experience and benefit outcomes in these Middle Country and Front Country settings. **Activities:** Driving for pleasure, hunting, wildlife viewing, nature viewing, sightseeing. **Experiences:** Enjoy having easy access to natural landscapes. Enjoy having access to close-to-home outdoor amenities. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. **Benefits:** Improved mental well-being. Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Positive contributions to local-regional economic stability. Increased desirability as a place to live or retire.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:

Middle/Front Country.
On or near 4-wheeled drive and improved roads. Maintain main access roads through the area for 2-wheel and 4-wheel drive access into the Badlands area.

Naturalness:
Middle Country.
Natural setting may have moderately dominant alterations but would not draw the attention of the observers on trails and primitive roads within the area.

Facilities and Structures:
Front Country.
Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:
Back Country.
Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes. Usually group size is small.

Operational

Mechanized Use:
Front Country.
2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and nonmotorized mechanized use. On site controls and services present but subtle.

Management Controls and Visitor Services:
Middle Country.
On site controls and services present but subtle. Signs present at key access points. Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season. Some use restrictions, limit motorized travel to designated roads and trails.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, wildlife, and wild horses resources.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the wild horse program, and surrounding WSAs.
Make available for special outdoor educational programs such as CORE and Take it Outside!
Maintain a strong sign program so as to keep the access routes within the RMZ well marked.

Monitoring

Vehicle counters with routine surveys and observation.
Visitor reports of crowding.
Informal visitor surveys and formal focus groups as funding allow.
If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop one or more scenic interpretive sites and driving loops for motorized and mechanized travel in the Tour de Badlands area within the Badlands SRMA to highlight the area's scenic values. These could involve the Fifteenmile Creek and Dorsey Creek roads and The Murphy Draw Road with overlooks at the Painted Canyon of Elk Creek and at Bobcat Draw.
Identify routes to close and reclaim, construct new routes, and identify routes to remain open.
Develop trailheads for ATV unloading stations.
Interpretive signs at trailheads and parking areas.
Additional sites may be identified throughout the life of the plan.
Signs present at key access points, but limited within the RMZ.

Administrative

Visual Resource Management:
Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:
Limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Tour de Badlands area.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.
Allow surface-disturbing activities in the Tour de Badlands RMZ such as geophysical exploration (except casual use), saleable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.

To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Private landowners, Wyoming Department of Transportation, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, IMBA, community ATV organizations, and other clubs/organizations.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Badlands SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

Wild Badlands RMZ

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This RMZ is within the Badlands SRMA. This RMZ is rich in natural recreational resources such as erratic and dramatic landscapes, management to maintain the primitive to semi-primitive setting characteristics, wilderness characteristics, three WSAs, wildlife, and wild horses which caters to primitive and semi-primitive recreational experiences.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Wild Badlands RMZ exclusively for nonmotorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing so that affected community residents report realizing a "moderate" level of recreation experience and benefit outcomes in these Back Country settings. **Activities:** Hiking, hunting, wildlife viewing, nature viewing, sightseeing. **Experiences:** Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Feeling good about solitude, being isolated, and independent. Enjoy having easy access to natural landscapes. **Benefits:** Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance. Closer relationship with the natural world. Improved mental well-being. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Increased desirability as a place to live or retire.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Back Country.
Maintain road closures to maintain back country settings.

Naturalness:
Back Country.
Manage the natural setting so that they may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Primitive.
Trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare and developed only in occasions where necessary to protect the back country settings.

Social

Contacts and Group Size:
Back Country.
Manage for a season average of fewer than 6 encounters/day on and off travel routes.

Operational

Mechanized Use:
Primitive.
Non-motorized and non-mechanized (foot and horseback) travel only.

Management Controls and Visitor Services:
Back Country.
On site controls and services present at key access points, but subtle.
Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.
Minimum amount of BLM facilitating outputs necessary to achieve planning objectives.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop educational signs at trailheads and parking areas on user ethics, geology, and wilderness.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with WSAs, access points, information regarding the wilderness program, and outdoor ethics messages such as Leave No Trace!
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with surveys and observation along perimeter of WSAs.
Visitor reports of crowding.
Informal visitor surveys and formal focus groups as funding allow.
If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Identify routes to close and reclaim. Modify identified routes into nonmotorized and non-mechanized trails.
Develop primitive trailheads at key access points.
Install kiosks and signs at trailheads and parking areas.
Signs present at key access points, but very limited within the RMZ.

Administrative

Visual Resource Management:
Class I.

Comprehensive Trails and Travel Management:
Closed to motorized and non-mechanized travel.

Lands and Realty:
ROW avoidance area.
Alternative energy exclusion area for realty actions.

Minerals, Oil and Gas Leasing, and Other Surface-Disturbing Activities:
Mineral uses, Oil and Gas and Geothermal leasing, exploration, and development will be guided by the Interim Management Policy for Lands under Wilderness Review (IMP).

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Including, but not limited to: Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Sierra Club, Wyoming Wilderness Association.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Badlands SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

Tatman Mountain RMZ

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

This RMZ is within the Badlands SRMA. Much like the Wild Badlands RMZ, this RMZ is rich in natural recreational resources such as erratic and dramatic landscapes, dominant mountainous environment, and current management to maintain the primitive to semi-primitive setting characteristics, wildlife, and wild horses which caters to primitive and semi-primitive recreational experiences. The RMZ is located to the west of Sheep Mountain WSA and provides for exceptional wildlife resource opportunities, access, motorized and primitive forms of touring, and high scenic quality.

SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS

SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.

Objective Statement:
Manage the Tatman Mountain RMZ for nonmotorized recreationists to engage in muscle-powered activities such as hiking, hunting, mountain biking, and horseback riding so that affected community residents report realizing a "moderate" level of recreation experience and benefit outcomes in these Back country to Middle country settings.

Activities:
Hiking, hunting, mountain biking, wildlife viewing, nature viewing, sightseeing.

Experiences:
Savoring the total sensory – sight, sound, and smell – experience of a natural landscape.
Feeling good about solitude, being isolated, and independent.
Enjoy having easy access to natural landscapes.

Benefits:
Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance.
Closer relationship with the natural world.
Improved mental well-being.
Heightened sense of satisfaction with our area as a place to live.
Greater community involvement in recreation and other land use decisions.
Increased desirability as a place to live or retire.

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Middle Country.
On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.

Naturalness:
Back Country.
Manage the natural setting so that they may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Back Country.
Trails may exist but do not exceed standard to carry expected use.
Facilities and structures are extremely rare and developed only in occasions where necessary to protect the back country settings.

Social

Contacts and Group Size:
Back Country.
Manage for a season average of fewer than 6 encounters/day on and off travel routes. In issuing SRPs, allow for a group size less than 5 participants.

Operational

Mechanized Use:
Middle/Back Country.
Middle country for the access routes acting as main portals into the RMZ. Manage for back country settings (nonmotorized travel) outside of those corridors.

Management Controls and Visitor Services:
Middle Country.
On site controls and services present at key access points, but subtle.
Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM monitoring presence during hunting season.
Minimum amount of BLM facilitating outputs necessary to achieve planning objectives.

IMPLEMENTING DECISIONS
Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
Information and Education
Develop educational signs at trailheads and parking areas on user ethics, geology, wild horses, and wilderness characteristics. Provide stewardship information to help preserve the special landscape character. Provide for a map with designated routes and trails, key access points, private lands, and outdoor ethics messages such as Tread Lightly and Leave No Trace! Make available for special outdoor educational programs such as CORE and Take it Outside!
Monitoring
Vehicle counters with surveys and observation. Visitor reports of crowding. Informal visitor surveys and formal focus groups as funding allow. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.
Management
Identify routes to maintain as open to motorized use. Reclaim routes identified as closed. Maintain open routes so as to sustain motorized use. Modify identified closed routes into nonmotorized and mechanized trails for muscle-powered recreational activities. Develop primitive trailheads at key access points. Install kiosks and signs at trailheads and parking areas. Signs present at key access points, but very limited within the RMZ.
Administrative

Visual Resource Management:
Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:
Motorized use is limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.
Acquire legal and physical access to maximize recreational opportunities.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Tatman Mountain RMZ.

Minerals, Oil and Gas Leasing, and Other Surface-Disturbing Activities:
A CSU is stipulated within this zone.
Allow surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat) on a case-by-case basis.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Including, but not limited to: Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Back Country Horsemen, Sierra Club, Wyoming Wilderness Association.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

West Slope of the Bighorns SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

Canyons RMZ

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

This RMZ is contained within the West Slope of the Bighorns SRMA. The Canyon RMZ attracts visitors from both the surrounding communities to outside the region. The Medicine Lodge State Park attracts many visitors who enjoy exploring the slope of the Bighorns. Such resources include the Medicine Lodge and Dry Medicine Lodge canyons, Paint Rock Canyon, Trapper Creek and White Creek canyons, Spanish Point ACEC, Red Gulch Dinosaur Tracksite and the Red Gulch Dinosaur Tracksite ACEC, the Hyattville Logging Road, the Red Gulch/Alkali Road Backcountry Byway, prominent wildlife habitat management areas, abundant wildlife and fishing, significant cave and karst resources, highly rated scenic quality and access into the Bighorn National Forest. These resources provide for excellent primitive nonmotorized recreation to motorized (touring) recreation.

SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS

SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Canyons RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and nonmotorized recreationists to engage in hiking, wildlife viewing, hunting, fishing, nature viewing, and driving for pleasure so that they report realizing a "moderate" level of recreation experience and benefit outcomes listed below in these Back Country and Middle Country settings. **Activities:** Hunting, wildlife viewing, fishing, nature viewing, hiking, photography, sightseeing, spelunking. **Experiences:** Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Developing skills and abilities. Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Enjoying the closeness of family. **Benefits:** Improved mental well-being and physical fitness and health maintenance. Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance. Increased appreciation of area's cultural history. Heightened sense of satisfaction with our area as a place to live. Greater family bonding. Positive contributions to local-regional economic stability. Maintenance of community's distinctive recreation/tourism market niche or character. Increased desirability as a place to live or retire.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Back to Middle Country.
On land surrounding the Red Gulch/Alkali Road National Back Country Byway, Cold Springs Road, Hyattville Logging Road, and the Black Butte road, maintain middle country settings on or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight. Maintain back country settings within the WSAs and canyons.

Naturalness:
Middle/Back Country.
Natural setting may have subtle modifications that would be noticed but not draw the attention of the casual observer wandering through the area and primitive motorized routes and nonmotorized trails may exist. Maintain primitive naturalness settings for the WSAs and canyons where lands are essentially an unmodified natural environment. Evidence of humans is unnoticed by an observer wandering through the area.

Facilities and Structures:
Primitive/Back Country.
Facilities and structures are rare and often accessible via unimproved routes. Maintain primitive settings in the WSAs where trails may exist but do not exceed standard to carry expected use. Facilities and structures are extremely rare.

Social

Contacts and Group Size:
Back Country.
Usually 3-6 encounters/day off travel routes and campsites, and 7-15 encounters/day on travel routes for the majority of the zone. Usually group size is small. Areas such as Dry Medicine Lodge Canyon, Cold Springs Road, Hyattville Logging Road, and Paint Rock Canyon is middle country where 7-14 encounters/day off travel routes, and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:
Middle/Back Country.
Maintain Middle country settings along the Cold Springs Road, Black Butte Road, Hyattville Logging Road, and the Red Gulch/Alkali Road National Back Country Byway where 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use are acceptable. Maintain Back Country settings within the Spanish Point ACEC where mountain bikes perhaps other mechanized use is allowed, but all travel is nonmotorized.

Management Controls and Visitor Services:
Middle/Front Country.
Signs present at key access points.
Patrolled periodically by law enforcement officer, and other BLM employees. Spike in BLM presence during hunting season.
Some use restrictions, limit motorized travel to designated roads and trails outside the Spanish Point ACEC. Motorized use within the ACEC is strictly prohibited.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.
Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Red Gulch/Alkali Road National Back Country Byway, Medicine Lodge Wildlife Habitat Area; Trapper Creek, Medicine Lodge, and Alkali Creek WSAs, the Madison Recharge zone, and caving ethics.
Maintain the Red Gulch Dinosaur Tracksite.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring
Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies), Monitor recreation setting condition through on-site patrols throughout the year. Vehicle counters with routine surveys and observation. Visitor reports of crowding. Informal visitor surveys and formal focus groups as funding allow. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.
Management
Signs present at key access points, but limited within the SRMA. Interpretive signs at trailheads and parking areas. Develop new and maintain trailheads for foot and horse travel. Potential locations will include the Webber Canyon area, White Creek, Black Mountain area, Wapiti Ridge Trail, Lone Tree Trail and trailhead, Black Butte, and along the Red Gulch/Alkali Road National Back Country Byway. Additional sites may be identified throughout the life of the plan. Upgrade access route to the Lone Tree trailhead and upgrade the Lone Tree Trail. Develop hiking trails in the Wet and Dry Medicine Lodge Canyons. Construct Trailheads to accommodate mountain bike users. Construct Pull-offs along the Red Gulch/Alkali Road. Back Country Byway. Maintain the OHV route between the Medicine Lodge State Park and Cold Springs Road. Designate motorized touring loops connecting with the Bighorn National Forest, the Canyons RMZ, and the Brokenback/Logging Road RMZ, which may include new construction. Develop campgrounds if needed. Work with local spelunking community and adjacent land management agencies to maintain cave and karst areas.
Administrative

Visual Resource Management:
Class I within the Medicine Lodge, Trapper Creek, and Alkali Creek WSAs. Class II and III for the remainder of RMZ.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) is limited to designated roads and trails. Off road use within the WSAs is strictly prohibited.
Over-snow travel off of designated routes and ways is strictly prohibited.
All motorized travel is prohibited within the Spanish Point ACEC.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.
Consider the acquisition of legal and/or physical access for hunting, fishing, and camping. Consider acquiring areas such as Horse Mountain, Trapper Creek, and White Creek.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Canyons RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Avoid surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).
Apply CSU restriction for this zone.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Agreements:
Maintain cooperative agreement with Wyoming State Land Board, and Wyoming State Game and Fish.
Seek other agreements and partnerships as appropriate.

Partners:
Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Medicine Lodge State Park, IMBA, surrounding private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

West Slope of the Bighorns SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

Brokenback/Logging Road RMZ

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This area exhibits exceptional scenic quality, wildlife resources, and exposed geologic formations. The Hyattville Logging Road is within this area and is proposed to be a backcountry byway for Alternative B. The Logging Road is a popular access point into the Bighorn Mountains. Two other routes, the North and South Brokenback Roads act as very popular access points into the RMZ, as well as the Bighorn National Forest, during the big game hunting seasons. Access into this area is in part due to a coordinated agreement between the Wyoming Game and Fish and surrounding private land holders, as well as a foot/horse trail developed by the BLM so as to access more of this area. This area is a very popular hunting area for both local and visiting hunters.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Brokenback/Logging Road RMZ as a zone within the West Slope of the Bighorns SRMA for motorized and nonmotorized recreationists to engage in hiking, hunting, wildlife viewing, nature viewing, and driving for pleasure so that they report realizing a "moderate" level of recreation experience and benefit outcomes in these Back Country and Middle Country settings. **Activities:** Hunting, hiking, wildlife viewing, nature viewing, driving for pleasure. **Experiences:** Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoying the closeness of family. **Benefits:** Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance. Stronger ties with my family and friends. Greater awareness that the Bighorn Basin is special. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community's distinctive recreation/tourism market niche or character.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Middle Country Settings.
On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.
Front Country settings along the Hyattville Logging Road.
On or near improved country roads, but at least 0.5 mile from any highway.

Naturalness:
Back Country Settings.
Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Front/Middle Country.
Front Country settings for lands along the South and North Brokenback Roads, and along the Hyattville Logging Road.
Primitive and improved routes/trails may exist. Facilities and structures are back country settings where they are rare and isolated.
Remainder of RMZ is Middle Country.
Primitive motorized and nonmotorized trails may exist.

Social

Contacts and Group Size:
Back Country.
Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:
Middle Country.
4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use.

Management Controls and Visitor Services:
Back Country.
On site controls and services present but subtle. Minimum amount necessary to achieve planning objectives.
Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, geology, and wildlife resources.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hyattville/Logging Road Back Country Byway, Carter Access area, and Wyoming Game and Fish Wildlife Habitat Management Areas.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and observation.
Visitor reports of crowding.
Informal visitor surveys and formal focus groups as funding allow.
If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop facilities to enhance recreation and visitor services for the following areas:

- Trailheads for North and South Brokenback areas, Laddie Creek, and the Hyatteville Logging Road.
- Pull-outs along the Hyatteville Logging Road.
- Improve Salt Lick trail and trailhead.
- Construct additional trailheads and trails on a case-by-case basis or as the needs arise.

Designate motorized touring loops within the Brokenback/Logging road RMZ as well as connecting with the Canyons RMZ and the Bighorn National Forest, which may include new construction.

Administrative

Visual Resource Management:
Class II.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) is limited to designated roads and trails.
Continue to implement current South Broken Back Travel Management Plan.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.
Consider the acquisition of legal and/or physical access for hunting, fishing, and camping for areas including but not limited to North and South Brokenback roads, Luman Creek Road, Military Creek Road, Dorn Draw Road.
Lengthen public access duration for the North and South Brokenback roads to yearlong access under terms of the related Travel Management Plan.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Brokenback/Logging Road RMZ.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).
Apply a CSU for this zone.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Agreements:
Pursue additional access agreement in the South Brokenback, and North Brokenback areas.
Maintain current easement agreement with local land owners in this zone.
Seek other agreements and partnerships as appropriate.

Partners:
Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

South Bighorns ERMA
ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.
The southern Bighorns are popular for visitors to explore, hike, and especially hunt. Outfitters and tour guides enjoy guiding clients here due to the impressive and exceptional scenic qualities, abundant wildlife, and alternative access points onto 33-Mile Road (Hazelton Road) which exhibits exceptional viewing opportunities of the surrounding mountain landscape, the Cloud Peak Wilderness, the Bighorn Basin, and the Powder River Basin to the east; as well as access into the Hole-in-the-Wall region, the Middle Fork of the Powder River, Casper, and the Bighorn National Forest. The South Bighorns contain a rich history including cattle and sheep operations, mining, and infamous outlaws including Billy the Kid. Currently, an impressive coordinated travel management effort improving access into the area as well as improving resource management exists between the BLM, Wyoming State Game and Fish, Wyoming State Land Board, and the Orchard Ranch. A coordinated resource effort once existed between the BLM, Wyoming State Land Board, and the Wyoming Game and Fish Department, which accomplished recreation, wildlife, and weed management goals. The impressive Deep Creek is a waterway segment identified as eligible and draft suitable for inclusion into the Wild and Scenic Rivers System, as well as a sought-after fishery for exceptional fishing and sightseeing opportunities. Due to the amount of and the spatial location of private lands within the Southern Bighorns, the most appropriate recreation management strategy of the area would be under a separate ERMA.
ERMA OBJECTIVE(S) DECISION
ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.
Objective Statement: Manage the South Bighorns as an ERMA for motorized and nonmotorized recreationists to engage in hiking, wildlife viewing, nature viewing, hunting, fishing, and driving for pleasure in these Back Country and Middle Country settings.
ERMA OBJECTIVE(S) DECISION
ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.

Physical

Remoteness:
Middle Country Settings.
On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.
Front Country settings along Rome Hill Road, Dry Farm Road, and Hazelton Road.
On or near improved country roads, but at least 0.5 mile from any highway.

Naturalness:
Back Country Settings.
Middle Country.
Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Primitive motorized and nonmotorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:
Back Country settings.
Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.
Rural settings along Upper Nowood Road where people seem to be everywhere, but human contact remains intermittent.

Operational

Mechanized Use:
Front/Middle Country.
Front Country along Cherry Creek Road, Dry Farm Road, Spring Creek Road, Rome Hill Road, and Hazelton Road.
2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and nonmotorized mechanized use.
Middle Country for remainder of ERMA.
4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use.

Management Controls and Visitor Services:
Back Country.
On site controls and services are present but subtle.
Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Some onsite visitor orientation (kiosk and trail markers) will be developed, which may include interpretive signs at trailheads and parking areas on history, user ethics, wildlife resources, etc.
Provide stewardship information to help preserve the special landscape character. Work with partners to provide additional interpretation of the historic events and buildings, ranches, and other remnants.
Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hazelton Road Back Country Byway, and the Upper Nowood Travel Management Plan.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys, on-site patrols, and observation.
Visitor reports of crowding.
Informal visitor surveys and formal focus groups as funding allow.
If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.

Management

Develop facilities necessary to maximize recreational opportunities at areas such as, but not limited to the Cherry Creek stock driveway crossing of Deep Creek, Otter Creek, and Split Rock.
Develop trailheads for Mahogany Butte, Deep Creek, Upper Nowood areas, and in other areas on a case-by-case basis so as to sustain recreational opportunities, as well as to address use and user conflicts, public health and safety, and to address resource protection.

Administrative

Visual Resource Management:
Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) is limited to designated roads and trails.
Continue to implement Upper Nowood Travel Management Plan.

Lands and Realty:
ROW avoidance area.
Open to alternative energy development. Co-locate renewable energy ROW authorizations whenever possible.
Consider the acquisition of legal and/or physical access for hunting, fishing, boating, and camping. Areas to be considered for acquisition include Otter Creek, Deep Creek, Little Canyon Creek, public land tracts along the Nowood River area, Cherry Creek Road to Hazelton Road, Lysite Mountain, land parcels within Spring Creek, and Spring Creek Road to Rome Hill Road.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the South Bighorns ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Allow surface-disturbing activities.
Review mineral leases on a case-by-case basis and apply mitigation through activity level planning.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Agreements:
Pursue/revitalize cooperative agreement with Double-H Ranch, Wyoming State Land Board, and Wyoming Game and Fish.
Maintain cooperative agreement with Orchard Ranch, Wyoming State Land Board, and Wyoming Game and Fish.
Seek other agreements and partnerships as appropriate.

Partners:
Including, but not limited to the Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Orchard Ranch, Double-H Ranch, Back Country Horsemen, Rocky Mountain Elk Foundation, Ten Sleep, and other sports groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Middle Fork of the Powder River SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.
SUPPORTING INFORMATION Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
BLM manages a campground along the Middle Fork of the Powder River which is a destination area for visitors from within and outside the region. The Middle Fork of the Powder River is managed as a blue ribbon trout fishery, as well as identified as eligible and draft suitable for inclusion into the Wild and Scenic River System. The Buffalo Field Office had also identified the Middle Fork of the Powder River within their jurisdiction as eligible for inclusion into the Wild and Scenic River System. This area has received significant managerial support from both the Worland and Buffalo Field Offices in coordination with the Wyoming State Game and Fish in improving access into the area to support a variety of recreational activities, dominantly hunting and fishing.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Middle Fork of the Powder River as an SRMA with a destination strategy for motorized and nonmotorized recreationists to engage in fishing, hunting, hiking, wildlife viewing, nature viewing, and driving for pleasure so that they report realizing a "moderate" level of recreation experience and benefit outcomes in these Back Country and Middle Country settings. **Activities:** Fishing, hunting, hiking, camping, photography, nature viewing, general dispersed recreation, Driving for pleasure, snowmobiling, snowshoeing. **Experiences:** Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Enjoying the closeness of family. Feeling good about solitude, being isolated, and independent. **Benefits:** Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance. Stronger ties with my family and friends. Greater awareness that the Bighorn Basin is special. Greater spiritual growth. Heightened sense of satisfaction with our area as a place to live. Lifestyle improvement or maintenance. Greater family bonding. More well-rounded childhood development. Increased desirability as a place to live or retire.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Middle Country Settings.
Front Country settings along Hazelton Road and the Middle Fork of the Powder River Campground.On or near 4-wheel drive roads, but at least 0.5 mile from all improved roads, though they may be in sight.

Naturalness:
Back Country Settings.
Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.
Middle Country Settings for lands within the Middle Fork of the Powder River Campground.
Natural setting may have moderately dominant alterations but would not draw the attention of the observers on trail and primitive roads within the area.

Facilities and Structures:
Middle Country.
Primitive motorized and nonmotorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.
Manage the Middle Fork of the Powder River Campground as Front Country.

Social

Contacts and Group Size:
Back Country settings.
Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.
Middle country settings along Hazelton Road and Middle Fork of the Powder River Campground. Usually 7-14 encounters/day off travel routes (e.g., staging areas and campgrounds), and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:
Front Country along Hazelton Road.
2-wheel drive vehicles predominant, but also 4-wheel drive vehicles and nonmotorized mechanized use.
Middle Country for remainder of SRMA.
4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use.

Management Controls and Visitor Services:
Back Country.
On site controls and services are present but subtle.
Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Some onsite visitor orientation (kiosk and trail markers) will be developed. This may include orientation methods such as interpretive signs at trailheads and Middle Fork of the Powder River Campground on history, user ethics, and fish and wildlife resources.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads and trails, trailheads, camp sites, and information regarding the Hazelton Road Back Country Byway.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys, on-site patrols, and observation. Visitor reports of crowding. Informal visitor surveys and formal focus groups as funding allow. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails or other campgrounds, reevaluating fee structure, etc.
Management
Maintain and improve the Middle Fork of the Powder River campground and associated so as to maximize identified beneficial outcomes. Develop additional trailheads, campgrounds, or other recreational facilities on a case-by-case basis so as to meet identified beneficial outcomes, recreational setting character conditions, and resource maintenance. Develop trailhead at the Middle Fork Campground, and in other areas on a case-by-case basis.
Administrative

Visual Resource Management:
Class II.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.
Consider the acquisition of legal and/or physical access for recreation related opportunities. Areas to be considered for acquisition include public land tracts along the Cherry Creek Road to Hazelton Road, and along Hazelton Road.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Middle Fork Powder River SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Apply a CSU stipulation for the Middle Fork Powder River SRMA.
Avoid surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Agreements:
Pursue MOUs with surrounding land owners, Wyoming State Land Board, Wyoming Game and Fish, and the Buffalo and Casper BLM Field Offices.
Seek other agreements and partnerships as appropriate.

Partners:
Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, Buffalo and Casper BLM Field Offices, private land owners, Back Country Horsemen, Rocky Mountain Elk Foundation, and other sports groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Canyon Creek SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

Canyon Creek area is located within the southern Bighorns just south of Highway 16, which is a very popular highway over the Bighorn Mountains as well as a popular route to Yellowstone National Park. Canyon Creek exhibits exceptionally high scenic qualities from the exposed dolomite and Ten Sleep formation observed through the impressive canyon complemented by the perennial Canyon Creek which supports a blue-ribbon fishery and a healthy riparian zone through the canyon. A subdivision (Canyon Creek Village) is growing south of the area in which residents enjoy exploring, hiking, hunting, and fishing Canyon Creek. Canyon Valley Resort is located within the area which provides recreational opportunities such as guiding services for visitors, big game outfitting, and golfing opportunities. The scenic qualities as well as the wildlife resources establish the foundation for the tourism market in this area. Smilo Road (BLM Road 1416) provides access into BLM-administered public lands east of Canyon Creek as well as the Bighorn National Forest.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Canyon Creek SRMA for nonmotorized recreationists to engage in hiking, hunting, fishing, nature viewing, and wildlife viewing so that they report realizing a "moderate" level of recreation experience and benefit outcomes in these Back Country settings. **Activities:** Fishing, hunting, hiking, nature viewing, wildlife viewing. **Experiences:** Savoring the total sensory – sight, sound, and smell – experience of a natural landscape. Develop skills and abilities. Enjoy going exploring on my/our own. Enjoy having easy access to natural landscapes. Enjoying getting some needed physical exercise. **Benefits:** Improved mental well-being. Improved physical fitness and health maintenance. Heightened sense of satisfaction with our area as a place to live. Greater community involvement in recreation and other land use decisions. Greater family bonding. Increased desirability as a place to live or retire. Maintenance of community's distinctive recreation/tourism market niche or character.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Back Country.
More than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight. Smilo Road, the access route to the Canyon Creek fishing access parking area, and few other two-tracks are observed along the edges of the area.

Naturalness:
Back Country.
Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Back Country.
Trails may exist but do not exceed standard to carry expected use. Facilities and structures are rare and isolated.

Social

Contacts and Group Size:
Back Country settings.
Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:
Back Country.
Mountain bikes perhaps other mechanize use but all is nonmotorized. Smilo Road will remain open to motorized access into area.

Management Controls and Visitor Services:
Back Country.
On site controls and services are present but subtle.
Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs at trailheads and parking areas on history, user ethics, nonnative invasive weed species found within the area, geology, and other current resource programs.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads, trailheads, trails, and camp sites.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies), Monitor recreation setting condition through on-site patrols.
Vehicle counters with routine surveys and observation.
Visitor reports of crowding.
Informal visitor surveys and formal focus groups as funding allow.

Management

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.
Develop looping hiking trails in Canyon Creek, and off of Smilo Road.
Develop trailheads at Canyon Creek and Smilo Road.
Some onsite visitor orientation (kiosk and trail markers) will be developed.

Administrative

Visual Resource Management:
Class II.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.
Acquire legal and physical access to maximize recreational opportunities.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Canyon Creek SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).
Apply a CSU stipulation.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Agreements:
Pursue a cooperative agreement with the Canyon Creek Estates.
Seek other agreements and partnerships as appropriate.

Partners:
Big Horn National Forest, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Canyon Creek Estates, community of Ten Sleep, Back Country Horsemen, and other interested groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Red Canyon Creek ERMA

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

Red Canyon Creek is located along the slopes of the Owl Creek Mountains outside the community of Thermopolis. This area exhibits high scenic qualities, wildlife resources, and opportunities for primitive-type recreation. A subdivision is growing on the north side of the area, which the adjacent BLM-administered public lands provides for easy-to-access public lands for the local residents. The community of Thermopolis has been marketing its natural recreational resources (most especially its thermal resources located within the very popular Hot Springs State Park), as well as prioritizing primitive-type recreational opportunities such as hiking, and horseback riding within the State Park. Other uses exist within and around the area such as livestock grazing, and mineral development. Legal public access into the area is questionable, and there are private surface land parcels within the area.

ERMA OBJECTIVE(S) DECISION

ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.

Objective Statement:
Manage the Red Canyon Creek ERMA to maintain a back country setting, to address public health and safety, use and user conflicts, and resource protection. In addition, recreation management within the ERMA will manage for motorized and nonmotorized recreationists to engage in hiking, hunting, wildlife viewing, and nature viewing.

MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS

Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.

Physical

Remoteness:
Back Country.
Most of the SRMA is more than 0.5 mile from any road, but not as distant as 3 miles, and no road is in sight. Access routes (two-tracks and improved route) exist along the fringe of the SRMA, as well as within parcels of private lands within the area.

Naturalness:
Back Country.
Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Back Country.
Primitive motorized routes and nonmotorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:
Back Country.
Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small.

Operational

Mechanized Use:
Back Country.
Manage the SRMA for mountain bikes perhaps other mechanized use but all is nonmotorized. The fringes will be managed for 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use so as to maintain current land uses.

Management Controls and Visitor Services:
Back Country.
On site controls and services are present but subtle.
Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop visitor orientation signs at trailheads and parking areas on user ethics, designated motorized routes, trails, nonnative invasive weed species found within the area, geology, and other current resource programs.
Provide stewardship information to help preserve the special landscape character.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Vehicle counters with routine surveys and on-site patrols.
Monitor for resource degradation, user conflicts, health and safety, and prescribed settings.

Management

Develop hiking trail to Red Canyon Creek.
Develop trailheads at northern access point.
Signs present at key access points, but limited within the ERMA.
Interpretive signs and visitor orientation materials at trailheads and parking areas.
Engage local community, businesses, and other partners in the development and distribution of a brochure and/or area guide book.

Administrative

Visual Resource Management:
Manage VRM consistent with other resource management objectives.

Comprehensive Trails and Travel Management:
All motorized use (including over-snow travel) is limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.
Pursue legal and physical access to maximize recreational opportunities.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Red Canyon Creek ERMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
On a case-by-case basis, allow surface-disturbing activities such as geophysical exploration (except casual use), salable minerals exploration and development, and construction activities (except those related to development of recreation facilities or wildlife habitat).
Review mineral leases on a case-by-case basis, open Red Canyon Creek area to appropriations under the mining laws, and authorize mineral material sales and/or free use permits; apply mitigation through activity level planning.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Community of Thermopolis, Hot Springs State Park, Wyoming State Land Board, Wyoming State Trails Program, Wyoming Game and Fish, private land owners, Back Country Horsemen, and other interested groups.

Other Administration:

Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

Basin Gardens Play Area SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.
This area is located between the Communities of Greybull and Basin, Wyoming. This area is currently being used for off-road hill climbs used by both ATVs and motorcycles, dominantly motorcycles. Visitors are from within the communities, as well as from outside the area, particularly Billings, Montana. The area is composed of bentonite and mostly devoid of vegetation. The Basin Gardens area provides for exceptional motorized hill climbing opportunities ranging from novice riders to very challenging climbs for the experienced riders. The communities from RMP Scoping opportunities had identified this area as highly desired for motorized recreational opportunities.
SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.
Objective Statement: Manage the Basin Gardens Play Area SRMA for motorized recreationists to engage in ATV, motorbike, and other motorized hill climbing activities so that visitors report realizing a "moderate" level of recreation experience and benefit outcomes in these Front Country settings. **Activities:** Driving for pleasure, motorcycle hill climbing. **Experiences:** Developing skills and abilities. Enjoying risk-taking adventure. Being around people I know and enjoy. **Benefits:** Improved physical fitness and health maintenance. Improved outdoor recreation skills. Enhanced sense of personal freedom. More well-rounded childhood development. Heightened sense of satisfaction with our area as a place to live. Increased desirability as a place to live or retire. Improved local economic stability. Increased local tourism revenue. Maintenance of community's distinctive recreation/tourism market niche or character.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Front Country.
The RMZ is surrounded by county roads, and displays tracks from heavy off-road use.

Naturalness:
Front Country.
The area's natural setting from the intense off-road use may have modifications which range from being easily noticed to strongly dominant to observers within the area. These alterations would remain unnoticed or visually subordinate from sensitive travel routes (Highway 16, 20) and use areas.

Facilities and Structures:
Front Country.
Primitive and improved routes/trails may exist. Facilities and structures are scattered.

Social

Contacts and Group Size:
Middle Country settings.
Usually 7-14 encounters/day off travel routes (e.g., staging areas), and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:
Middle Country.
4-wheel drive vehicles, ATVs, dirt bikes, in addition to nonmotorized mechanized use.

Management Controls and Visitor Services:
Front Country.
On site controls and services are present but harmonize with the natural environment.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Ensure targeted experiences and benefits is included and explained in all visitor information.
Engage local sporting good businesses and other partners in the development and distribution of a brochure and/or area guide book.
Some onsite visitor orientation (kiosk and trail markers) will be developed. Orientation materials will include a map with designated routes/areas, trailheads, docking stations, and designated areas tailored for different degrees of riding experience (novice areas to experienced areas).
Make available for special educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies).
Monitor recreation setting condition through on-site patrols.
Vehicle counters with routine surveys and observation.
Visitor reports of crowding.
If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails or areas or limiting carrying capacity at trailheads.

Management

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.
Develop areas for novice riders to highly experienced riders.
Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking.

Administrative

Visual Resource Management:
Manage visual resource objectives according to adjacent resource program prescriptions.

Comprehensive Trails and Travel Management:
Motorized use open to off-road/cross-country use.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.
Pursue legal and physical access to maximize recreational opportunities.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Basin Gardens Play Area SRMA.
Avoid mineral material disposals in the Basin Gardens Play Area SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).
Apply a CSU restriction for the Basin Gardens Play Area SRMA.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Surrounding communities including but not limited to Greybull, Basin, Manderson, and Worland, Wyoming State Trails Program, surrounding private land owners, NOHVCC, Sagehoppers, and other interested groups and OHV clubs.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.
No glass containers and pallets (burning, etc.) allowed.
Noise constraints are enforceable via 43 CFR 8343.1.

Rattlesnake Ridge ERMA

ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services (R&VS) program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

This area is located approximately 4 miles east of Worland, Wyoming. This area is currently being used for off-road hill climbs used by both ATVs and motorcycles, dominantly motorcycles; as well as oil and gas extraction activities, ROW projects including radio signal towers, and grazing. Most of the visitors are from within the Worland area, as well as from other areas outside of the Worland area, most especially from Thermopolis, Wyoming. The area is heavily used by motorized use enthusiasts, and is mostly devoid of vegetation. The Rattlesnake Ridge area provides for exceptional motorized hill climbing opportunities ranging from novice riders to very challenging climbs for the experienced riders. In addition, the surrounding communities had identified this area as highly desirable for motorized recreational opportunities during the RMP Scoping meetings. The other uses within the area expose visitors to potential health risks from elements such as hydrogen sulfide (H2S), and active oil and gas extraction activities. Conflicts between users have been an issue and interim management between the oil and gas companies and recreationists has been established in this area, but without significant BLM management guidance.

ERMA OBJECTIVE(S) DECISION

ERMA objectives must define the recreation activities and the associated qualities and conditions which become the focus for R&VS management.

Objective Statement:
Manage the Rattlesnake Ridge ERMA for motorized recreationists to safely engage in ATV, motorbike, and other motorized hill climbing activities with a priority in addressing use and user conflicts, public health and safety, resource protection, and to maintain these front country to rural settings.

MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS

Identify management action and allowable use decisions for R&VS and other programs necessary to: facilitate visitor participation in the identified outdoor recreation activities; maintain particular recreation setting characteristics; address visitor health and safety, resource protection, and use and user conflicts; and, address the type(s), activities, and locations where special recreation permits would or would not be issued.

Physical

Remoteness:
Rural Country.
The RMZ is surrounded by county roads, and displays tracks from heavy off-road use. The area is on or near primary highways, but still within a rural area.

Naturalness:
Rural Country.
The area's natural setting from the intense off-road use as well as the industrial activities is culturally modified to the point that it is dominant to the sensitive travel route observer, Pedestrians or other slow moving observers are constantly within view of culturally changed landscape.

Facilities and Structures:
Rural Country.
Paved, improved, and/or primitive roads/highways dominate the landscape. Facilities and structures are readily apparent and may range from scattered to small dominant clusters.

Social

Contacts and Group Size:
Middle Country settings.
Usually 7-14 encounters/day off travel routes (e.g., staging areas), and 15-29 encounters/day en route. Usually group size is small to moderate.

Operational

Mechanized Use:
Middle Country.
4-wheel drive vehicles, ATVs, dirt bikes, in addition to nonmotorized mechanized use.

Management Controls and Visitor Services:
Rural Country.
On site controls and services are obvious and numerous. Largely harmonize with the man-made environment (dominantly from the oil and gas extraction activities and the ROW projects).

IMPLEMENTATION DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.
Information and Education Develop visitor orientation signs at trailheads and parking areas on user ethics, nonnative invasive weed species found within the area, other important land uses within the area, and user safety. Provide stewardship information to help preserve the special landscape character. Provide for a map with designated routes, trailheads, docking stations, designated areas tailored for different degrees of riding experience (novice areas to experienced areas). Make available for special educational programs such as CORE and Take it Outside! Monitoring Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies). Monitor recreation setting condition through on-site patrols. Vehicle counters with routine surveys and observation. Visitor reports of crowding. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails or areas or limiting carrying capacity at trailheads. Management Develop areas for novice riders to highly experienced riders with coordinated effort through other entities such as local OHV groups, and onsite oil and gas companies. Develop trailheads containing loading dock stations, kiosks, comfort stations, and adequate parking. Signs present at key access points, but limited within the ERMA. Visitor orientation materials (kiosks and signs) at trailheads and parking areas. Administrative

Visual Resource Management:
Manage visual resources according to other adjacent resource program prescriptions.

Comprehensive Trails and Travel Management:
Motorized use limited to existing roads and trails.

Lands and Realty:
Open to all ROW (including alternative energy realty actions).
Pursue legal and physical access to maximize recreational opportunities.

Minerals:
Open to oil and gas, to mineral entry and, other mineral leasing subject to standard protection measures.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Allow surface-disturbing activities such as geophysical exploration (including casual use), salable minerals exploration and development, and construction activities.
(including those related to development of recreation facilities or wildlife)

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Surrounding communities including but not limited to Worland, Thermopolis, Manderson, Basin, and Greybull; Wyoming State Trails Program, surrounding land users and industries, NOHVCC, Sagehoppers, and other interested groups and OHV clubs.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.
Glass containers and pallets are prohibited.

Horse Pasture SRMA

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation. For each SRMA: establish objective decisions, describe recreation setting characteristics, identify management actions and allowable use decisions and, if necessary, identify implementation decisions.

SUPPORTING INFORMATION

Briefly describe the rationale for designating the SRMA including the unique value, importance or distinctiveness of the area. This documents the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

The Horse Pasture SRMA is 144 acres of BLM-administered public land nestled along the foothills of Rattlesnake Ridge and surrounded by agriculture uses. This area was once used as an oil and gas staging area, complete with residential buildings. Currently, in coordination with Devon Energy Corporation, the BLM is in the process of reclaiming the area to pre-development landscape. The area is used by the community of Worland for uses such as walking, hunting (bird and big game), and nature viewing.

SRMA/RECREATION MANAGEMENT ZONE (RMZ) OBJECTIVE(S) DECISIONS

SRMAs may be subdivided into RMZs with discrete objectives. SRMA/RMZ objectives must define the specific recreation opportunities (i.e., activities, experiences and benefits derived from those experiences) which become the focus of Recreation and Visitor Services (R&VS) management.

Objective Statement:
Manage the Horse Pasture SRMA for nonmotorized recreationists to engage in photography, hunting, nature viewing, and sightseeing so that they report realizing a "moderate" level of recreation experience and benefit outcomes in these back to middle country settings.

Activities:
Hiking, wildlife viewing, nature viewing, photography, hunting (bird and big game), dog interaction (walking, training, hunting, etc.).

Experiences:
Enjoy going exploring on my/our own.
Learn.
Savoring the total sensory – sight, sound, and smell – experience of a natural landscape.
Enjoy the closeness of family.
Learning more about things here.
Enjoy having easy access to natural landscapes.

Benefits:
Enhanced awareness and understanding of nature.
Greater sensitivity to/awareness of outdoor aesthetics, nature's art and its elegance.
Increased appreciation of area's cultural history.
Improved mental well-being.
Heightened sense of satisfaction with our area as a place to live.
Greater community involvement in recreation and other land use decisions.
Increased desirability as a place to live or retire.
Maintenance of community's distinctive recreation/tourism market niche or character.

RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS
Describe the physical, social and operational recreation setting qualities to be maintained or enhanced.

Physical

Remoteness:
Front Country.
The south boundary is along an improved road used for agricultural purpose. Some primitive routes exist within the area from past management. Within the SRMA, the desired remoteness setting will be middle country, the edge will, by default, be front country.

Naturalness:
Back Country.
Natural setting may have subtle modifications but not draw the attention of the casual observer wandering through the area.

Facilities and Structures:
Back Country.
Primitive motorized routes and nonmotorized trails may exist. Facilities and structures are rare and often accessible via unimproved routes.

Social

Contacts and Group Size:
Back Country.
Usually up to 6 encounters/day off travel routes, and up to 15 encounters/day on trails. Usually group size is small. Most of the time, social settings will reflect primitive definition.

Operational

Mechanized Use:
Back Country.
Manage the SRMA for mountain bikes perhaps other mechanized use but all is nonmotorized. The fringes will be managed for 4-wheel drive vehicles, ATVs, dirt bikes, or snowmobiles in addition to nonmotorized mechanized use so as to maintain current land uses.

Management Controls and Visitor Services:
Back Country.
On site controls and services are present but subtle.
Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement, with an increase in BLM presence during big game hunting season.

IMPLEMENTING DECISIONS

Implementation decisions are actions to achieve or implement land use plan decisions. Implementation decisions include: management, administration, information and education and monitoring.

Information and Education

Develop interpretive signs and visitor orientation materials at trailheads and parking areas on user ethics, nonnative invasive weed species found within the area, history, hunting, and other current resource programs.
Provide stewardship information to help preserve the special landscape character.
Provide for a map with designated roads, trailheads, trails.
Make available for special outdoor educational programs such as CORE and Take it Outside!

Monitoring

Solicit partnerships and cooperative agreements to: Monitor outcome attainment and preferences through customer assessments (focus group interviews or visitor studies), Monitor recreation setting condition through on-site patrols.
Vehicle counters with routine surveys and observation.
Visitor reports of crowding.
Informal visitor surveys and formal focus groups as funding allow.

Management

Utilize adaptive management techniques to provide identified recreation opportunities (activities, experiences, and benefits) and reach desired future setting conditions.
If need arrives, develop interpretive/historic nature trail within the Horse Pasture.
Develop trailhead at western edge of SRMA. Facilities will include, but not limited to visitor orientation materials, adequate parking, comfort station, and other necessary facilities identified throughout the life of the plan.
Signs present at key access points, but limited within the SRMA, with exception to nature trail.
Interpretive signs at trailhead, and along trail.

Administrative

Visual Resource Management:
Class II.

Comprehensive Trails and Travel Management:
Motorized use within the SRMA is limited to designated roads and trails.

Lands and Realty:
ROW avoidance area.
Alternative energy avoidance area for realty actions.

Minerals:
Do not pursue withdraw from appropriation under the mining laws for lands within the Horse Pasture SRMA.

Oil and Gas Leasing and Other Surface-Disturbing Activities:
Avoid surface-disturbing activities such as geophysical exploration, salable minerals exploration and developments, and construction activities (except those related to development of recreation facilities or wildlife habitat).
Apply a CSU stipulation for the Horse Pasture SRMA.

Special Recreation Permits:
SRPs will be issued as a discretionary action. Issue SRPs for a wide variety of uses, that are consistent with resource/program objectives, and within budgetary/workload constraints.
Cost recovery procedures for issuing SRPs would be applied where appropriate.
If circumstances warrant, limitations on available SRPs may be developed and implemented.
If circumstances warrant, limitations on SRP group numbers may be developed and implemented.
To assist in the determination of whether an organized group activity or event would require an SRP, factors such as the following may be considered: resource concerns, user conflicts, need for monitoring, health and safety concerns, risk of damage to federal facilities or property. The following guidelines will be used in determining SRP status:
1-15 participants – No SRP required, unless otherwise determined that an SRP will be needed.
16-30 participants – Letter of Agreement, unless otherwise determined that an SRP will be needed.
Over 30 participants – SRP required.

Partners:
Community of Worland, Wyoming State Trails Program, Wyoming Game and Fish, Devon Energy Corporation, and other interested groups.

Other Administration:
Limit the use of signing or other administrative controls unless and until monitoring supports an increase in education, signing, or enforcement to meet public recreation objectives for the area.

This page intentionally
left blank

Appendix K. Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

JUN 2 9 2015

In Reply Refer To:
06E13000-2015-F-0097

Memorandum

To: Field Managers, Bureau of Land Management, Worland and Cody Field Offices, Worland and Cody, Wyoming

From: Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming

Subject: Section 7 Consultation for the Bighorn Basin Resource Management Plan

This correspondence transmits the U.S. Fish and Wildlife Service (USFWS) programmatic biological opinion in response to the U.S. Bureau of Land Management's (BLM) request for consultation for the impacts from the BLM's Bighorn Basin Resource Management Plan (RMP) Revision (BLM 2008a) and committed conservation measures (proposed action) to federally listed species in Wyoming in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your March 5, 2015, request for formal consultation was received March 12. On April 7, 2015, the USFWS notified the BLM that all information necessary to begin consultation had been received or was otherwise accessible. You requested concurrence with numerous "not likely to adversely affect" determinations and concurrence with no jeopardy determinations for proposed critical habitat and a non-essential experimental population.

This correspondence addresses potential effects to the black-footed ferret (*Mustela nigripes*), Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos horribilis*), and the Ute ladies'-tresses orchid (*Spiranthes diluvialis*) from all planned programs (Appendix 1) of the Proposed Bighorn Basin RMP as well as the BLM's commitment to the Conservation Measures listed in the Bighorn Basin RMP Biological Assessment (BA) (BLM 2015a) and commitments in relevant Programmatic Statewide Species BAs.

The BLM's March 2015 BA also addressed potential effects to the North American wolverine (*Gulo luscus*). On August 13, 2014, the USFWS withdrew a proposal to list the North American wolverine in the contiguous United States as a threatened species under the ESA (79 FR 47522). The USFWS appreciates the BLM's effort to provide proactive analysis of impacts to this species. The North American wolverine will not be addressed further in this correspondence.

The planned programs of the Bighorn Basin RMP are (1) Air Quality, (2) Soil, (3) Water, (4) Cave and Karst Resources, (5) Locatable Minerals, (6) Leasable Minerals – Coal, (7) Leasable Minerals – Oil Shale, (8) Leasable Minerals – Geothermal, (9) Leasable Minerals – Oil and Gas, (10) Leasable Minerals – Other Solid Leasables, (11) Salable Minerals, (12) Fire and Fuels Management – Wildfires (Unplanned Ignitions), (13) Fire and Fuels Management – Prescribed Fires, (14) Fire and Fuels Management – Stabilization and Rehabilitation, (15) Forests, Woodlands, and Forest Products, (16) Grassland and Shrubland Communities, (17) Riparian/Wetland Resources, (18) Invasive Species and Pest Management, (19) Fish and Wildlife Resources, (20) Special Status Species – Plants, (21) Special Status Species – Fish and Wildlife, (22) Wild Horses, (23) Cultural Resources, (24) Paleontological Resources, (25) Visual Resource Management, (26) Lands and Realty, (27) Renewable Energy, (28) Rights-of-Way and Corridors, (29) Comprehensive Travel and Transportation Management, (30) Recreation, (31) Lands with Wilderness Characteristics, (32) Livestock Grazing Management, (33) Special Designations – Areas of Critical Environmental Concern and Other Special Management Areas, (34) Special Designations – National Back Country Byways, (35) Special Designations – National Historic Landmarks, (36) Special Designations – National Historic Trails and Other Historic Trails, (37) Special Designations – Wild and Scenic Rivers, (38) Special Designations – Wilderness Study Areas, (39) Socioeconomic Resources, and (40) Health and Safety.

This correspondence includes: (1) an informal consultation for "no effect" (NE) and "not likely to adversely affect" (NLAA) determinations for effects to listed species, (2) a concurrence for "no jeopardy" (NJ) determinations, and (3) a formal consultation (programmatic BO) for potential "likely to adversely affect" (LAA) determinations for BLM-authorized activities, conservation measures, proposed protections, and best management practices (Appendices 1, 2, 3, and 4, respectively) within the Bighorn Basin planning area. The BLM has determined that certain activities under the livestock grazing program may affect and are likely to adversely affect (LAA) the grizzly bear and the Ute ladies'-tresses orchid. The informal and formal consultations and "no jeopardy" concurrence included in this document are based on our review of your BA (BLM 2015a). A complete record of all documents and correspondence concerning this consultation are on file in the USFWS Wyoming Ecological Services Field Office.

Consultation History

The USFWS and the BLM began programmatic consultation on impacts of Wyoming BLM activities to the black-footed ferret (*Mustela nigripes*), Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos horribilis*), and Ute ladies'-tresses orchid (*Spiranthes diluvialis*) on October 23, 2001. Between October 23, 2001, and March 12, 2015, the USFWS reviewed drafts of the Bighorn Basin RMP and Bighorn Basin RMP BA, as well as, provided statewide species-specific section 7 consultation on individual BLM RMPs (including the existing Cody (BLM 1990), Worland-Grass Creek (BLM 1998), and Worland-Washakie (BLM 1988) RMPs throughout Wyoming. The USFWS received all information necessary to begin formal consultation on the proposed Bighorn Basin RMP (BLM 2015b) on March 12, 2015. The USFWS provided the BLM with a draft BO on June 1, 2015. The USFWS received final comments on the draft BO on June 11, 2015. The USFWS then began steps to finalize the BO and associated appendices.

Informal Consultation and "No Jeopardy" Concurrence

In the Bighorn Basin RMP BA, the BLM made LAA, NLAA, NE, and NJ determinations for the effect of certain programs on listed species in the Bighorn Basin planning area in Wyoming. These are displayed in Table 1. The ESA does not require the USFWS to concur with "no effect" determinations, but we appreciate receiving the information used to make the determination

Table 1. Listed Species "likely to adversely affect (LAA)," "not likely to adversely affect (NLAA)," "no effect (NE)," and "no jeopardy (NJ)" determinations made by the BLM.

Program \ Species	Black-footed Ferret	Canada Lynx	Gray Wolf	Grizzly Bear	Ute ladies'-tresses
Air Quality	NE	NE	NJ	NLAA	NE
Soil	NE	NLAA	NJ	NLAA	NLAA
Water	NE	NLAA	NJ	NLAA	NLAA
Cave and Karst Resources	NE	NLAA	NJ	NLAA	NE
Locatable Minerals	NE	NLAA	NJ	NLAA	NLAA
Leasable Minerals – Coal	NE	NE	NJ	NE	NE
Leasable Minerals – Oil Shale	NE	NE	NJ	NE	NE
Leasable Minerals – Geothermal	NE	NE	NJ	NE	NE
Leasable Minerals – Oil and Gas	NE	NLAA	NJ	NLAA	NLAA
Leasable Minerals – Other Solid Leasables	NE	NE	NJ	NE	NE
Salable Minerals	NE	NLAA	NJ	NLAA	NLAA
Fire and Fuels Management – Wildfires (Unplanned Ignitions)	NE	NLAA	NJ	NLAA	NLAA
Fire and Fuels Management – Prescribed Fire	NE	NLAA	NJ	NJ	NLAA
Fire and Fuels Management – Stabilization and Rehabilitation	NE	NLAA	NJ	NLAA	NLAA
Forests, Woodlands, and Forest Products	NE	NLAA	NJ	NLAA	NE
Grassland and Shrubland communities	NE	NLAA	NJ	NLAA	NE
Riparian/Wetland Resources	NE	NLAA	NJ	NLAA	NLAA
Invasive Species and Pest Management	NE	NLAA	NJ	NLAA	NLAA
Fish and Wildlife Resources	NE	NLAA	NJ	NLAA	NLAA
Special Status Species – Plants	NE	NE	NJ	NE	NLAA
Special Status Species – Fish and Wildlife	NE	NE	NJ	NLAA	NLAA
Wild Horses	NE	NE	NJ	NLAA	NE
Cultural Resources	NE	NLAA	NJ	NLAA	NLAA
Paleontological Resources	NE	NLAA	NJ	NLAA	NLAA
Visual Resource Management	NE	NLAA	NJ	NLAA	NLAA
Lands and Realty	NE	NLAA	NJ	NLAA	NE
Renewable Energy	NE	NLAA	NJ	NLAA	NLAA
Rights-of-Way and Corridors	NE	NLAA	NJ	NLAA	NLAA
Comprehensive Travel and Transportation Management	NE	NLAA	NJ	NLAA	NLAA
Recreation	NE	NLAA	NJ	NLAA	NLAA
Lands with Wilderness Characteristics	NE	NE	NJ	NE	NE
Livestock Grazing Management	NE	NLAA	NJ	LAA	LAA
Special Designations – Areas of Critical Environmental Concern	NE	NLAA	NJ	NLAA	NLAA
Special Designations – National Back Country Byways	NE	NLAA	NJ	NLAA	NLAA
Special Designations – National Historic Landmarks	NE	NLAA	NJ	NLAA	NLAA
Special Designations – National Historic Trails and Other Historic Trails	NE	NLAA	NJ	NLAA	NLAA
Special Designations – Wild and Scenic Rivers	NE	NE	NJ	NE	NE
Special Designations – Wilderness Study Areas	NE	NLAA	NJ	NLAA	NLAA
Socioeconomic Resources	NE	NE	NJ	NE	NE
Healthy and Safety	NE	NLAA	NJ	NLAA	NLAA

3

The Bighorn Basin RMP is used by the BLM to guide and control future actions and set standards, upon which future decisions on site-specific activities are based. An RMP only establishes general management policy. An RMP is not used to make decisions that commit resources. An RMP identifies desired outcomes, also known as "desired future conditions." These outcomes are expressed in RMPs as goals, standards, objectives, and allowable uses and actions needed to achieve desired outcomes, often referred to as RMP decisions or resource allocations. It is these decisions or resource allocations of the Bighorn Basin RMP that the effects determinations in this consultation are based. As such, the BLM is still obligated to conduct section 7 consultation at the project-specific level for all BLM-authorized activities that "may affect" a listed species.

Black-footed ferret. The BA addressed activities that have no effect on the black-footed ferret. The BLM has based its determinations, in part, on the USFWS's February 2, 2004, letter which informed the BLM that all black-tailed prairie dog towns and all of the white-tailed prairie dog towns outside of the non-essential experimental population in the Shirley Basin in Wyoming are not likely to be inhabited by black-footed ferrets (USFWS 2004a). The BLM in the Bighorn Basin is committed to maintaining the integrity of prairie dog complexes in habitat suitable for black-footed ferret reintroduction (if such habitat is identified in the Bighorn Basin planning area). Furthermore, the BLM has committed to other conservation measures and proposed protections designed to protect black-footed ferrets and their habitat (Appendices 2 and 3). In addition, on March 6, 2013, the USFWS issued a 'block clearance' letter for the State of Wyoming, in effect providing acknowledgement that the likelihood of identifying wild ferrets in Wyoming, outside of those resulting from reintroductions, is distinctly minimal. The ESA does not require the USFWS to concur with "no effect" determinations; however, we appreciate receiving the information used to support your conclusions. This species will not be discussed further in the body of this correspondence.

Gray wolf. The USFWS concurs with your determination that activities described in the BLM's Bighorn Basin RMP will not jeopardize the continued existence of the gray wolf in Wyoming. This determination is based on the fact that the gray wolves located in these areas are designated as non-essential, experimental populations. By definition, any effects to non-essential, experimental populations of any species will not jeopardize the continued existence of the species. In addition, the BLM has committed to a number of conservation measures designed to minimize potential impacts to this non-essential, experimental population (Appendix 2).

Grizzly bear. For 39 of the 40 programs addressed in the BA (excluding grazing), the BLM determined activities under the programs will have no effect or are not likely to adversely affect the grizzly bear. The USFWS concurs with your "not likely to adversely affect" determinations for this species since (1) the activity will not occur in grizzly bear habitat, (2) the activity by its very nature will not be likely to adversely affect the grizzly bear, or (3) the BLM has committed to implementing conservation measures (see Appendix 2) that are based on the Interagency grizzly bear guidelines (IGBC 1986) and will reduce the likelihood that any BLM-authorized actions would adversely affect grizzly bears.

Canada lynx. The BLM evaluated all 40 programs addressed by the RMP and determined that all activities in all programs would have no effect or are not likely to adversely affect the Canada lynx. The USFWS concurs with your "not likely to adversely affect" determinations for the Canada lynx. The USFWS's concurrence is based on the fact that the BLM has committed to implementing conservation measures (see Appendix 2) that are based on the Lynx Conservation Assessment and Strategy (LCAS) (Ruediger *et al.* 2000). In particular, the BLM has committed to limiting disturbance within each Lynx Analysis Unit (LAU) to 30 percent of the suitable habitat within that LAU. The BLM shall also not change more than 15 percent of lynx habitat within an LAU to an unsuitable condition within a 10-year period. Furthermore, the BLM has committed to maintaining denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat. Where less than 10 percent is currently present within an LAU, management actions will be deferred that would delay development of denning habitat structure. Additional conservation measures can be found in Appendix 2. In 2013 the Interagency Lynx Biology Team updated the LCAS (Interagency Lynx Biology Team 2013) incorporating new science since 2000. The BLM in Wyoming has committed to use the approach in the revised LCAS and subsequent LCAS revisions to guide management of lynx habitat. The BLM has also adopted best management practices (see Appendix 4) that will aid in the recovery of this species. Although considered unlikely to occur on BLM-administered lands at a level which will result in adverse effects to the Canada lynx, possible, but highly unlikely detrimental impacts to the Canada lynx from programs as identified by the BLM include: (1) the potential for lynx/human conflicts, (2) the increase in human activity, construction, or development causing disturbance to lynx or alterations to denning, foraging or linkage habitat, (3) the increased potential for vehicle collision, (4) habitat fragmentation, and (5) the decrease in effectiveness of habitat to support lynx prey.

On September 12, 2014, the USFWS revised ESA protections for the contiguous United States distinct population segment (DPS) of the Canada lynx. The USFWS finalized both a revised critical habitat designation for the lynx DPS and a revised definition for what constitutes the range of the DPS – the portion of the species' North American range in which lynx are protected by the ESA. However, none of these areas are included in the Bighorn Basin RMP planning area and activities within the Bighorn Basin RMP planning area are not anticipated to cause adverse modification of Canada lynx designated critical habitat on other lands. According to the BLM, if the USFWS does, in the future, designate critical habitat on the Bighorn Basin RMP planning area or if any BLM-authorized activity under the Bighorn Basin RMP may be determined to potentially affect designated critical habitat for the Canada lynx, then the BLM will treat the designated critical habitat with the same lynx conservation measures as listed in Appendix 2.

Ute ladies'-tresses. For 39 of the 40 programs addressed in the BA (excluding grazing), the BLM concluded that activities under the programs will have no effect or are not likely to adversely affect the Ute ladies'-tresses orchid. The USFWS concurs with your "not likely to adversely affect" determinations for these plants. The USFWS's concurrence is based on the facts that: (1) there is no known occupied habitat (Ute ladies'-tresses) managed by the BLM's office in Bighorn Basin, (2) there is very little perennial stream habitat managed by the BLM in the Bighorn Basin planning area below 6,000 feet elevation (the Ute ladies'-tresses orchid has never been found above 5,800 feet in Wyoming), (3) in Wyoming, all known Ute ladies'-tresses orchid populations are found on the eastern side of the State in the Short Grass Prairie and

Northern Great Plains Ecoregions, (4) populations in Wyoming have never been found in the Wyoming Basins Ecoregion that makes up the Bighorn Basin planning area (Fertig *et al.* 2005), and (5) the commitment by the BLM to implement conservation measures adequate to ensure that if activities that could result in adverse effects did occur in the habitat of these listed plants, the effects from BLM activities would be sufficiently minimized by protective buffers, timing restrictions, etc. (see Appendix 2). The USFWS is providing our concurrence on these determinations at the programmatic level. The BLM will still be required to conduct future site-specific consultations at the individual project level for all BLM authorized activities in the planning area that may affect the Ute ladies'-tresses orchid.

Thank you for your assistance in the conservation of endangered, threatened, and candidate species. In future communications regarding this biological opinion please refer to consultation number 06E13000-2015-F-0097. If we may be of further assistance, please contact Alex Schubert of my staff at (307) 772-2374, extension 238.

Attachment

cc: BLM, Endangered Species Program Lead, Cheyenne, WY (C. Keefe) (ckeefe@blm.gov)
BLM, Planning and Environmental Coordinator, Worland, WY (H. Elliott) (helliott@blm.gov)
FWS, Endangered Species, Lakewood, CO (S. Willey) (seth_willey@fws.gov)
WGFD, Statewide Nongame Bird and Mammal Program Supervisor, Lander, WY (Z. Walker) (zack.walker@wyo.gov)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka) (mary.flanderka@wyo.gov)
WGFD, Habitat Protection Secretary, Cheyenne, WY (N. Stange) (nancy.stange@wyo.gov)

PROGRAMMATIC BIOLOGICAL OPINION

FOR THE WYOMING BUREAU OF LAND MANAGEMENT'S

BIGHORN BASIN RESOURCE MANAGEMENT PLAN

06E13000-2015-F-0097

U.S. Fish and Wildlife Service
Wyoming Ecological Services Office
Cheyenne, Wyoming

June 29, 2015

INCIDENTAL TAKE STATEMENT....38

AMOUNT OR EXTENT OF TAKE....38

EFFECT OF THE TAKE....39

REASONABLE AND PRUDENT MEASURES....39

TERMS AND CONDITIONS....40

CONSERVATION RECOMMENDATIONS....40

RE-INITIATION NOTICE....41

REFERENCES....42

APPENDIX 1 – DESCRIPTION OF PROGRAM ACTIVITIES FOR THE BIGHORN BASIN RMP

APPENDIX 2 – CONSERVATION MEASURES FOR THE BIGHORN BASIN RESOURCE MANAGEMENT PLAN

APPENDIX 3 – PROPOSED PROTECTIONS FOR THE BIGHORN BASIN RESOURCE MANAGEMENT PLAN

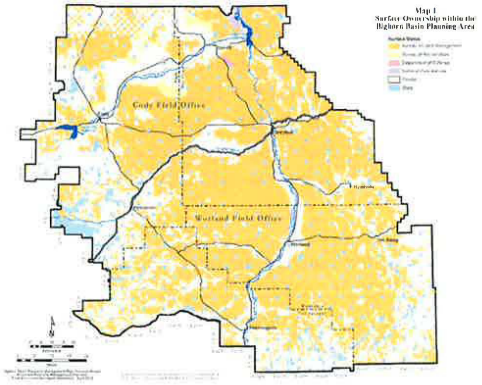
APPENDIX 4 – BEST MANAGEMENT PRACTICES FOR THE BIGHORN BASIN RESOURCE MANAGEMENT PLAN

DESCRIPTION OF THE PROPOSED ACTION

The proposed action examined is the management of U.S. Bureau of Land Management (BLM) lands according to the revised Bighorn Basin Resource Management Plan (RMP) as well as the BLM's commitment to conservation measures (Appendix 2) listed in the Biological Assessment (BA) for this RMP (BLM 2015a). The objective of the Bighorn Basin RMP is to provide specific management direction to prevent or address potential conflicts among oil and gas development, recreational activities, livestock management, important wildlife habitat, and other land and resource uses in the Bighorn Basin RMP planning area, as well as to determine the appropriate levels and timing of these activities. Decisions made as a result of the Record of Decision for the Bighorn Basin RMP will result in replacing the existing Cody, Worland-Grass Creek, and Worland-Washakie RMPs.

RMPs are used by the BLM to guide and control future actions and set standards upon which future decisions on site-specific activities are based. RMPs only establish general management policy on a broad scale. RMPs are not used to make decisions that commit resources on a small scale. RMPs also identify desired outcomes, also known as "desired future conditions." These outcomes are expressed in RMPs as goals, standards, objectives, and allowable uses and actions needed to achieve desired outcomes, often referred to as RMP decisions or resource allocations. It is these decisions or resource allocations that the effects determinations in this BO are based. As such, the BLM is still obligated to conduct section 7 consultation at the project-specific level for all BLM-authorized activities that "may affect" a listed species.

The Bighorn Basin RMP incorporates current laws and regulations and public land resource management initiatives to guide long-range land management decisions for public lands and resources in Big Horn, Hot Springs, Park, and Washakie Counties in north-central Wyoming. The BLM administers 3.1 million acres of public land surface and 4.2 million acres of Federal mineral estate within the planning area (Map 1). The Bighorn Basin RMP does not include land management decisions where land surfaces and minerals are both privately owned, or owned by the State of Wyoming, or local governments, or those lands that are managed by other Federal agencies.



1

The formal consultation included in this document addresses adverse effects to listed species that are likely to occur as a result of the Bighorn RMP Livestock Grazing Management Program. Informal consultation on other actions that may affect listed species as identified in the RMP were covered in the cover memorandum. The activities of the Bighorn RMP that may affect and are likely to adversely affect listed species are presented in Table 2 and are discussed below (BLM 2015a). Conservation measures were included in the Bighorn Basin BA (BLM 2015a) to address potential adverse effects. The BLM has committed to implementing the conservation measures listed in that conservation strategy as part of their proposed action (RMP)(BLM 2015b). Therefore, the USFWS has evaluated the implementation of these conservation measures as part of the proposed action.

Table 2. Listed species "likely to adversely affect" determinations made by the BLM.

Program \ Species	Ute ladies'-tresses	Grizzly Bear
Livestock Grazing Management	LAA	LAA

Livestock Grazing Management

According to the BA (BLM 2015a), cattle are the primary livestock grazed on BLM lands in the planning area. Other forms of livestock grazed include sheep, domestic horses, and bison. Goats and sheep are sometimes authorized for the purpose of suppressing weeds. All livestock grazing allotments in the RMP planning area are classified as perennial allotments. At present, the BLM administers 687 grazing allotments covering 3.2 million acres in the RMP planning area. Total active use for the planning area is 305,264 Animal-Unit-Months (AUMs).

The BLM authorizes livestock grazing on specific allotments during different seasons. Grazing seasons vary with elevation and geographical change, resource needs, and user preference. Higher-elevation allotments are generally grazed during summer and fall. Lower-elevation allotments may be grazed during any season, but are generally used in fall, winter, and spring. Most of the allotments in the RMP planning area are operating under grazing strategies that incorporate rest, seasonal rotations, deferment, and prescribed use levels that provide for adequate plant recovery time to enhance rangeland health.

Actions associated with livestock grazing management include converting to new types of livestock, authorizing livestock grazing, and adjusting season of use, distribution, kind, class, and number of livestock. Other actions include vegetative manipulation treatment projects using prescribed fire, mechanical treatments, seeding, or chemical treatments to modify plant communities. The BLM also installs fences, water developments, spring enclosures, and cattleguards.

STATUS OF THE SPECIES

Grizzly Bear Status

Please note that the literature, 1993 Recovery Plan, and other documents such as the 2007 Conservation Strategy use three different ecosystem terms related to grizzly bears in northwestern Wyoming, southwestern Montana, and southeastern Idaho: Greater Yellowstone Area (GYA), Greater Yellowstone Ecosystem (GYE), and Yellowstone Grizzly Bear Ecosystem (YGBE). These terms all describe the Yellowstone ecosystem and for this BO, we regard them as more or less synonymous because the geographic scale at which any distinctions occur does not affect project analyses or potential impacts.

Grizzly Bear Description

The grizzly bear is one of two subspecies of the brown bear that occupy North America. Grizzly bear coloration varies from light brown to almost black, with guard hairs often paled at the tips. Grizzly bears are generally larger than black bears (*Ursus americanus*) and can be distinguished from them by longer, curved claws, humped shoulders, and a more concave face. In the lower 48 States, male grizzly bears average 400 to 600 pounds and female grizzly bears average 250 to 350 pounds. Adult grizzly bears stand 3.5 to 4.5 feet at the hump when on all fours, and can exceed 8 feet in height when standing on their hind legs. The Yellowstone grizzly bear population is discrete from other grizzly populations, has markedly different genetic characteristics, and exists in a unique ecological setting where bears use terrestrial mammals as their primary source of nutrition (70 FR 69865). A more complete discussion of the biology and ecology of this species may be found in the Grizzly Bear Recovery Plan (USFWS 1993).

Grizzly Bear Life History

Home range and dispersal: Most areas currently inhabited by the species are in contiguous, relatively undisturbed mountainous habitat with high topographic and vegetative diversity. Grizzly bears require large areas to fulfill their basic biological needs, including food and shelter. Their home ranges average 130 to 1,300 square kilometers (sq km) (50 to 500 square miles (sq mi)). Within its home range, a grizzly bear uses a diverse mixture of forests, moist meadows, grasslands, and riparian habitats to complete its life cycle. Grizzly bears generally prefer large, remote areas of habitat for feeding, denning, and reproduction that are isolated from human development (USFWS 1993). They require dense forest cover for hiding and security. In the GYA, lodgepole pine forests are a large and dynamic part of grizzly bear habitat. Long distance movements of some grizzly bears increase the risk of contact with highway crossings, hunters, recreationists, livestock, and a variety of other developments and activities associated with human use.

Diet: The grizzly bear is an opportunistic omnivore that uses a wide variety of plant and animal food sources. The literature provides comprehensive information on food items that grizzly bears consume. A recent synthesis of this information summarized that they consume up to 234 different foods, 75 of which are eaten on a regular basis, with the higher caloric foods being army cutworm moths, various ungulate species such as elk and moose, cutthroat trout, and

whitebark pine seeds (IGBST 2013). Combined food habit studies from the GYA show that grizzly bears not only display dietary plasticity among individuals and in different portions of the ecosystem, but also across seasonal, annual, and decadal time periods (IGBST 2013).

Grizzly bears in the GYA have the highest percentage of meat consumption in their diet of any inland grizzly bear population with about 40 to 80 percent comprised of some form of animal matter (male bears tend to consume higher percentages of meat) (Jacoby *et al.* 1999 as cited in Robbins *et al.* 2006). Meat in the grizzly bear's diet varies by season and available forage. Ungulates are an especially important food source for bears in the spring and fall (Knight *et al.* 1984), and use of carcasses in Yellowstone National Park is well documented (Podruzny and Gunther 2001).

Army cutworm moths are an important food source for some bears in the GYA (Mattson *et al.* 1991a, b). Army cutworm moths congregate in remote, high altitude alpine talus areas and feed on alpine flowers. These moths provide important dietary fat in the fall, when grizzly bears are preparing for hibernation, and are also positively correlated with bear reproductive success (Bjornlie and Haroldson 2001). During times of great moth abundance, White *et al.* (1999, as cited in Robison *et al.* 2006) estimated a grizzly bear may eat up to 40,000 moths per day and more than one million per month, representing 47 percent of its annual caloric budget. Army cutworm moth congregation sites are in remote areas and therefore, potentially reduce human-bear conflicts by isolating the bears. Spawning cutthroat trout in streams surrounding Yellowstone Lake have been an important food source for grizzly bears (Mattson and Reinhart 1995). Grizzly bears will eat ants (Mattson 2001) and earthworms (Mattson *et al.* 2002); small mammals, such as pika and marmots, form a relatively minor portion of the bear's diet. In addition to eating wild ungulates, some grizzly bears consume domestic ungulates to varying degrees in some portions of the GYA, either in the form of carrion or as prey.

Grizzly bears also eat a variety of vegetative foods. Whitebark pine seeds are an important fall source of food to some bears when seeds are available. Those bears with access to whitebark pines consume the seeds that they scavenge from red squirrel cone caches (Mattson and Reinhart 1997). Studies show that in years when the whitebark pine seed crop is low, there is an increase in human-bear conflicts (Haroldson *et al.* 2003). This is likely due to bears seeking alternative food sources, such as exotic clover species (Reinhart *et al.* 2001) and yampa, which occur at lower elevations and closer to humans. In addition to pine seeds supplying a food source high in fat, good whitebark pine seed crops also keep some grizzly bears occupied at high elevations far from intense human use. Other grizzly bear seasonal plant use includes roots (Mattson 1997), graminoids, horsetail, forbs, and fruits, such as whortleberry and huckleberry (Knight *et al.* 1984, Mattson *et al.* 1991a, b). Bears also eat limited amounts of mushrooms.

Den site selection: Grizzly bears generally construct dens in areas far from human disturbance at elevations of approximately 2,000 to 3,050 meters (6,500 to 10,000 ft). Grizzly bears den from the end of September to the last week in April or early May, with entrance and emergence dates affected by the gender and reproductive status of the bears. Denning bears can be disturbed by winter sport activities, such as snowmobiling; studies have focused on minimizing disturbance by controlling access to important denning areas (Haroldson *et al.* 2002, Podruzny *et al.* 2002). If pregnant female bears are disturbed in their dens and this disturbance causes them to relocate

to a new den prior to parturition, negative consequences can occur in the form of reduced cub fitness and survival (Linnell *et al.* 2000, Swenson *et al.* 1997).

Grizzly Bear Population, Status and Distribution

Historically, the grizzly bear ranged in the United States (U.S.) from the Great Plains to the Pacific Coast and from the northern U.S. border with Canada to the southern border with Mexico. It is believed the grizzly bear population in the contiguous American West numbered over 50,000 individuals prior to the 18th century (USFWS 1993). Their numbers greatly declined during the past two centuries.

The grizzly bear was listed as threatened in the conterminous 48 states in 1975 (70 FR 69858) due to concerns about the bear's population status within its remaining range. In the contiguous U.S., the grizzly population has been reduced to roughly 2 percent of its former range. As of 2011, the estimated total population of grizzly bears in the lower 48 states was approximately 1,650 individuals (Table 1; USFWS 2011) (Note: by incorporating the 2013 GYA population estimate of 629 bears (a minimum), the lower 48 states total now exceeds approximately 1,700.) They currently occupy parts of British Columbia and Alberta in Canada, and Montana, Idaho, Wyoming, Washington, and Alaska in the U.S.

The 1993 Grizzly Bear Recovery Plan outlines recovery strategies for the various grizzly bear ecosystems. The Plan defines a recovered population as one that can sustain the existing level of known and unknown human-caused mortalities that exist in the ecosystems and are well-distributed throughout their recovery zones. Within the contiguous U.S., six recovery zones associated with the various ecosystems (shown in Figure 2) were identified (USFWS 2011): (1) Northern Continental Divide; (2) Cabinet-Yaak; (3) Selkirk; (4) North Cascades; (5) Greater Yellowstone Area; and (6) Bitterroot. The Bitterroot ecosystem is not currently occupied by grizzly bears. (Note: the 1993 Recovery Plan originally described the Yellowstone ecosystem recovery zone as Yellowstone Grizzly Bear Ecosystem Recovery Zone; it is now referred to as the Greater Yellowstone Area, or GYA, Recovery Zone. The GYA Recovery Zone covers the same geographic area and is known as the Primary Conservation Area under the 2007 Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area; Recovery Zone and Primary Conservation Area are sometimes used synonymously.)

Grizzly bear recovery zones (RZ) were established to include areas large enough and of sufficient habitat quality to support a recovered bear population in each zone. According to the 1993 Recovery Plan, a RZ is defined as that area in each grizzly bear ecosystem within which the population and habitat criteria for achievement of recovery will be measured. However, the GYA RZ recovery criteria have since been updated to include criteria applicable to the entire GYA ecosystem, such as population estimates and mortality thresholds.

Table 1. Estimated grizzly bear population size (individuals) and population growth rate by Recovery Zone or Ecosystem (USFWS 2011, Haroldson *et al.* 2013).

Recovery Zone or Ecosystem	Estimated Population Size	Trend (% change annually)
Greater Yellowstone Area Ecosystem	629 or 741*	+0 to 2%
Northern Continental Divide RZ	930	+3%
Cabinet-Yaak RZ	42	-3.8%
Selkirk RZ	88**	+1.9%
North Cascades RZ	<20	unknown
Bitterroot RZ	0	n/a

*Reflects two methods for estimating population (see Greater Yellowstone Area subsection below). This population estimate covers the entire ecosystem. The GYA includes our defined action area.

**Estimate includes 30 in U.S. and 58 in Canada.

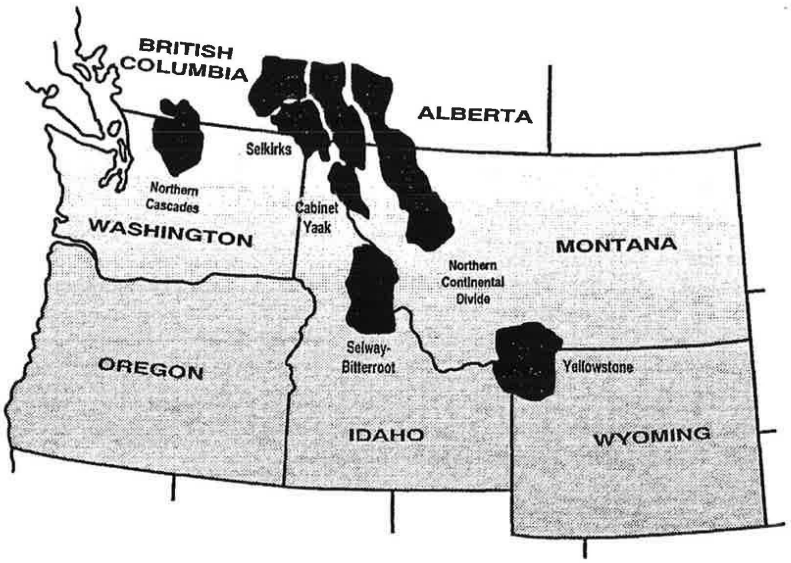


Figure 1. Grizzly bear ecosystems in the conterminous 48 States (USFWS 1993).

Habitat degradation and fragmentation, and negative human/bear interactions are the primary factors responsible for grizzly bears' current threatened status (USFWS 2011). Grizzly bears preferentially use large areas with a low density of roads and low levels of human activity. Secure habitat is an important component for minimizing habitat degradation and fragmentation, and is defined as areas larger than 10 acres (ac) in size and greater than 500 meters (m) from an open road (ICST 2007). The average amount of secure habitat in each recovery zone ranges from 53 percent in the Selkirks to 86 percent in the GYA (USFWS 2011).

Northern Continental Divide (NCDE): Grizzly bears are well distributed throughout the NCDE RZ and their range has expanded outside of the RZ boundary to the east, and somewhat to the west and south (USFWS 2013). The Grizzly Bear Management Plan for Western Montana identifies 37,460 sq km (14,463 sq mi) of the NCDE as occupied, including some intervening habitat between the NCDE and the Cabinet-Yaak. The estimate of average annual population growth was re-calculated in 2012 with a resulting rate of 3.03 percent per year across the time period from 2004-2011 and a total population estimate of approximately 930-942 bears. The NCDE population of grizzly bears is contiguous with grizzly bears in Canada, resulting in high genetic diversity (Proctor *et al.* 2012, as cited in USFWS 2013). Grizzly bears are well distributed throughout the NCDE Primary Conservation Area and Zone 1 although density is higher inside the Primary Conservation Area (see Kendall *et al.* 2009; Mace and Roberts 2011, as cited in USFWS 2013).

Cabinet-Yaak (CYE): The CYE RZ is estimated to contain at least 40-45 grizzly bears (Kasworm *et al.* 2007, as cited in USFWS 2011). Separate population estimates were made for the Cabinet Mountains and the Yaak River drainage because there is not any documented movement of grizzly bears between these two portions of the RZ. The Cabinet Mountains lie south of the Yaak River drainage and contain about 60 percent of the RZ. There are approximately 15 individuals in the Cabinet Mountains and 25-30 individuals in the Yaak portion of the RZ (Kasworm *et al.* 2007, as cited in USFWS 2011). There are another estimated 24 grizzly bears in Canada directly across the border from the Yaak (Proctor *et al.* in press, as cited in USFWS 2011).

Selkirks (SE): The estimated population size is 88 grizzly bears in the SE RZ, with 30 in the U.S. and 58 in Canada (Proctor *et al.* 2012). While this population estimate represents a substantial increase in bears in the SE since 1999, it must be interpreted cautiously until more accurate data are available. The estimate for the U.S. portion of the SE is based on expert opinion (Wakkinen 2010, as cited in USFWS 2011). It is estimated that the population of grizzly bears in the SE is slowly increasing at a rate of 1.9 percent annually.

North Cascades (NCASC): The population in the NCASC is estimated to be fewer than 20 animals within the 24,605 sq km (9,500 sq mi) RZ. The population in adjacent British Columbia is estimated to be less than 25 grizzly bears within a 9,800 sq km (3,784 sq mi) area (North Cascades Grizzly Bear Recovery Team 2004, as cited in USFWS 2011). The distribution of grizzly bears within the NCASC is unknown due to a lack of data (USFWS 2011).

Greater Yellowstone Area (GYA): The 23,828 sq km (9,209-sq mi or 5.89 million ac) GYA RZ includes portions of Wyoming, Montana, and Idaho and portions of six National Forests (Beaverhead, Bridger-Teton, Custer, Gallatin, Shoshone, and Caribou-Targhee), Yellowstone and Grand Teton National Parks, John D. Rockefeller, Jr. Memorial Parkway, Bureau of Land Management, and adjacent private and State lands.

The range of grizzly bears in the entire GYA has increased, as evidenced by the 48 percent increase in occupied habitat between the 1970s and early 2000s, and it is still expanding (Pyare *et al.* 2004, Schwartz *et al.* 2002, IGBST 2013). The most recent estimate of the known area

occupied by grizzly bears in the entire GYA is approximately 50,280 sq km (19,413 sq mi or 12,424,320 ac) (Bjornlie 2013).

The GYA represents the most distant portion of the current grizzly bear range in the U.S. and has been the primary focus of grizzly bear recovery efforts to date. Range expansion and population increases, including into southern portions of the GYA, have been concurrent with the Forest implementing the actions described in the proposed action, and with other Federal and non-federal actions described in the baseline below. This means that historical activities comparable to the proposed action have had little to no discernible effect on the population's trend toward recovery.

Recovery efforts have been very successful and the number and distribution of grizzly bears in this population have exceeded target recovery levels for the last several years. For example, the population of independent female grizzly bears has grown from less than 30 in 1983 to more than 250 today (Schwartz *et al.* 2011, Haroldson and Frey 2013). Recovery work continues to reduce grizzly bear mortalities and ensure habitat standards for maintaining a recovered population in this ecosystem.

Best available science suggests the GYA ecosystem grizzly bear population is stable to slightly increasing. In 2012, estimates of the number of grizzly bears in the GYA were 629 or 741 depending on the methods used to estimate population size (see Conservation section for details) (Haroldson *et al.* 2013). Current analysis indicates that this grizzly bear population grew an average of 4 percent or more annually from 1983-2001. The population's rate of growth slowed during 2002-2011 to 0 to 2.2 percent, likely because of the increase in grizzly bear density in the GYA (IGBST 2012, IGBST 2013). The grizzly bear population in the GYA met its recovery goals in the mid-1990s, has exceeded recovery goals every year since, and may be nearing carrying capacity (IGBST 2013).

The USFWS proposed to establish a Distinct Population Segment of the grizzly bear for the GYA and surrounding lands and concurrently delist it from the ESA on November 17, 2005 (70 FR 69854; USFWS 2005). The final rule to delist the grizzly bear was published on March 28, 2007, and became effective April 30, 2007 (72 FR 14866; USFWS 2007a). An order was issued by the Federal District Court in Missoula on September 21, 2009, which enjoined and vacated the delisting of the GYA grizzly population. In compliance with this order, the GYA grizzly population is again treated as a threatened population under the ESA. The District Court decision was appealed on two primary issues: (1) adequacy of regulatory mechanisms after delisting (*i.e.,* the Conservation Strategy) and (2) the potential threat of whitebark pine decline on the GYA grizzly bear population. The 9th Circuit Court of Appeals rendered a decision in November 2011 and reversed the District Court decision regarding the adequacy of protections provided under the Conservation Strategy but upheld the District Court decision that the USFWS had not sufficiently articulated that whitebark pine decline was not a threat to the GYA grizzly population. The USFWS is currently addressing the whitebark pine issue.

Human-grizzly bear interactions have been increasing in the GYA due, in part, to increasing human use and development, increasing bear numbers, and bears and people both expanding their range of occupancy, thereby increasing the chances of adverse encounters. The frequency

of grizzly bear-human conflicts is inversely associated with the abundance of natural bear foods (Gunther *et al.* 2004a, b). Mortalities from grizzly bear-human conflicts currently are a primary source of grizzly bear mortality (see IGBST annual reports and mortality database). Table 2 summarizes the 461 known and probably grizzly bear mortalities from 1997 to 2012 in the GYA (IGBST 2014a, b).

Table 2: Known and probable grizzly bear mortalities in the GYA, 1997-2012.

Cause of Mortality	Number of Bear Mortalities	Percent of Total Mortality
Natural injury or deformity	2	0.4
Predation	30	6.5
Malnutrition	3	0.7
Old age	6	1.3
Poached/malicious	22	4.8
Hunting DLP*	99	21.5
Hunting mistaken ID	24	5.2
Backcountry camp illegal	3	0.7
Backcountry camp DLP*	10	2.2
Front country DLP*	6	1.3
Front country mgmt removal	80	17.4
Human aggr/injury/fatality - mgmt removal	11	2.4
Sheep related illegal	1	0.2
Sheep depredation mgmt removal	6	1.3
Cattle depredation mgmt removal	31	6.7
Mgmt capture mortality	3	0.7
Research capture mortality	6	1.3
Road kill	22	4.8
Hunting related illegal	1	0.2
Horse depredation mgmt removal	1	0.2
Specific undetermined	87	18.9
Poisoning	1	0.2
Non-hunting backcountry DL*	6	1.3
Total	461	100.0

*DL (and DLP) means Defense of Life (and DL or Property).

During the period from 2009-2011, Gunther *et al.* (2012) identified four areas in the GYA as having 57 percent (385 of 672) of grizzly bear-human conflicts (including grazing, which is a human-related activity). These included: (1) the Green River area (154 conflicts), (2) the North and South Forks of the Shoshone River (125 conflicts), (3) the Clarks Fork area (56 conflicts),

and (4) the Gardiner Basin (50 conflicts). Conflicts from sources other than livestock are widely distributed but tend to concentrate along major river corridors. In 2012, most (87 percent) of the Wyoming conflicts occurred outside the RZ, with similar rates on private lands (49 percent) versus Federal and state lands (51 percent).

Grizzly Bear Conservation

Prior to the 2007 final rule to delist the grizzly bear, the USFWS: (1) finalized the 2003 Conservation Strategy (ICST 2007) that guides post-delisting monitoring and management of grizzly bears in the GYA, (2) appended the habitat-based recovery criteria to the 1993 Recovery Plan and the Conservation Strategy, and (3) appended the 1993 Recovery Plan and the Strategy with an updated and improved methodology for calculating total population size, known to unknown mortality ratios, and sustainable mortality limits for the entire GYA grizzly bear population (USFWS 2007b).

The State and Federal implementation plans within the 2007 Final Conservation Strategy for Grizzly Bears provide a framework for managing the Primary Conservation Area (PCA; synonymous with the Recovery Plan's RZ) and adjacent areas of suitable grizzly bear habitat. The PCA is the area considered the adequate seasonal habitat needed to support the recovered Yellowstone grizzly bear population for the foreseeable future and allow bears to continue to expand outside the PCA. A recovered grizzly bear population is one having high probability of existence into the foreseeable future (greater than 100 years) and for which the five factors in section 4(a)(1) of the ESA have been successfully addressed. The PCA was designed specifically with these five factors in mind. Due to grizzly bear relisting in 2009, the 1993 Recovery Plan and subsequent 2007 demographic and habitat-based recovery criteria supplements (USFWS 2007b, 2007c) are the current monitoring and management documents in use in addition to existing USFS plan direction. The 2007 Conservation Strategy and recently published literature and reports also provide best available science and are incorporated into project analyses, monitoring, and other considerations.

The Interagency Grizzly Bear Study Team (IGBST) is an interdisciplinary group of scientists and biologists responsible for long-term monitoring and research efforts on grizzly bears in the GYA. Their main objectives are to monitor the status and trend of the GYA grizzly bear population and determine patterns of grizzly bear habitat use and the relationship of land management activities to the welfare of the grizzly bear population. These include monitoring population and habitat components in the GYA per the Recovery Plan and 2007 revised Demographic Recovery Criteria (USFWS 2007b) and Habitat-based Recovery Criteria (USFWS 2007c). Population monitoring includes status and trend, numbers, reproduction, and mortality, and specifically:

(1) Monitoring unduplicated females with cubs of year (COY) and estimating total population size for the entire GYA based on modeled estimates of females with COY;

(2) Monitoring distribution of females with young of all ages and having a target of at least 16 of 18 Bear Management Units (BMU; described in more detail below) within the RZ/PCA occupied

at least 1 year in every 6, and no two adjacent BMUs can be unoccupied over any 6-year period; and

(3) Monitoring all sources of mortality for independent females and males within the entire GYA.

The population components are discussed below. Habitat monitoring includes documenting abundance of four major foods throughout the GYA (winter ungulate carcasses, cutthroat trout spawning numbers, bear use of army cutworm moth sites, and whitebark pine cone production). The habitat monitoring information as well as procedures to accomplish all of these tasks are described in the IGBST's annual reports (see website: www.nrmsc.usgs.gov/research/igbst-home.htm) and other references.

Based on changes in vital rates and subsequent age structure, the IGBST's 2011 demographic monitoring results indicated the trajectory for the annual grizzly bear population estimate (based on females with COY) was increasing. These changes triggered a demographic review in February 2012. From that review, proposed changes were made and included both counting females with COY for population estimation and documenting known and probable mortalities for assessing annual mortalities limits within a new Demographic Monitoring Area (DMA), which encompasses 49,931 sq km (19,278 sq mi; IGBST 2012). Current population and mortality estimates are based on the Conservation Management Area (CMA), which encompasses 95,225 sq km (36,767 sq mi; see figures in 2014 BA, p. 8; Haroldson *et al.* 2013). The CMA is the boundary within which sighted females with COY are used for population estimation. We include both the current CMA and proposed DMA population estimates below.

(1) Monitoring unduplicated females with COY and estimating total population size:

Current Conservation Management Area Estimate: In 2012, there were 183 verified sightings of females with COY within the current CMA count line, and of those sightings, 58 unduplicated, or unique, females were differentiated using the rule set described by Knight *et al.* (1995). The number of COY observed was 126, with a mean litter size of 2.17. The trend and rate of change for the number of unique females with COY in the population are estimated by averaging linear and quadratic models, which resulted in 59 females with COY, which exceeds the demographic objective of 48 specified in the Demographic Recovery Criteria for the GYA. Forty-eight females is equivalent to a population of approximately 500 total individuals. The GYA estimated population size derived from this data for 2013 was 629 bears (Haroldson *et al.* 2014).

Proposed Demographic Monitoring Area Estimate: Within the proposed DMA count line, there were 152 verified sightings of females with COY and sighting frequencies for these families produce a model-averaged estimate of 59 unduplicated females with COY (Haroldson *et al.* 2014). Changes between these two methods will be small because nearly all females with COY are sighted within the proposed DMA count line (IGBST 2012). However, applying the updated vital rates produces larger changes to the estimated population size. The reason is primarily due to observed increases in survival rates for independent male bears and the 1:1 ratio of independent-aged females and males in the modeled population this produces. The GYA

estimated population size derived from this data for 2013 was 741 bears in the GYA (Haroldson *et al.* 2014).

Research by Schwartz *et al.* (2008, as cited in IGBST 2012) on the existing CMA counts of females with COY and the associated rule set of Knight *et al.* (1995) used to estimate population size has demonstrated these counts are biased low. The proposed DMA estimate solves many of the problems inherent in Knight *et al.* (1995) and may produce an unbiased estimate for the annual number of females with COY in the GYA (IGBST 2012). Because vital rates and trend have changed, it is appropriate to use updated vital rates and ratios for specific population segments (Haroldson *et al.* 2013). Revised thresholds have not yet been adopted by the Yellowstone Ecosystem Subcommittee of the Interagency Grizzly Bear Committee. Regardless of method used, both population estimates based on females with COY continue to exceed the recovery objective of 500 bears in the entire GYA as established by the USFWS's Recovery Plan and 2007 revised Demographic Recovery Criteria supplement.

(2) Monitoring distribution of females with young of all ages:

The RZ is divided into smaller areas called Bear Management Units (BMUs) for the purpose of habitat evaluation and monitoring. BMUs were designed to:

a. Assess the effects of existing and proposed activities on grizzly bear habitat without having the effects diluted by consideration of too large an area;
b. Address unique habitat characteristics and bear activity and use patterns;
c. Identify contiguous complexes of habitat meeting year-long needs of the grizzly bear; and
d. Establish priorities for areas where land use management needs would require cumulative effects assessments.

The target is to have at least 16 of 18 BMUs within the RZ occupied at least 1 year in every 6, and no two adjacent BMUs can be unoccupied over any 6-year period. In 2013, 18 of 18 BMUs had verified observations of female grizzly bears with young, and 18 of 18 BMUs contained verified observations of females with young in at least 4 years of the 6-year period, 2008-2013 (Haroldson 2013, 2014).

(3) Monitoring all sources of mortality for independent females and males within the entire GYA:

The long-term survival of the Yellowstone grizzly bear population over the next 100 to 200 years is contingent upon minimizing average annual mortality within the total population and especially that of adult females (Knight and Eberhardt 1984, 1985). There were 28 known and probable mortalities in the GYA during 2013, of which 23 mortalities were attributable to human causes (Haroldson and Frey 2014). Ten (43.5 percent) of the 23 were attributed to management removals due to livestock depredations or conflicts, five (21.7 percent) were losses related to hunting, three (13 percent) were road kills, three (13 percent) were due to self-defense not related to hunting, one (4.3 percent) was a malicious killing, and one (4.3 percent) was a capture-related mortality when a snared bear was killed by another bear.

IGBST evaluates the sustainability of annual grizzly bear mortalities that occur within the current CMA and proposed DMA boundaries and estimates limits, or thresholds, derived from the model-averaged estimate for females with COY (see IGBST 2005 and 2006 annual reports for procedures). None of the mortality thresholds for independent females, independent males, or dependent young (there were no young mortalities) was exceeded in 2013 under both CMA and DMA protocols (Haroldson and Frey 2014).

The 2007 Demographic Recovery Criteria supplement (USFWS 2007b) states that mortality thresholds are not to be exceeded in more than 2 consecutive years for females, or more than 3 consecutive years for males or cubs (USFWS 2007b). The Recovery Plan's threshold for mortality from all causes of adult (*i.e.*, independent, older than 2 years old) females is 9 percent of the total GYA population of adult females (USFWS 2007b). The revised mortality threshold recommended by the IGBST is 7.6 percent for adult females (IGBST 2012). Although the revised threshold is a smaller percentage, it may represent a larger number of bears because of the growing population and statistical methodology. Across the GYA, mortalities of adult female grizzly bears (from all causes) in 12 of the past 14 years were lower than the threshold set to sustain an increasing population (see IGBST annual reports).

The mortality threshold for cubs (*i.e.*, dependent offspring) is 9 percent (USFWS 2007b); IGBST has recommended revising this to 7.6 percent of the total estimated population of dependent cubs (IGBST 2012). Unlike the threshold for independent females, only human-caused mortalities are counted against the threshold for cubs. The mortality limit for dependent cubs in the GYA has never been exceeded.

Although the population trajectory is generally independent of male survival rates (IGBST 2012), the annual mortality threshold for independent males is set at 15 percent. The mortality limit for independent males was exceeded in 2008, 2010, and 2011 (the latter fractionally, by less than one bear). The mortality limit for independent males was again exceeded in 2012 under the current protocol (USFWS 2007b); however, the number of mortalities would be lower than the limit under the revised protocol recommended by IGBST (2012). The two methods lead to different conclusions because IGBST recommends not counting mortalities occurring outside of the area considered suitable habitat against the threshold. This change means that grizzly bear mortalities in areas where long-term expansion or occupancy is likely unsustainable would not be counted against mortality thresholds. The revised protocol also limits the count of grizzly bear mortalities to areas where systematic data collection efforts occur (IGBST 2012). The increase in mortalities of independent males exceeding the 15 percent threshold may be related to independent subadults dispersing into marginal habitat at the edges of the current GYA range.

These data and previous IGBST annual reporting data for the entire GYA indicate that the population continues to meet Demographic Monitoring Criteria. Mortality limits are carefully monitored and controlled and mortalities are generally within established thresholds. Recent levels of mortality in the GYA have been sustainable and there has not been an observed decline in survival of independent-aged bears through 2011 (IGBST 2014a, b). The population is stable to slightly increasing and it continues to expand outward in the ecosystem, particularly into peripheral areas.

Grizzly bears achieved recovery goals in the mid-1990s despite long-term, on-going human-related activities throughout the GYA. Per the current demographic monitoring protocol, the current population estimate of approximately 629 grizzly bears is conservative, with bears likely totaling in excess of 700 in the GYA (Haroldson *et al.* 2013), based on the proposed count line and methodology. Regardless of method used, all population estimates exceed the recovery objective of 500 bears established by the USFWS's 1993 Grizzly Bear Recovery Plan and 2007 revised Demographic Recovery Criteria. In addition, grizzly bear mortalities in the GYA have, overall, remained within existing sustainable mortality thresholds.

The long-term conservation of grizzly bears in the GYA continues to depend largely on managing bear-human conflicts, which can result in human-caused mortality of grizzly bears. Efforts focusing on education, proper food storage and disposal of bear attractants, infrastructure management, and compliance and enforcement of permit requirements will help prevent these incidents and is part of the overall management strategy for grizzly bears in the GYA.

Grizzly Bear Threats

Human activities resulting in conflicts and subsequent mortality and displacement were the main reasons the grizzly bear was listed as threatened (ICST 2007). Managing human-caused bear mortality is a goal of the Recovery Plan and is essential to maintaining a viable grizzly bear population (USFWS 1993). Bear-human conflicts are incidents in which bears injure people, damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods, or damage or obtain garden and orchard fruits and vegetables (Gunther *et al.* 1999).

Grizzly bear-human interactions and conflicts have been increasing in the GYA due, in part, to increasing human use and development, increasing bear numbers, and bears and people both expanding their range of occupancy, thereby increasing the chances of adverse encounters. The most important issues to control on the landscape are levels of human activities. Key issues include those related to food storage, livestock allotments, and motorized access, which incorporates secure habitat standards for road densities and other criteria (ICST 2007). Isolation from human activities is extremely important for bear survival, as grizzly bears can habituate to humans and become conditioned to anthropogenic foods quickly, subsequently changing them into nuisance bears. Nuisance bears often must be relocated or lethally removed from the population.

The frequency of grizzly bear-human conflicts is inversely associated with the abundance of natural bear foods (Gunther *et al.* 2004a, b). Years in which natural grizzly bear food production and availability are high can result in younger age classes of grizzly bears accustomed to fairly good food availability. A year of drought and poor food production can compel grizzly bears to search widely for food. Such wide ranging movements can bring grizzly bears into closer contact with humans, increasing bear-human conflicts and resultant management actions.

Whitebark pine seeds have provided an important food source for some grizzly bears. White pine blister rust and mountain pine beetles, which have had severe, negative consequences on whitebark pine in portions of the northern Rocky Mountains, occur in the GYA and have resulted in significant whitebark pine mortality. However, even where whitebark pine is available, it is

not consistently used every year due to the stochastic nature of masting events. Also, whitebark pine is, and has historically been, absent from the home range or diet of a sizeable portion of the GYA grizzly bear population, and a recent food synthesis report indicated that various study findings do not indicate a strong dependence among GYA grizzly bears on whitebark pine seeds (IGBST 2013).

With the decline of whitebark pine in the GYA, grizzly bears over the past decade have exhibited reduced selection for whitebark pine habitat, and corresponding increased consumption of meat (IGBST 2013). Bear movements and home range size did not change with the change in diet, and recent analyses suggest that grizzly bear body condition and fecundity rates have not changed with the changing diet (IGBST 2013). However, the change in diet may lead to an increased probability that grizzly bears would seek out livestock or be in areas with an increased probability of negative interactions with humans.

The Yellowstone cutthroat trout, once an important food source for those grizzly bears adjacent to Yellowstone Lake and its tributaries in the 1970s and 80s, has been negatively influenced by introduced lake trout (which are less available to bears due to their deeper water habits) (Reinhart *et al.* 2001), drought, and whirling disease caused by an exotic parasite (Haroldson *et al.* 2005 and others, as cited in Gunther *et al.* 2012). Data from 2012 indicate numbers of spawning cutthroat trout continue to be low in most of the Yellowstone Lake tributary streams, and in North Shore and West Thumb streams, they've decreased significantly since 1989. Removal of lake trout from Yellowstone Lake continues, and in 2012, 301,966 were caught and removed. Population modeling suggests that recent increased removal efforts may have halted lake trout population growth and continued catch at these rates may begin reducing the population (Gunther *et al.* 2013).

Winter-killed and neonate ungulates are an important food supply, but ungulate populations vary widely in numbers and are influenced by weather and other conditions. The reintroduction of wolves has increased competition for ungulate prey and winter-killed carrion. Army cutworm moths, which also provide important food for bears in some high elevation areas, could be affected by pesticide use in agricultural areas. Some years have higher moth activity than others, and 2012 was a record year for the number of grizzly bear observations or telemetry relocations at moth sites, including females with COY (Bjornlie and Haroldson 2013).

Changing climate conditions have the potential to impact some grizzly bear food sources in the GYA. Climate change may result in possible shifts in grizzly bear habitat use in response to declines in food resources. As mentioned, food habit studies from the GYA show that grizzly bears display dietary plasticity and consume a wide variety of foods (IGBST 2013). The extent and rate to which food sources will be impacted is difficult to foresee with any level of confidence. Other than potential impacts to food resources, the mountainous regions characterized by the Middle Rockies Ecoregion (includes the GYA) generally possess the habitat components necessary for grizzly bear persistence despite a changing climate. These components include hiding cover, topographic variation necessary to ensure a wide variety of seasonal foods, steep slopes used for denning, and remoteness from humans (72 FR 14906; USFWS 2007a).

Land ownership and management practices continue to affect bear-human conflict patterns. While the USFS has decreased its authorization of sheep grazing in the GYA over the past two decades, grizzly bear conflicts with livestock, in general, in the GYA continue to occur. On USFS lands, livestock depredations are the most common type of conflict (62 percent); whereas on private lands, the most common reported conflicts involve grizzly bear damage to property and obtaining anthropogenic foods, such as garbage, bird seed, dog food, and apples (76 percent). There are relatively few bear-human conflicts on National Park Service lands, and of the eight conflicts in 2011, five were due to anthropogenic foods and three were surprise encounters.

Habitat may be compromised, degraded, or lost from management activities, commercial or recreational developments, and other human-related actions, resulting in grizzly bear displacement. They may also experience isolation from fragmentation of available habitat due to construction of major highways that block or restrict movement, and from inadequate provisions for linkages on minor roads and highways. Other sources of human-caused grizzly bear mortalities include mistaken identification by big game hunters, malicious killing, defense of human life or property, and accidental death (vehicle strike, electrocution, etc.). Bears are relocated or lethally removed to defend human life or property, usually because bears have become dangerously bold as a result of food conditioning and human habituation at campsites, lodges, resorts, and private residences, or they become habituated predators of livestock (Knight and Judd 1983).

The 1975 listing of grizzly bears in the conterminous U.S. identified genetic isolation of some populations of grizzly bears as a potential threat (40 FR 31734). Loss of genetic diversity is a potential concern for GYA grizzly bears because of the large distances between this and other U.S. populations (USFWS 2011). The 1993 Recovery Plan characterizes the Yellowstone population as isolated from other populations, and suggested genetic management may become appropriate for this population (USFWS 1993). A genetic study by Miller and Waits (2003) suggests that heterozygosity (*i.e.*, genetic variation) was historically low in the GYA population, even before the decline of grizzly bears in the 20th century, and that the viability of the population is unlikely to be affected by genetic factors in the next several generations.

The biological assessment determined that the proposed action would likely adversely affect individual grizzly bears that occur in the action area. Grizzly bears are listed as threatened under the ESA. Designated critical habitat for this species does not occur within the action area.

Ute Ladies'-tresses Status

Ute Ladies'-tresses Species Description

Ute ladies'-tresses (*Spiranthes diluvialis*) is a perennial, terrestrial orchid with stems 20 to 50 centimeters (cm) tall arising from tuberously thickened roots measuring up to 1 cm in diameter. It has narrow leaves about 28 cm long and 1.5 cm wide at the base of the stem and becomes reduced in size going up the stem. The flowers, in an inflorescence (flowering spike) of 3 to 30 or more flowers, are small white to ivory arranged in a spiral. The species is characterized by stout flowers that are gaping at the mouth. The sepals and petals, except for the lip, are straight,

although the lateral sepals are variably oriented. These lateral sepals spread abruptly from the base of the flower and are free to the base. The rachis is densely pubescent with the longest trichomes, or hairs, 0.2 millimeters long or longer (Sipes and Tepedino 1994, USFWS 1992, 1995).

Ute Ladies'-tresses Life History

Very little is known about the life history of Ute ladies'-tresses (USFWS 1995). Much of what is presumed about the species' life history is drawn from knowledge of other orchids. Orchids generally have very small seeds that require symbiotic associations with mycorrhizal fungi for germination. Many species of orchids are saprophytic, underground plants that may persist for many years underground before emerging above ground. The mycorrhizal stage is reported to last 8 years in *S. spiralis* and green leaves are first produced up to 11 years after germination in that species (Wells 1967). Studies of *S. magnicamporum* in western Kansas and Nebraska report that that species may bloom as rarely as once in 20 years. The mean life expectancy of *S. spiralis* plants studied over a nine year period was calculated to be more than 50 years (USFWS 1995).

Throughout its range, reproduction of the Ute ladies'-tresses orchid appears to be strictly sexual, with bumblebees (*Bombus* spp.) as the primary pollinators (Arditti 1992, Sheviak 1984). Flowers are protandrus (functionally male first and then female). As with other orchid species, it is thought that Ute ladies'-tresses does not reach sexual maturity for 5 to 10 years (USFWS 1995). Each orchid fruit can have several hundred to 10,000 seeds with an average of around 2,000 (Sipes and Tepedino 1994). These seeds may be dispersed by water (Carroll, *pers. comm.*) or wind (Wells 1967). The flowers, seed heads, and vegetative parts of the Ute ladies'-tresses orchid are palatable and can be incidentally eaten by grazing livestock. The possibility that grazers could disperse the seeds of this species has not been evaluated. The blooming period is from early August to early September, with fruits produced in mid-August to September (Fertig 2000). Not all individual mature Ute ladies'-tresses orchids bloom every year and some may remain dormant beneath the ground surface and not show any above ground parts for at least one growing season (Arft 1995).

Populations of Ute ladies' tresses may do well under a regime of somewhat heavy use, i.e., livestock grazing and hay mowing. Grazing may have beneficial effects to the plants, especially in early summer prior to flowering or fruit production (Arft 1995, Moseley 1998). Grazing may mimic the effects of flooding, fire, or other disturbances in maintaining low vegetative cover or reducing weed cover (Moseley 1998). Mowing may be beneficial by reducing competing vegetation cover, but can be detrimental if done before fruits ripen or if hay is cut too low (Arft 1995; Hazlett 1996, 1997). Ute ladies'-tresses does not tolerate dense competition of vegetation, although a few populations are found in riparian woodlands.

The Ute ladies'-tresses orchid inhabits early successional riparian habitats such as moist stream beds, wet meadows, point bars, sand bars, abandoned stream channels, and low lying gravelly, sandy, or cobbley edges (Fertig *et al.* 1994, USFWS 1995, Fertig 2000). Ute ladies'-tresses appears to have a close affinity with floodplain areas where the water table is near the surface throughout the growing season and into early autumn. The species is found in open riparian,

floodplain areas where the competing vegetation has been removed by livestock grazing, mowing or by flooding events approximately one month prior to flowering. Ute ladies'-tresses is known to grow in agricultural lands managed for grazing in the winter and hay production in spring and summer, where mowing occurs in mid-July (USFWS 1995). The elevational range of known Ute ladies'-tresses occurrences is 1,800-6,800 feet (Arft and Ranker 1998).

Ute Ladies'-tresses Population Dynamics

Ute ladies'-tresses population levels and viability are, at least in part, determined by habitat conditions created and maintained by natural water processes. Therefore, the significance of population size and distribution within a watershed can, at least partially, be assessed in terms of the ability of the watershed factors to perpetuate it. However, the linkages between watershed processes, habitat conditions, and Ute ladies'-tresses population response are complex and not completely understood.

The locations of populations within a watershed vary with the availability of suitable habitat. Sizes of populations fluctuate naturally, and in some years no Ute ladies'-tresses within a population appear above ground. The number of flowering adults does not give an accurate picture of population size or indicate population structure. More information is necessary regarding population viability (USFWS 1995).

If estimated population size is based on the number of Ute ladies'-tresses flowering spikes, then populations appear to fluctuate dramatically in size from year to year (USFWS 1992). For example, the primary site for the Boulder, Colorado population contained 5,435 plants in 1986, 200 plants in 1987, 131 plants in 1988, 1,137 plants in 1989, 1,894 plants in 1990, and at least 80 plants in 1991 (USFWS 1992). This variability in apparent population size is consistent with other observations made of other orchid species.

However, Wells (1967) questions that apparent fluctuations in orchid numbers are accurate descriptions of the actual dynamics of the orchid populations. According to Wells (1967), the criterion adopted for judging whether the number of orchids at a site has changed or not has been the number of flowering spikes displayed at the time of visit. This may be an unsatisfactory criterion for measuring a quantitative change in population because, as has been demonstrated, plants may spend several years as vegetative rosettes or as underground tubers (as many as 11 years) with no above-ground parts. Furthermore, according to Wells (1967), the autumn ladies'-tresses orchid (*S. spiralis)* grows mainly in short grassland which is typically maintained in that condition by some kind of grazing which can damage some of the flowering spikes making a visual estimate of number based on count of flowering spikes unreliable. Arft's (1995) work on Ute ladies'-tresses supports this theory as well.

At the time of listing of Ute ladies'-tresses, most of the species' historic western populations on the Wasatch Front and in the Great Basin were believed to have been extirpated by urbanization. Most known populations contained fewer than 1,000 plants when counted in 1990 and 1991. Eastern Utah populations were also typically small in size. Local extirpations may have taken place in currently unoccupied potential habitat similar to extirpations which occurred along the Wasatch Front, the Great Basin, and certain historic populations in Colorado (USFWS 1992).

In 1992, when the species was listed, the total known population size of Ute ladies'-tresses was fewer than 6,000 individuals from 11 known populations in Colorado, Utah, and Nevada (USFWS 1992). The January 17, 1992, listing of Ute ladies'-tresses resulted in an increase in surveys for the species. Since that time, additional populations have been located in Utah, Montana, Idaho, Nevada, Colorado, Nebraska, Washington, and Wyoming. In 1995, the total known population size of Ute ladies'-tresses was approximately 20,500 individuals (USFWS 1995). Since 1995, another 24 populations have been discovered, including several large occurrences along the Green River in Colorado and Utah, the Snake River in Idaho, and Niobrara River in Wyoming and Nebraska. Ute ladies'-tresses are now known to occupy 674-783 acres of habitat. The highest number of plants recorded in any one year was 38,438 in 1998, based on sampling 23 of 55 populations known at that time. Since these populations were not selected randomly, no useful extrapolations can be made to estimate rangewide numbers based on annual counts (Fertig *et al.* 2005).

Ute Ladies'-tresses Status and Distribution

On January 17, 1992, the USFWS listed Ute ladies'-tresses as threatened in its entire range under the ESA (57 FR 2053). The Ute ladies'-tresses was first described as a species in 1984 by Dr. Charles J. Sheviak from a population discovered near Golden, Colorado (Sheviak 1984). At the time of its listing, Ute ladies'-tresses was known from 11 populations occurring in Colorado, Utah, and Nevada. Critical habitat has not been designated at this time. To date, no recovery plan has been approved for this species; however, a draft recovery plan has been written (USFWS 1995).

Ute ladies'-tresses was first discovered in Wyoming by the University of Wyoming, Rocky Mountain Herbarium in 1993. Formal surveys for Ute ladies'-tresses then began in Wyoming in 1994, one year after B. Ernie Nelson, manager of the Rocky Mountain Herbarium, discovered the state's first population in Goshen County. Nelson along with other researchers conducted general floristic surveys in southeast Wyoming, the Green River Basin, and Laramie Basin from 1994-1999, finding an additional new colony along Antelope Creek in Converse County in 1994 (Hartman and Nelson 1994). The population on Antelope Creek occurs on BLM-administered land in the Casper Resource Area southeast of the Bighorn Basin RMP Planning Area. This population has been censused several times and has remained small (11-35 plants seen during various years). The habitat there is considered marginal and the Antelope Creek population is considered the least viable of the populations within Wyoming (Fertig 2000).

Hartman and Nelson (1994) found that populations discovered in Wyoming occurred on terraces, low slopes, and oxbows adjacent to small streams on sandy to coarse gravelly alluvium or alkaline clays in wet meadow communities (Nelson and Hartman 1995). Based on short-term observation data, the populations that they found were thought to be stable or increasing. The sites were on lands managed for livestock grazing or hay production. Current land uses at the time appeared compatible with the habitat needs of Ute ladies'-tresses orchid populations. The timing of grazing and mowing was thought to be critical for successful seed production (Fertig 2000).

Surveys since 1992 have expanded the number of vegetation and hydrology types occupied by Ute ladies'-tresses to include seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, and lakeshores. In addition, 26 populations have been discovered along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other modified wetlands. New surveys have also expanded the elevational range of the species from 720-1,830 feet in Washington to 7,000 feet in northern Utah (Fertig *et al.* 2005).

Through coordination with and cooperation from a private landowner, permission was granted in 1996 to search an area along the Niobrara River in Sioux County, Nebraska. Hazlett (1996) counted several thousand Ute ladies'-tresses (Hazlett 1996). The area was previously mown in July of that year for hay and thousands of Ute ladies'-tresses were flowering in the pasture apparently flourishing from the reduced competition following the mowing and baling. The discovery was the first reported case of *S. diluvialis* in the State of Nebraska (Hazlett 1996).

The Wyoming Natural Diversity Database (WYNDD) surveyed public lands in Jackson Hole and the lower Green River Basin in 1999, but did not find any new *S. diluvialis* sites. Staff of the WYNDD also conducted unsuccessful searches in the Powder River Basin, National Elk Refuge, and F.E. Warren Air Force Base from 1995-1997.

Various environmental consulting firms (e.g., ERO Resources 1994) have searched for *S. diluvialis* across Wyoming since 1994. These efforts have not documented any new colonies (Fertig 2000). Because of the plant's irregular flowering pattern, sites which have been surveyed in the past could still harbor populations (Fertig 2000).

Since their discovery in Wyoming, Ute ladies'-tresses populations have been located in Goshen, Converse, Laramie, and Niobrara counties of southeastern Wyoming. The Ute ladies'-tresses orchid is currently known from a small population along a tributary to Antelope Creek (a tributary to the Cheyenne River) in northwest Converse County; a population along Bear Creek in southwestern Goshen County; a population along the Niobrara River near McMaster's Reservoir in southeastern Niobrara County; a population along Sprager Creek in Laramie County, and a recently discovered population along Horse Creek in Laramie County. These populations are monitored on a limited basis and appear to be stable.

To date, no populations have been discovered on land administered by the BLM in the Bighorn Basin RMP planning area (BLM 2015). However, surveys have yet to be conducted on all potential existing orchid habitat on BLM-administered land within the Bighorn Basin RMP planning area. The variability of Ute ladies'-tresses emerging and flowering every year, makes it difficult to effectively locate populations and inventory them. Future surveys in the Bighorn Basin RMP planning area may find populations of Ute ladies'-tresses on BLM-administered surface and/or split-estate lands on potential habitat along streams, rivers, and riparian areas with sandy or loamy clay soils.

Ute Ladies'-tresses Threats

In 1992, the USFWS identified habitat loss and alteration (through urbanization, water development, residential development, conversion of open space to parks, agricultural activities); overutilization for commercial, recreational, scientific, or educational purposes; excessive livestock grazing (although mild to moderate grazing may be beneficial); inadequacy of existing regulatory mechanisms; and other factors including localized catastrophic events, competition with invasive plant species, and indiscriminate use of herbicides as the primary threats to the long term conservation of this species. These activities historically have likely been a primary cause of the fragmentation of populations now currently observed. Fertig *et al.* (2005) identified additional threats including ecological succession, road and other construction, recreation, flooding, haying/mowing, natural herbivory, loss of pollinators, and drought. There is increasing pressure for urban, residential, and recreational development in these wetland and riparian areas, especially along the Front Range of Colorado and the Wasatch Front in Utah. As these areas are typically in private ownership, and the projects are often privately funded, there is very little regulatory protection for the orchid there, even though it is a federally-listed species.

Incompatible agricultural or other land management practices could also threaten the Ute ladies'-tresses orchid. The orchid is quite tolerant of grazing and other forms of land and vegetation disturbance. However, continuous grazing during the flowering season, severe trampling and soil compaction, untimely herbicide applications, proliferation of aggressive native and exotic plant species indicative of site degradation, and practices that result in habitat alteration from grass/forb/sedge to shrub/tree dominance, can result in loss of vigor and eventual demise of the orchid and/or orchid pollinators. Many riparian and other wetland and wetland/upland habitats suffer from these impacts, as well.

Alterations of stream hydrology could also threaten Ute ladies'-tresses. The orchid is supported by moist soil throughout the growing season, and by wet habitats that are dominated by grass/forb/sedge communities. During the past 150 years, and continuing today, water developments, diversions, stream channel alterations for flood control or other purposes (including oil and gas development and mining), and changes in hydrograph have altered hydrology, floodplain geomorphology, and vegetation composition and trends. While in some streams and reaches this may have provided improved conditions for the orchid, in many cases it has resulted in the loss of suitable habitat and likely fragmentation or loss of the orchid within watersheds (USFWS 2004b). Although some BLM-authorized activities may affect stream hydrology, the BLM in the Bighorn Basin RMP planning area is committed to not authorizing activities that might adversely affect the hydrology of occupied Ute ladies'-tresses habitat (Appendix 2).

ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed state or Federal projects in the action area

that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation process.

The action area is defined at 50 CFR 402 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of this consultation, the USFWS defines the action area as all lands within the Bighorn Basin RMP planning area in Wyoming that could potentially be impacted by decisions made in the Bighorn Basin RMP (BLM 2015b) to include administering 3,187,814 acres of public land surface and 4,203,213 acres of split-estate (Federal subsurface/non-federal surface).

Historic activities within or adjacent to the action area include residential, urban, commercial, industrial, and agricultural development; road construction; development for recreational use; mining; oil and gas development and its associated infrastructure; airport construction; ski area development; levee construction and maintenance; and dam construction.

Grizzly Bear Environmental Baseline

The action area is defined at 50 CFR 402 to mean all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. For the purposes of this consultation, the USFWS defines the action area for the grizzly bear to include the Bureau of Land Management grazing allotments in the Bighorn Basin RMP planning area and the areas outside of these grazing allotments where grizzly bear home ranges may overlap between the BLM's grazing allotments and surrounding areas. Formal consultations have occurred for Federal grazing activities adjacent to some of the BLM's grazing allotments in the BLM's Bighorn Basin RMP planning area. For example, formal consultations were recently completed in the vicinity of the planning area for the adverse effects to the grizzly bear from the Dubois area grazing allotments with the Lander planning area (USFWS 2011) and also for the Lander RMP Revision (USFWS 2014). Informal consultations have also been recently completed for activities in the BLM's grazing allotments.

Authorized grazing by livestock over the grizzly bear's range has declined over the past half century. Sheep numbers have declined substantially since the 1930s due to a number of reasons including marginal financial status of the industry and disease transferability conflicts between domestic sheep and wild bighorn sheep. Many sheep allotments have been converted to cattle allotments. Cattle numbers have also declined over the past few decades.

Activities considered in the environmental baseline include livestock grazing allotment authorization for the Shoshone and Bridger-Teton National Forests in northwestern Wyoming, the BLM Lander RMP, and highway reconstruction projects. Specifically, these project activities are the Federal Highway Administration's 287/26 Highway Reconstruction project aka Towgotee Pass Highway (WY5998, August 22, 2003); commercial grazing permits on the Bridger-Teton National Forest's Teton Division (WY4715, December 3, 2002), and Northern Portions of the Pinedale Ranger District (WY13F0075, June 12, 2013), the Shoshone National Forest's North and South Zones (WY11F0246 , March 6, 2012), the Animal and Plant Health and Inspection Service-Wildlife Services program (WY15F0034, March 10, 2015), the Lander RMP revision (WY13F0007, July 19, 2013) also including the approval of twenty 10-year

grazing permit renewals in the BLM's Lander Field Office area (WY11F0218, August 31, 2011), and the supplemental amendment for livestock grazing on northern portions of the Pinedale Ranger District (06E13000-2014-F-0040, September 3, 2014).

Portions of BLM-administered lands of the Bighorn Basin RMP administrative area occur in close proximity to the Greater Yellowstone Area (GYA)'s Recovery Zone/PCA. Some grizzly bear home ranges in the Recovery Zone/PCA may overlap with BLM-administered grazing allotments in the Bighorn Basin planning area. Within the GYA, one of the most challenging and controversial aspects of grizzly bear conservation has been management of the grizzly bear-livestock interface. Grizzly bear conflicts with livestock throughout the ecosystem have generally been managed according to the Interagency Grizzly Bear Guidelines, which include a protocol for nuisance bear management. From 1992-2000, a total of 422 grizzly bear conflicts involving cattle were recorded in the ecosystem. In 2011 alone, 86 livestock depredations occurred in the Greater Yellowstone Ecosystem (Cain 2012).

The Shoshone National Forest occurs immediately adjacent to the Bighorn Basin RMP planning area BLM-administered allotments and occurs within overlapping grizzly bear home ranges. On the Shoshone National Forest from 1986 to 2002, a total of 72 livestock conflicts involving permitted livestock on 14 allotments were recorded. By far, the vast majority of these conflicts involved calves (Gunther *et al.* 2004b, USFS 2003). From 2003-2010, 129 documented livestock depredation conflicts occurred on the Shoshone National Forest. Fifteen management actions were carried out (3 lethal, 12 non-lethal)(USFS 2011). Additionally, food regulations and storage orders, imposed since 1990, promote human safety and reduce the potential for bear-human conflicts by removing grizzly bear access to human food (USFWS 2004c).

Human-grizzly bear interactions have been increasing in the ecosystem due, in part, to increasing human use and development, increasing bear numbers, and bears and people both expanding their range of occupancy, thereby increasing the chances of adverse encounters. The frequency of grizzly bear-human conflicts is inversely associated with the abundance of natural bear foods (Gunther *et al.* 2004a). Most grizzly bear mortalities are directly related to grizzly bear-human conflicts, with the greatest mortality increase in recent years being self-defense in fall by big game hunters.

During the period from 2009-2011, Gunther *et al.* (2012) identified four areas in the GYE as having 57 percent (385 of 672) of grizzly bear-human conflicts. These included: (1) the Green River and Dunoir Creek drainages (154 conflicts), (2) the North and South Forks of the Shoshone River (125 conflicts), (3) the Clarks Fork area (56 conflicts), and (4) the Gardiner Basin (50 conflicts).

Status of the Grizzly Bear Within the Action Area

Grizzly bears are expanding their ranges and currently include, or may include portions of some BLM-administered grazing allotments in the Bighorn Basin RMP planning area. With the species expanding its range, conflicts on the BLM-administered grazing allotments can reasonably be expected to occur in the future.

All BLM-administered grazing allotments are located outside of the Grizzly Bear Recovery Zone/PCA. The Grizzly Bear Recovery Zone/PCA is composed of approximately 5,888,000 acres. In contrast, grizzly bear general distribution in the planning area is estimated to be approximately 195,967 acres. Grizzly bear distribution in the planning area overlaps approximately 122 grazing allotments in the Bighorn Basin planning area (see BLM 2015 for details for each specific allotment).

According to the BA, grizzly bear activity and conflict has been on the rise along the western edge of the Bighorn Basin planning area (BLM 2015a) in the Absaroka and Beartooth Fronts. From 2008 through 2012 within BLM grazing allotments, there were 71 livestock related conflicts in the Bighorn Basin RMP planning area. Of the 71 conflicts, 66 occurred within permitted grazing allotments administered by the Cody Field Office, and 5 within unpermitted BLM grazing allotments in the Worland Field Office. According to the BA (BLM 2015a), there were three documented instances resulting in bear mortalities on BLM grazing allotments. None of these were due to conflict with livestock.

Factors Affecting the Grizzly Bear Within the Action Area

Factors that could affect the grizzly bear in the action area include livestock management practices; timber harvest activities; recreational activities (hunting, fishing, camping, horseback riding, hiking, biking, off-road vehicle (ORV) use, and snowmobiling); management control actions; residential development; oil, gas, mineral development; educational programs; food storage orders and garbage disposal practices; wildlife and fisheries management practices; realty actions; insect control programs; fire management practices; drought; disease; or insect outbreaks. Factors potentially affecting the grizzly bear from the proposed action include increased mortality, change in the quality of habitat, displacement from habitat, and change in the frequency of human/grizzly bear encounters and conflicts. These factors have varying effects on grizzly bears depending upon the nature, location, duration, and timing of the activity. Some present more likelihood of risks, while others are relatively benign in effects. Some potential effects to grizzly bears from these factors are (1) harassment, harm, or death, (2) change in the quality of habitat and availability of food, (3) displacement from habitat, and (4) change in the frequency of human/grizzly bear encounters.

Increased mortality. Big game hunters may mistakingly mis-identify grizzly bears as black bears and kill them. Others may maliciously kill grizzly bears. Some grizzly bears may be killed in defense of human life or property (including livestock) usually because bears have become dangerously bold as a result of food conditioning and habituation at campsites, lodges, resorts, and private residences or they become habituated predators of livestock. Some grizzly bears may be killed as a result of management removals.

Change in the quality of habitat. Food and cover are important aspects of grizzly bear habitat. The abundance of important food items can change over time depending on a number of factors. Whitebark pine provides an important food source for grizzly bears. Blister rust, which has severe consequences on Whitebark pine in the Northern Continental Divide has been observed in the Yellowstone area. Winter killed ungulates are an important food supply, but ungulate populations vary widely in numbers and are influenced by weather conditions. Army cutworm

moths, which also provide important food for bears in some areas, could be affected by pesticide use in agricultural areas. Recent fires may have impacts on available food and cover over the short term, particularly to individual bears with heavily burned home ranges. Widespread use of insecticides could potentially reduce this important grizzly bear food source. Fire stimulates many plant forage species and berries preferred by bears, provide alternate food supplies.

The grizzly bear also faces a decrease in value of available habitat due to (1) a loss of biodiversity (especially early succession related vegetative types), and (2) sub-optimal vegetation quality as a result of fire suppression, management strategies, and advancing succession. Grizzly bears also face isolation due to fragmentation of available habitat due to (1) major development of private land, (2) construction of major highways that block or restrict movement, (3) inadequate provision for linkage on minor roads and highways, and (4) large clearcuts.

Displacement from habitat. Grizzly bears have experienced displacement from available habitat due to increased human uses from (1) roads, (2) ORV use, and (3) recreation use. They have also experienced displacement due to (1) development on private land related primarily to residential housing and (2) development on public land related primarily to oil/gas and recreation development. Realty actions such as conversion of grazing lands to residential or mineral development can result in displacement of the bears from previously suitable habitat.

Change in the frequency of human/grizzly bear encounters and conflicts. With increased education and improved management of grizzly bear habitat, there is expected to be a decrease in the frequency of human/grizzly bear encounters and conflicts. Food storage requirements and proper disposal of garbage, pet food, and livestock carcasses and removal of domestic sheep from grazing allotments is expected to reduce the number of instances of conflict situations as has been witnessed in the grizzly bear recovery zone (Schwartz *et al.* 2002).

Ute Ladies'-tresses Environmental Baseline

Ute ladies'-tresses are not known to occur in the Bighorn Basin RMP planning area, but potentially could occur in the floodplain areas of the planning area, as many of these areas, to date, remain unsurveyed for the presence of Ute ladies'-tresses. Floodplain areas are located where the water table is near the surface throughout the Ute ladies'-tresses growing season. The past and present impacts to Ute ladies'-tresses in the action area may have included increases, and decreases, in habitat suitability due to irrigation developments and other human-caused changes to stream hydrology. Human-caused changes to stream hydrology have taken the form of channelization of streams, construction and use of irrigation canals, water impoundment (pond) construction, increased water discharges to surface waters, and water depletions from surface waters. These activities were and continue to be widespread across the Bighorn Basin RMP planning area.

Invasive plant species do occupy much of the planning area with resulting herbicide control by private citizens and/or the County Weed and Pest Districts. It is not known if any invasive plants may be adversely affecting Ute ladies'-tresses within the action area.

Grazing, haying and mowing activities are normally undertaken by private land owners as part of their agricultural operations. Grazing activities on BLM-administered lands are authorized by the BLM through a permitting process. These activities may be beneficial to Ute ladies'-tresses plants through the maintenance of habitat or they may be detrimental in that these activities if not timed properly may reduce the reproductive success of individual Ute ladies'-tresses plants.

Another impact to Ute ladies'-tresses plants in the action area may be herbivory by wildlife. Herbivory of the flowering spikes of *S. diluvialis* by voles (Arft 1994), deer (Fertig 2000), and moose (Moseley 1998) has been documented at some locations. Wells (1967) documented significant flowering stalk herbivory of the autumn ladies'-tresses orchid (*S. spiralis*) by rabbits. Arft (1994) speculated that vole herbivory could be the greatest single threat to the long-term survival of Ute ladies'-tresses at one study site. It is plausible that similar damage to Ute ladies'-tresses plants in the action area could be attributed to wildlife as well.

Numerous other existing actions including construction of electricity transmission lines, mining operations, and erection of telecommunication towers are present in the action area. These have been considered as part of the environmental baseline for this action.

Status of the Ute Ladies'-tresses Within the Action Area

Ute ladies'-tresses is currently not known to occur in the Bighorn Basin RMP planning area. If this species is present in the Bighorn Basin RMP planning area, then grazing activities may positively benefit Ute ladies'-tresses by reducing competing vegetation; however, if not timed properly, grazing can reduce the reproductive success of individual Ute ladies'-tresses plants. Wildlife herbivory of the flowering spikes of Ute ladies'-tresses orchids by voles (Arft 1994), deer (Fertig 2000), and moose (Moseley 1998) does occur at some locations across the species' range. Wells (1967) documented significant flowering stalk herbivory of the autumn ladies'-tresses orchid by rabbits.

There has been one formal consultation for Ute ladies'-tresses within the action area. This consultation (WY06F0205b, April 2007) analyzed potential effects from BLM RMPs statewide in Wyoming. Nine formal section 7 consultations have been completed which analyzed potential adverse effects to Ute ladies'-tresses orchids in other areas of Wyoming. Two of these analyzed potential adverse effects associated with coalbed natural gas development in the Powder River Basin (WY4287, March 2001; ES-6-WY-02-F006, December 2002)(USFWS 2002) of Wyoming. Two consultations analyzed surface disturbance in Ute ladies'-tresses habitat associated with pipeline construction (WY2567, July 16, 1999) and railroad expansion (ES-6-WY-01-F008, October 2001), respectively. One consultation (WY10F0067, March 2010) analyzed effects to Ute ladies'-tresses from 7 grazing allotments in the BLM's Casper Resource Area. The remaining four consultations (WY06F0309d, November 2007; WY8796b, October 2004; WY06F0212e, January 2007; WY13F0007, July 19, 2013) analyzed potential effects from the Casper, Newcastle, Rawlins, and Lander RMPs in Wyoming, respectively.

The BLM supports efforts to locate the orchid on BLM-administered or nearby state or private lands (Hazlett 1995, 1997, 1999). Surveys have been conducted in what appeared to be suitable habitat in some parts of the action area, but no Ute ladies'-tresses have been found to date.

Future surveys may reveal that additional populations occupy BLM-administered surface lands, or on private lands where the BLM may have some discretionary authority of grazing management through the allotment management plans of allotments containing isolated BLM-administered grazing parcels in the action area.

Within the Bighorn Basin RMP planning area, potentially suitable habitat exists along creeks, streams, and riparian areas that may support Ute ladies'-tresses. Locations where populations of Ute ladies'-tresses may be discovered in the Bighorn Basin RMP planning area include but are not limited to moist meadows along streams.

Factors Affecting the Ute Ladies'-tresses Within the Action Area

Factors that could affect this orchid in the action area include irrigation developments and other human-caused changes to stream hydrology, introduction of invasive species, herbicide use, haying, mowing, livestock (or wild horse) grazing. Human-caused changes to stream hydrology may take the form of channelization of streams, construction and use of irrigation canals, water impoundment (pond) construction, increased water discharges to surface waters, and water depletions from surface waters. These activities are widespread across the planning area. Many historic projects exist that have changed stream hydrology or water quality or have caused increases in erosion and/or sedimentation rates. Invasive plant species occupy much of the planning area and herbicide use to control these invasive species are undertaken by private citizens or performed by County Weed and Pest Districts.

Depending on the time of year when it occurs, grazing may be either detrimental or beneficial to Ute ladies'-tresses populations. If grazing occurs during the flowering stage, grazing may reduce the plant's reproductive capacity through removal of the inflorescences (flowering spikes) of individual Ute ladies'-tresses plants. However, if timed to occur prior to or subsequent to the plant's flowering stage, grazing may also be beneficial by reducing the density of competing vegetation thereby helping to maintain the plant's habitat.

EFFECTS OF THE ACTION

Under section 7(a)(2) of the ESA, "effects of the action" refers to the direct and indirect effects of an action on the species or critical habitat, with the effects of other activities interrelated or interdependent with that action. Indirect effects are those caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02). The effects of the action are added to the environmental baseline to determine the future baseline and to form the basis for the determination in this opinion. The effects discussed below are the result of direct and indirect impacts of implementing the proposed project.

Direct and Indirect Effects

Direct effects are effects that result directly or immediately from the proposed action on the species. For example, actions that would immediately remove or destroy habitat or displace the species from its habitat or an area would be considered direct effects. Indirect effects are effects

that are caused by, or result from, the proposed action and occur later in time after the proposed action is completed, e.g., grazing over the life of the RMP (10-15 years) may maintain habitat for listed plants that may occupy the area 15 years from present.

The proposed action is the management of the Bighorn Basin RMP planning area in Wyoming for up to 10-15 years. Given the length of the proposed action and the difficulty in distinguishing direct from indirect effects, the two types of effects are not differentiated here but instead are discussed jointly.

Effects on the Grizzly Bear

The Bighorn Basin RMP BA describes activities in the Livestock Grazing program that may affect and are likely to adversely affect the grizzly bear within the Cody and Worland Field Office boundaries. Livestock grazing management actions that occur in occupied grizzly bear habitat would be expected to disturb resident grizzly bears (BLM 2015a). The effects of livestock grazing management could include displacing grizzly bears, lethally controlling grizzly bears due to conflicts, and disruption of behavior patterns and social systems due to the presence of livestock. The BLM determined that the issuance of grazing permits could adversely impact grizzly bears on some allotments. Livestock grazing is allowed across the grizzly bear's general distribution in the planning area on approximately 195,967 acres in the planning area.

Since 2004, there has been increase in grizzly bear sightings and conflicts along the Absaroka Front portion of the Bighorn Basin Planning area. According to the BLM (BLM 2015a), livestock/grizzly bear conflict has the potential to result in both direct and indirect adverse effects on grizzly bear. From 2004-2014, 69 incidents of livestock depredation by grizzly bear have been recorded in the Bighorn Basin Planning area, with 46 of the 69 depredations occurring within BLM-authorized grazing allotments. Grazing allotments in the planning area are comprised of a mixed ownership of BLM, state, and private lands. Of the 46 depredations that occurred within authorized grazing allotments, approximately 15 percent of the depredations (7 of 46) occurred on the BLM-owned portions of the allotments.

During the spring months, when bears emerge from their dens, livestock are most vulnerable to depredation by grizzly bear. Elk, mule deer, and bighorn sheep are primary prey of grizzly bear and their presence in crucial winter/yearlong range in the spring months is likely to draw bears into the area where livestock may graze. Although the BLM is not responsible for trapping and relocating depredating grizzly bears, actions such as the authorization of livestock grazing permits and the installation of rangeland improvement projects in grizzly bear habitat could lead to the development of problem behavior patterns in grizzly bears. Consequently, BLM actions could lead to trapping and relocating of grizzly bears. Trapping and relocation of a grizzly bear has the potential to result in accidental injury or death of a bear through injury during trapping or accidental overdose of immobilization drugs. Furthermore, relocated bears may continue depredating behaviors in the new area, resulting in future removal from the population later in time.

Livestock grazing in occupied grizzly bear habitat also has the potential to result in illegal, accidental, or defensive take by grazing permittees in the act of trying to protect their livestock

(BLM 2015a). A potential risk exists for take of grizzly bears as a result of accidentally encountering bears feeding on livestock carcasses. Disposal of livestock carcasses also has the ability to adversely impact grizzly bear through more indirect effects. Indirect effects of livestock grazing includes conditioning of grizzly bears to view livestock as prey; loss of reproductive potential for grizzly bear removed from the population; disturbance to grizzly bear behavior patterns, social systems, and activity patterns; and declines in foraging efficiency and survival of relocated bears.

In summary, potential adverse effects to grizzly bears from livestock grazing may occur directly from disturbance to bears by human-associated activities within allotments, illegal, accidental, or self-defensive killing by humans unexpectedly encountering grizzly bears on allotments, or from management actions (trapping and relocating bears or removing them from the population). Indirect effects from grazing may include a change in the quality or quantity of habitat and availability of food, grizzly bears becoming conditioned or habituated to livestock as prey, a reduction in their foraging efficiency, loss of reproductive potential when relocated or euthanized, or changes to their behavior and activity patterns.

One of the most challenging and controversial aspects of grizzly bear conservation in the Yellowstone ecosystem has been management of the grizzly bear-livestock interface. Grizzly bear conflicts with livestock throughout the ecosystem have generally been managed according to the Interagency Grizzly Bear Guidelines (IGBC 1986), which include a protocol for nuisance bear management. Although livestock depredations in the GYA are on-going and may not always be avoided, and direct or indirect mortality to depredating grizzly bears applies toward GYA mortality thresholds, the number of allotments and distribution of livestock in the ecosystem have not prevented achieving grizzly bear demographic recovery criteria.

In order to minimize the chances that grizzly bears will conflict with livestock grazing and associated human activities, the BLM has committed to implement its RMP Conservation Measures provided in Appendix 2. The GYA population has grown and exceeded recovery goals despite the level of ongoing conflicts and removals. In addition, conservation measures will be implemented that are designed to minimize conflicts. For these reasons, we do not expect management relocations or removals to a limited number of grizzly bears from the grazing allotments to have a significant impact on the grizzly bear population as a whole in the GYA.

Analysis for Effects of the Action on the Grizzly Bear

Livestock Management. BLM-authorized grazing allotments do not overlap with Grizzly Bear Recovery Zone but instead overlap only with grizzly bear transition habitat. However, livestock grazing on BLM-authorized grazing allotments, and the associated human presence and livestock carrion associated with livestock management, could still have detrimental effects to the grizzly bear (Knight and Judd 1983). As the grizzly bear population expands and overlaps with BLM-authorized grazing allotments, grizzly bears can be expected to have increased conflicts with livestock. Unacceptably high levels of livestock depredation by grizzly bears may lead to control of grizzly bears, depending upon the specific circumstances. The Plan for Determining Grizzly Bear Nuisance Status and for Controlling Nuisance Grizzly Bears (pages 51-70 in the Interagency Grizzly Bear Guidelines) (IGBC 1986) outlines management direction agreed upon

by participating agencies with respect to determination of grizzly bear nuisance status, and the capture, translocation, release and/or disposal of nuisance grizzly bears. These guidelines indicate a grizzly bear may be determined to be a nuisance if "the bear causes significant depredation to lawfully present livestock or uses unnatural food materials (human and livestock foods, garbage, home gardens, livestock carrion, and human possession of game meat), which have been reasonably secured from the bear resulting in conditioning of the bear or significant loss of property." Once determined a nuisance, control may consist of either relocating or removing the bear from the population, depending upon the age and sex of the bear, as well as the number of previous offenses the bear may have. For example, a depredating young female grizzly bear will be removed from the population only in response to her third offense. A depredating old adult male grizzly bear may be removed from the population on his first offense. Additionally, depending on the age, sex, and condition of the bear, its lack of knowledge of the habitat and food resources at its release site, a relocated bear may have lower fitness and survival due to conflicts with resident bears or starvation.

In most cases, relocation provides only a short-term solution to an immediate crisis with a high return rate due to the homing ability of bears. However, relocation may provide time to resolve the problem creating the conflict. Knight *et al.* (1988) state that while translocation of bears from population sinks may remove them temporarily from situations of high risk of death, the best management strategy remains elimination of those food sources that attract bears, thus supporting efforts to minimize food availability through carcass removal. Blanchard and Knight (1995) believe that transporting grizzly bears should be considered a final action to eliminate a conflict situation, because of low survival and high return rates. However, Blanchard and Knight (1995) also found subadult females returned the least of all groups and indicated transporting females must be considered a viable management technique because transports of some individuals have resulted in contributions to the population through successful reproduction.

Habituation to humans and human activities can also lead to conflicts with grizzly bears which may ultimately lead to their translocation, harm, or death (McClellan 1989). Human presence and activities in grizzly bear occupied habitats may lead to bear-human encounters, often with negative consequences for the bear. In their study of the effects of access on human-caused mortality of Yellowstone grizzly bears, Mattson and Knight (1991) revealed that mortality rates associated with all levels of access (roads, developments, back-country) have decreased over time. They point out that most of this observed improvement is due to better management and removal of attractants such as garbage and other edibles that have been a major cause of bear deaths in the past; and that these may have been the easiest reductions to achieve.

Habituation, the loss of a bear's natural wariness of humans, results from continued exposure to human presence, activity, noise, etc., without negative consequences. A bear habituates to other bears, humans, or situations when such interaction gives it a return in resources, such as food, that outweighs the cost of the stress that precedes habituation. Similarly, bears may habituate to people when such interactions result in access to a source of natural food in the vicinity of human use areas (McArthur-Jope 1980). Increases in human access and subsequent increased human use in grizzly bear habitat can lead to bear habituation to humans, which in turn increases the potential for bear-human conflicts. Habituated bears often end up obtaining human food or garbage and learn to associate people with food. As a result, they can be removed from the

population. Such habituated or food-conditioned bears are also more vulnerable to illegal killing because of their tolerance of people.

These conflicts could result in the relocation, injury, or death of any given grizzly bear. Relocation of grizzly bears to new habitats may cause a reduction in the relocated bear's fitness if that bear is placed in direct competition with other more dominant bears at that new location or if the relocated bear cannot otherwise find enough resources at the new location to sustain its existence.

Since BLM-authorized grazing allotments do not overlap with the Grizzly Bear Recovery Zone, livestock grazing activities on BLM-authorized grazing allotments are not expected to affect the core population of grizzly bears in the GYE. It is expected that some young grizzly bears which have been driven out of their natal habitats by older grizzlies may move on to the BLM Bighorn Basin planning area grazing allotments to seek new territories simultaneously expanding the range of the species. It is these grizzly bears, seeking new territories or forced to occupy sub-optimal habitat through competition with more dominant bears, which could be adversely affected by the BLM's authorization of livestock grazing in the Bighorn Basin RMP planning area.

The Greater Yellowstone grizzly population has expanded since the bear was first listed in 1975 (USFWS 1975) and recovery goals were first achieved in 1994. The grizzly bear in the GYE was recently proposed for removal from the list of endangered and threatened species (USFWS 2005). It is not expected that the removal or relocation of grizzly bears in the transition habitat of the BLM-authorized grazing allotments will have a significant impact on the grizzly bear population as a whole in the GYE.

In order to minimize the chances of grizzly bear/livestock/human conflicts on BLM-authorized lands, the BLM has committed to implementing a number of conservation measures. Conservation measures are designed to reduce the potential for human-bear encounters and related bear mortality, and provide secure habitat for females to raise their young. Conservation efforts include reduction in bear access to human food and garbage, evaluation of road densities, research on availability of grizzly foods, and other studies of bears and their habitat. In order to minimize the effects of its actions on the grizzly bear, the BLM has committed to ensuring that; (1) authorized activities planned to occur in currently occupied grizzly bear habitat shall be analyzed and planned with active grizzly bear protection measures, (2) restrictions on timing of activity and spatial considerations for grizzly bears, or other parameters, will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area, (3) a packet of educational materials will be provided to authorized permittees in grizzly habitat, including, but not limited to, livestock permittees, (4) operation plans and special use permits in occupied grizzly bear habitat will specify food storage and handling and garbage disposal standards, (5) all temporary living facilities under temporary use permits in occupied grizzly bear habitat will be required to practice proper food storage and keep all potential attractants stored so they are unavailable to bears, (6) edibles and/or garbage will be secured from access by grizzly bears, (7) bear proof refuse containers, and timely refuse collection to prevent overflow, will be required, (8) important grizzly bear food resources that may occur on BLM-administered land, particularly whitebark pine, army cutworm moths, ungulates (primarily

elk calving grounds), and spawning cutthroat trout, shall be noted and monitored and other important foods may be added to those listed above as our understanding of grizzly bear food resources on BLM-administered land grows, (9) implementation of strategies to reduce human-bear and domestic livestock-bear conflicts by conducting an evaluation of the causes of such conflicts when they do occur and determining what can be done to avoid or reduce such conflicts in the future, (10) existing roads, and other areas with vegetation removed due to authorized activities in occupied grizzly bear habitat will be revegetated and reclaimed by lessee/permittee/grantee in a fashion that considers all grizzly bear needs or requirements.

Summary of Effects on the Grizzly Bear

It is anticipated that grazing actions potentially authorized under the Bighorn Basin RMP, if undertaken, could result in negative impacts to grizzly bears due to injury, death from control actions (including control actions associated with grizzly bear depredation events on livestock), or a reduction in fitness (individual fitness and reproductive fitness) of individual grizzly bears. Livestock grazing management according to the Bighorn Basin RMP could lead to the relocation or shooting (both authorized and unauthorized) of individual grizzly bears. In order to minimize effects from its actions, the BLM has committed to implementing a suite of conservation measures to plan and conduct its activities and educate its personnel, permittees, and the public so that the grizzly bear's welfare will be a top priority in the bear's habitat on BLM-administered lands. Conservation measures are designed to reduce the potential for human-bear encounters and related bear mortality, and provide secure habitat for females to raise their young. Conservation efforts include reduction in bear access to human food and garbage, evaluation of road densities, research on availability of grizzly foods, and other studies of bears and their habitat.

Effects on Ute Ladies'-tresses

The BLM's Bighorn Basin RMP describes activities in the livestock grazing program that may affect and are likely to adversely affect the Ute ladies'-tresses orchid. These effects are (1) the trampling or destruction of the inflorescences (flowering spikes) of individual Ute ladies'-tresses plants by livestock grazing, and (2) any manipulation of the timing or intensity or cessation of grazing of the habitat of this plant.

Analysis for Effects of the Action on Ute Ladies'-tresses

Analysis for effects of Livestock Grazing Management on Ute ladies'-tresses. Habitat alterations resulting from agricultural use (grazing) may be beneficial, neutral, and/or detrimental to Ute ladies'-tresses orchid depending on when it occurs (McClaren and Sundt 1992, USFWS 1995). The Ute ladies'-tresses orchid is edible to livestock and depressed inflorescence (flowering spike) and fruit production has been observed at sites that are grazed in late summer (Arft 1995). However, populations are still capable of reproduction in the presence of long-term grazing, but may experience short-term impacts (Arft 1995). Livestock management activities have variable effects on Ute ladies'-tresses. Grazing livestock could reduce competition with other grasses and forbs thereby allowing Ute ladies'-tresses to take advantage of sunlight, water, and nutrients that might otherwise be deprived of the plant.

In a 4-year study of a separate species of ladies'-tresses orchid (*S. spiralis*) in Great Britain, Wells (1967) discussed damage done by herbivores to that species (autumn ladies'-tresses). Wells (1967) found that herbivores did very little damage to the leaves of that species even under years of heavy grazing by sheep. Wells (1967) speculated that this unusually small amount of damage indicated how well-adapted ladies'-tresses orchid is to an open habitat in which the turf is kept short by grazing animals. In contrast, according to Wells (1967) damage to the flowering spike of some of plants was observed in every year of the 4-year study. The number of plants with damage to the flowering spike varied in each year according to the type and intensity of grazing during the period of flowering. Wells (1967) reports that when sheep were removed in early June, less than 1 percent of the flowering spikes were recorded as damaged that year.

It can be presumed that similar damage could occur to Ute ladies'-tresses as it was reported for the autumn ladies'-tresses in Great Britain. The BLM offices in the Bighorn Basin RMP planning area do permit sheep and cattle grazing on the surface lands which they administer. Therefore, the livestock grazing program administered by the BLM may influence the reproductive potential of any given Ute ladies'-tresses plant. Seed number is not thought to be limiting to populations of *S. diluvialis* as flowering spikes have the potential to produce 5 to 30 fruits per flowering spike and each fruit can contain between 100 to 10,000 seeds (Sipes and Tepedino 1994). Therefore, even under heavy grazing pressure as described by Wells (1967), even a small population of *S. diluvialis* has the potential to produce tens of thousands of seeds.

Arft (1994) studied the effects of cattle grazing on Ute ladies'-tresses orchids. The data suggested that the large fluctuations in population size reported in monitoring counts may actually be fluctuations in number of flowering individuals, with many individual plants remaining vegetative (non-flowering) or subterranean. During Arft's (1994) study, the proportion of flowering individuals fluctuated greatly between survey years, indicating flowering plants alone may not be a good indicator of population size.

It is plausible that livestock could also incidentally ingest Ute Ladies'-tresses seed heads and act as seed dispersal mechanisms to introduce the seeds to unoccupied areas and actually improve the reproductive fitness of any given plant although Wells (1967) did not mention any such documented occurrences in his study of the autumn ladies'-tresses. In that study, most of the damage done by cattle in his study was due to trampling and treading on the flowering spikes. No other documentation has been found in the literature relative to the topic of livestock acting as a potential seed disperser of Ute ladies' tresses orchids.

It is currently accepted that grazing activities generally benefit the habitat necessary for Ute ladies'-tresses populations if these activities are timed to occur up to one month prior to flowering. Fencing, changes in livestock seasons of use or type of livestock, and riparian improvement projects may be used to protect the flowering spikes of individual plants from crushing or removal.

The BLM intends to continue grazing activities and surveys for Ute ladies'-tresses and if populations are discovered, grazing activities will be managed to maintain Ute ladies'-tresses populations (BLM 2007). The BLM in the Bighorn Basin RMP planning area has committed to

conservation measures to protect Ute ladies'-tresses (Appendix 2). The use of these conservation measures will reduce or eliminate the effects by ensuring that (1) populations are discovered prior to any surface disturbing activities, (2) surface disturbances do not take place in occupied habitat, (3) invasive plant species infestations are controlled in a manner conducive to the survival of Ute ladies'-tresses, (4) the hydrologic regime of the plant's habitat is maintained and studied, and (5) grazing activities are conducted in a manner that will maintain the habitat of the species while minimizing any removal of the plant's flowering spikes (BLM 2007).

Summary of Effects on Ute Ladies'-tresses

Ute ladies'-tresses populations in Wyoming are typically found in areas where livestock grazing has maintained the habitat in areas where competing vegetation has been removed and there is a fair amount of bare ground surface (Fertig 2004) characteristic of an area that has been partially grazed regularly. However, activities authorized in the livestock grazing program may damage individual plants. The degree to which the plants can sustain damage and not be "adversely affected" is currently unknown but it is suspected that the activities authorized in the livestock grazing program may affect individual Ute ladies'-tresses orchid's reproductive success. The BLM has made a "may affect, likely to adversely affect" determination for the potential effect that BLM-authorized livestock grazing activities may have on Ute ladies'-tresses that may exist on BLM-administered surface acreage in the Bighorn Basin RMP planning area.

Minimization of Effects to the Species

To minimize the effects to listed species, the BLM will implement the conservation measures listed in Appendix 2. For all listed species, the BLM will ensure that surveys are conducted in suitable habitat prior to implementation of potentially disturbing project activities. The BLM's implementation of the impact minimization measures of Appendices 2, 3, and 4 will reduce human and project disturbance to listed species and their habitat.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Grizzly Bear. Activities that could have cumulative effects to the grizzly bear in the Bighorn Basin RMP planning area are presented here. Potential activities which could cumulatively affect the grizzly bear include oil and gas development on private land in grizzly bear habitat in the RMP planning area. Non-federal activities which may have cumulative effects in the Bighorn Basin RMP planning area include: (1) livestock grazing on state or private lands, (2) residential development that may impact habitat through degradation, removal, and fragmentation or sedimentation of waterways, (3) expanded road networks on state and private lands that may result in fragmentation of habitat, (4) infrastructure associated with urban expansion and mineral development including pipelines and powerlines, (5) spread of invasive

species on private and state lands in the planning area, (6) actions undertaken by private landowners that impact the health and performance of watersheds, (7) mineral and other development, the construction and maintenance of rights-of-way, and vegetation treatments (e.g., prescribed burns, mechanical, or chemical treatments) on state and private lands contribute that may result in removal of vegetation and increased sedimentation, and (8) other forms of surface disturbance on state or private lands that may result in permanent facilities such as roads, well pads, mines, or quarries.

Certain components of these non-federal activities, if completed, could displace or modify the behavior of grizzly bears. Grizzly bear habitats could also be modified or degraded by the above-listed non-federal activities which are reasonably certain to occur within the BLM RMP planning area. Some of these activities could be situated near important grizzly bear habitats or linkages on BLM-administered lands.

Ute ladies'-tresses. Non-federal activities which may cumulatively affect Ute ladies'-tresses across the Bighorn Basin RMP planning area are presented here. Potential activities which could cumulatively affect the orchid include oil and gas development on private land in suitable habitat in the RMP planning area. Non-federal activities which may have cumulative effects in the Bighorn Basin RMP planning area include: (1) livestock grazing on private or state lands, (2) residential development that may impact habitat through degradation, removal, and fragmentation or sedimentation of waterways, (3) expanded road networks on state and private lands that may result in fragmentation of habitat, (4) infrastructure associated with urban expansion and mineral development including pipelines and powerlines, (5) spread of invasive species on private and state lands in the planning area, (6) actions undertaken by private landowners that impact the health and performance of watersheds, (7) mineral and other development, the construction and maintenance of rights-of-way, and vegetation treatments (e.g., prescribed burns, mechanical, or chemical treatments) on state and private lands contribute that may result in removal of vegetation and increased sedimentation, and (8) other forms of surface disturbance on state or private lands that may result in permanent facilities such as roads, well pads, mines, or quarries.

Impacts to Ute ladies'-tresses orchids could result from livestock operations on private lands in the Bighorn Basin RMP planning area. These impacts could be beneficial (maintaining habitat through grazing), or detrimental (limiting individual orchid reproductive fitness by removal of fruiting parts through trampling or ingestion). The nature of the impacts from livestock operations is likely to be fairly similar across land ownerships.

Mowing and haying on private and state lands could be beneficial to Ute ladies'-tresses populations. However, these activities could also be detrimental if done before fruits have ripened, or if the height of hay cutting is too low. In many current management situations, the timing of mowing is related to growth conditions of the hay crop and weather patterns rather than the biological needs of these threatened plants.

Finally, the data are not adequate to determine the distribution and abundance of all grizzly bear or Ute ladies'-tresses populations and suitable habitats on private or state-owned lands in the BLM's Bighorn Basin RMP planning area. Of the roughly 5.6 million acres within the Bighorn

Basin RMP planning area, 3.1 million surface acres are managed by the BLM with most available to livestock operations. The BLM in the Bighorn Basin planning area also oversees the use of approximately 4.2 million subsurface acres. The exact cumulative effects of these species are not known at this time due to a lack of specific information on future, state, local, or private actions in the Bighorn Basin RMP planning area over the life of the RMP.

CONCLUSION

Grizzly Bear

After reviewing the current status of the grizzly bear; the environmental baseline for the action area; the effects of the Bighorn Basin Resource Management Plan and the BLM-committed conservation measures; and the cumulative effects, it is the USFWS biological opinion that the direct and indirect effects of the implementation of the Bighorn Basin RMP with commitment to conservation measures, as proposed, are not likely to jeopardize the continued existence of the grizzly bear. Critical habitat has not been designated, therefore none will be affected.

The USFWS has reached this conclusion by considering the following.

1. An accurate estimate of grizzly bear population size in the Greater Yellowstone Ecosystem has always been elusive given the bear's normally isolated existence in remote inaccessible terrain. However, this species has increased in numbers since the year of its listing. The range of the grizzly bear in the Greater Yellowstone Ecosystem has also increased dramatically since the 1970s (IGBST 2012, Pyare *et al.* 2004, Schwartz *et al.* 2002, USFWS 2005).

2. The BLM is committed to implementing protective measures (see Appendix 2) to minimize potential impacts to grizzly bears.

3. Finally, although individual grizzly bears may be adversely impacted by conflicts arising over livestock grazing activities, these activities will occur in transition, sub-optimal habitat outside of the core population area for the Greater Yellowstone grizzly bear population. These conflicts are expected to consist primarily of sub-adult individuals that have been pushed out of optimal habitat through competition with more dominant bears. The core population of grizzly bears of the Greater Yellowstone Ecosystem is expected to remain relatively unaffected by livestock grazing activities of the BLM's Bighorn Basin RMP planning area in Wyoming.

4. Although we anticipate some level of take of grizzly bears from management relocations and mortality due to management removals within the area, it is our opinion that the proposed action will not appreciably reduce the likelihood of both the survival and recovery of grizzly bears. No critical habitat has been designated for grizzly bears; therefore, none will be affected. Our conclusion that the proposed action is not likely to jeopardize the continued existence of grizzly bears is based

primarily on the information presented in the BA and informal discussions between the USFWS and BLM personnel of the Bighorn Basin.

Ute Ladies'-tresses

After reviewing the current status of the Ute ladies'-tresses orchid; the environmental baseline for the action area; the effects of the Bighorn Basin Resource Management Plan and the BLM-committed conservation measures, and the cumulative effects; it is the USFWS's biological opinion that the direct and indirect effects of the implementation of the Bighorn Basin RMP with commitment to conservation measures, as proposed, are not likely to jeopardize the continued existence of Ute ladies'-tresses.

The USFWS has reached this conclusion by considering the following.

1. It appears that this species is more widespread and numerous than was previously known. At the time of listing, the total known Ute ladies'-tresses population numbered approximately 6,000 individuals. Extensive census efforts from 1991-1995 revealed that known population size was approximately 20,500 individuals. Since 1995, several new populations have been located in Wyoming. From 1992-1999, the total known population of the Ute ladies'-tresses orchid observed across its range reached over 60,000 individuals (USFWS 2004d). It is expected that new populations will continue to be discovered as not all potential habitat has been surveyed. As a response to the plant's more widespread distribution, the USFWS began preparing a 12-month finding on a petition to delist the species (USFWS 2004b).

2. The BLM is not proposing to implement any significant changes to the management of any Ute ladies'-tresses potential habitat that may cause detrimental impacts to any populations.

3. The BLM is committed to implementing protective measures (Appendix 2) to minimize potential impacts to Ute ladies'-tresses.

4. Although individuals can be adversely impacted by livestock grazing activities (trampling, ingestion, etc.), the populations seem to withstand some grazing pressure and may actually rely on these activities for maintenance of their habitat.

INCIDENTAL TAKE STATEMENT

Grizzly Bear

Section 4(d) and 9 of the ESA, as amended, prohibit the take of listed species of fish or wildlife without a special exemption. The ESA defines take as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. A special rule under the ESA is in effect for grizzly bears in the 48 conterminous states of the United States (50 CFR 17.40(b), Special Rule). Under the terms of the Special Rule, taking is prohibited except as provided in paragraphs 17.40(b)(1)(i)(B) through (F). The exceptions to the take prohibition

include the defense of human life and the removal of nuisance bears when the taking conforms to the requirements specified in the regulations.

Although there are exceptions to the take prohibition for grizzly bears, the exceptions do not address all sources of incidental take that may result from the proposed Federal action. For example, harm is further defined by regulation (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to wildlife by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the BLM so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The BLM has a continuing duty to regulate the activity covered by this Incidental Take Statement. If the BLM (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of the incidental take, the BLM must report the progress of the action and its impact on the species to the USFWS as specified in the Incidental Take Statement [50 CFR 402.14(i)(3)].

Amount or Extent of Take Anticipated

Although the act of relocating or removing nuisance grizzly bears in accordance with the special rule is an exception to the taking prohibition (50 CFR 17.40(b)(1)(i)(C)), the exception does not address all forms of take that may be associated with permitting grazing. The USFWS anticipates take in the form of harm to grizzly bears as a consequence of livestock grazing and the associated livestock management operation in habitats commonly used by grizzly bears. Some bears could be trapped and relocated, potentially resulting in lower survival (death) or reduced fitness (lower productivity). Bears that continue to depredate livestock or pose a hazard to human safety could be removed (killed) as a result of grazing activities. In addition, the habitat modification of adding a significant additional potential food source that results in the death or injury of bears is "take" in the form of harm. Grazing livestock as part of the proposed action is a significant modification to grizzly bear habitat, as livestock present a substantial potential food source for grizzly bears. The likely depredation of some permitted livestock represents an impairment of natural feeding behavior that will in some cases ultimately lead to management removal or death of grizzly bears. In addition, grazing and associated activities have the potential for other adverse effects to grizzly bears (e.g., displacement, habituation, increased exposure to other potential sources of mortalities, etc).

The USFWS anticipates that grizzly bears could be taken as a result of the management according to the Bighorn Basin Resource Management Plan. The incidental take is expected to be in the form of harm that is tied to habitat modification (e.g., the placement of livestock in grizzly bear habitat). Incidental take has been determined based on the BA and an analysis of the environmental baseline, effects of the action, and the cumulative effects. At the broad scale of this consultation, the USFWS is unable to anticipate all possible circumstances that may involve the take of grizzly bears due to the actions implemented under the proposed plan. Therefore, the USFWS conservatively anticipates that some level of incidental take, both lethal and non-lethal, may occur due to specific actions implemented under the Bighorn Basin RMP. However, the amount or extent of take is unquantifiable at this time. Any actions implemented under the RMP that may adversely affect the grizzly bear would require separate formal section 7 consultation at the project level. Therefore, incidental take will appropriately be assessed, and coverage under the terms of section 7(b)(4) and section 7(o)(2) of the ESA will be granted as appropriate, at the project level during formal consultation. We highly suggest that BLM formally consult, at the site-specific level, on effects to grizzly bears from the BLM action of issuing of individual grazing leases, due to the number of grizzly bear conflicts in the area and the expansion of the grizzly bear population.

Effect of the Take

In this Biological Opinion, the USFWS has determined that this level of anticipated take is not likely to result in jeopardy to the grizzly bear. This is based in part, on the fact that measured population parameters in past years have met established recovery plan levels, while bear mortality has generally been below the threshold levels established in the recovery plan. However, the USFWS anticipates that the direct and indirect effects of implementing livestock grazing activities under the Bighorn Basin RMP (resulting in continued livestock grazing along with implementation of the Interagency Grizzly Bear Guidelines and BLM-committed conservation measures) could result in incidental take. Take in the form of harm may occur as a result of lethal management actions to address nuisance bears associated with grizzly bear/livestock conflicts, or harm resulting from non-lethal relocation of grizzly bears from occupied habitats as a result of grizzly bear/livestock conflicts. No critical habitat for the grizzly bear has been designated; therefore none will be destroyed or adversely modified.

Plants (Ute Ladies'-tresses)

Sections 7(b)(4) and 7(o)(2) of the ESA generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the ESA prohibits the removal and reduction to possession of federally listed plants.

REASONABLE AND PRUDENT MEASURES

Reasonable and prudent measures (RPMs) are nondiscretionary measures that are necessary and appropriate to minimize the impact of incidental take. Because the incidental take statement does not exempt any incidental take, no RMPs are necessary and appropriate to minimize the impacts of the incidental take.

Instead, the BLM will consult individually over the impacts of site-specific projects authorized by the Wyoming RMPs that "may affect" grizzly bears. These future consultations will provide a means for site-specific analysis and documentation of levels of any potential incidental take of grizzly bears. At the individual project level, the BLM has committed to implement measures to minimize grizzly bear/livestock conflicts, grizzly bear/human conflicts, and grizzly bear habituation to human activities in the Bighorn Basin RMP planning area. For site-specific projects that are likely to adversely affect grizzly bears, the BLM will monitor impacts and prepare reports describing the progress of each such site-specific project, including implementation of the associated project-specific reasonable and prudent measures, and impacts to the grizzly bear (50 C.F.R. § 402.14[i][3]).

TERMS AND CONDITIONS

Because there are no reasonable and prudent measures, there are no terms and conditions.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations (CR) are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7 responsibility for these species.

CR1. The USFWS recommends that the BLM follow all best management practices as identified in the BLM's Bighorn Basin RMP Biological Assessment (BLM 2015), the BLM's Statewide Programmatic Grizzly Bear Biological Assessment (BLM 2006), and the BLM's Statewide Programmatic Ute ladies'-tresses Biological Assessment (BLM 2007).

CR2. The USFWS recommends that the BLM (1) phase out any sheep allotments that may occur in occupied grizzly bear habitat as the opportunity arises, (2) monitor and evaluate any conflicts that may exist between grizzly bears and sheep in occupied grizzly bear habitat, and (3) offer no new permitted sheep Animal Unit Months (AUMs) in grizzly bear habitat where conflicts have occurred in the past, or are likely to occur in the future.

CR3. The USFWS recommends that the BLM adjust management of domestic livestock on public land allotments or leases to minimize grizzly bear-livestock conflicts (such as season of use, class of livestock, etc.).

CR4. The USFWS recommends that the BLM include a clause on all use authorizations that allows for temporary cessation of activities, temporary cancellation, or as a last resort permanent cancellation if needed to resolve a grizzly-human conflict situation.

CR5. The USFWS recommends that the BLM (1) initiate a habitat mapping and monitoring effort for the grizzly bear using Geographic Information System (GIS) technology and (2) secure grizzly bear habitat with the appropriate route densities.

CR6. The USFWS recommends that the BLM implement measures across the Bighorn Basin RMP planning area to maintain and improve habitat conditions for grizzly bears to reduce harm in the form of impacts from livestock presence.

CR7. In known occupied Ute ladies'-tresses, the USFWS recommends that the BLM use management actions that are compatible with protection and conservation of pollinators of these species.

CR8. The USFWS recommends that the BLM monitor and manage invasive species so these do not impact the Ute ladies'-tresses orchid or their habitats.

CR9. The USFWS recommends that the BLM not authorize herbicide use in known or occupied Ute ladies'-tresses habitat without prior review by USFWS biologists.

In order for the USFWS to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the USFWS requests notification of the implementation of any conservation recommendations.

RE-INITIATION NOTICE

This concludes formal consultation on the Bighorn Basin Resource Management Plan as outlined in your March 5, 2015 request for formal consultation. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing take must cease pending re-initiation.

REFERENCES

Arditti, J. 1992. Fundamentals of orchid biology. John Wiley and Sons, New York. 691 pp.

Arft, A. M. 1994. The genetics, ecology, and conservation management of the rare orchid *Spiranthes diluvialis* (Orchidaceae). Aquilegia (Newsletter of the Colorado Native Plant Society 18(2):1,4-5 (March/April 1994).

Arft, A. M. 1995. The genetics, ecology, and conservation management of the rare orchid, *Spiranthes diluvialis* Sheviak. North American Native Orchid Journal 1(2):117-129.

Arft, A. M. and T. A. Ranker. 1998. Allopolyploid origin and population genetics of the rare orchid *Spiranthes diluvialis*. American Journal of Botany 85(1):110-122.

Bjornlie, D. 2013 Unpublished data submitted in March 2013 for publication. Wyoming Game and Fish Dept.

Bjornlie, D. and M. Haroldson. 2001. Grizzly bear use of insect aggregation sites documented from aerial telemetry and observations. Pages 44-51 *in* C. C. Schwartz and M. A. Haroldson, Eds. Yellowstone grizzly bear investigations: Annual report of the Interagency Grizzly Bear Study Team, 2000. U.S. Geological Survey, Bozeman, Montana.

Bjornlie, D. and M. Haroldson. 2013. Grizzly bear use of insect aggregation sites documented from aerial telemetry and observations. Pages 39-42 *in* F.T. van Manen, M.A. Haroldson, and K. West, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2012. U.S. Geological Survey, Bozeman, Montana, USA.

Blanchard, B. M., and R. R. Knight. 1995. Biological consequences of relocating grizzly bears in the Yellowstone ecosystem. Journal of Wildlife Management 59(3):560-565.

Cain, S. 2012. Grand Teton National Park recreational use. Page 45 in F. T. van Manen, M. A. Haroldson, and K. West, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2011. U.S. Geological Survey, Bozeman, Montana, USA.

Carroll, J. 2004. Personal communication. U.S. Bureau of Land Management Threatened and Endangered Species Coordinator (currently retired).

Fertig, W. 2000. Status Review of the Ute ladies'-tresses (*Spiranthes diluvialis*) in Wyoming. Prepared for the Wyoming Cooperative Fish and Wildlife Research Unit, U.S. Fish and Wildlife Service, and Wyoming Game and Fish Department by Wyoming natural Diversity Database, University of Wyoming, Laramie, Wyoming. 17 pp.

Fertig, W. 2004. Personal Communication.

Fertig, W, C. Refsdal, and J. Whipple. 1994. Wyoming Rare Plant Field Guide. Wyoming Rare Plant Technical Committee. Cheyenne, Wyoming.

Fertig, W, R. Black, and P. Wolken. 2005. Rangewide Status Review of Ute Ladies'-Tresses (*Spiranthes diluvialus*). Prepared for the U. S. Fish and Wildlife Service and Central Utah Water Conservancy District. 101 pp.

Gunther, K. A., M. A. Haroldson, K. Frey, S. L. Cain, J. Copeland, and C. C. Schwartz. 2004a. Grizzly bear--human conflicts in the Greater Yellowstone Ecosystem, 1992-2000. Ursus 15(1):10-22.

Gunther, K. A., M. T. Bruscino, S. Cain, J. Copeland, K. Frey, M. A. Haroldson and C.C. Schwartz. 1999. Grizzly bear – human conflicts, confrontations, and management actions in the Yellowstone Ecosystem 1999. Interagency Grizzly Bear Committee Yellowstone Ecosystem Subcommittee Report. Pages 55-108 *in* C.C. Schwartz and M. A. Haroldson, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 1999. U.S. Geological Survey, Bozeman, Montana. 192 pp.

Gunther, K. A., M. T. Bruscino, S. L. Cain, K. Frey, L. Hanauska-Brown, M. Haroldson and C. C. Schwartz. 2004b. Grizzly Bear-Human Conflicts in the Greater Yellowstone Ecosystem. Pages 53-56 *in* C. C. Schwartz and M. A. Haroldson, Eds. Yellowstone grizzly bear investigations: Annual report of the Interagency Grizzly Bear Study Team, 2003. U.S. Geological Survey, Bozeman, Montana.

Gunther, K. A., B. Aber, M. T. Bruscino, S. L. Cain, K. Frey, M. A. Haroldson, and C. C. Schwartz. 2012. Grizzly bear-human conflicts in the Greater Yellowstone Ecosystem. Pages 48-52 in F. T. van Manen, M. A. Haroldson, and K. West, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2011. U.S. Geological Survey, Bozeman, Montana, USA.

Haroldson, M. A. 2013. Occupancy of bear management units by females with young. Page 19 *in* F. T. van Manen, M. A. Haroldson, and K. West, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2012. U.S. Geological Survey, Bozeman, Montana, USA.

Haroldson, M. A. 2014. Occupancy of bear management units (BMU) by females with young. Page 22 *in* F. T. van Manen, M. A. Haroldson, K. West, and K.C. Soileau, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2013. U.S. Geological Survey, Bozeman, Montana, USA.

Haroldson, M. A. and K. Frey. 2013. Estimating sustainability of annual grizzly bear mortalities. Pages 24-30 *in* F. T. van Manen, M. A. Haroldson, and K. West, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2012. U.S. Geological Survey, Bozeman, Montana, USA.

Haroldson, M. A. and K. Frey. 2014. Estimating sustainability of annual grizzly bear mortalities. Pages 27-31 *in* F. T. van Manen, M. A. Haroldson, K. West, and S.C. Soileau, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2013. U.S. Geological Survey, Bozeman, Montana, USA.

Haroldson, M. A., F. T. van Manen, and D. D. Bjornlie. 2013. Estimating number of females with cubs-of-the-year. Pages 11–18 *in* F. T. van Manen, M. A. Haroldson, and K. West, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2012. U.S. Geological Survey, Bozeman, Montana, USA.

Haroldson, M. A., F. T. van Manen, and D. D. Bjornlie. 2014. Assessing trend and estimating population size from counts of unduplicated females. Pages 12–21 *in* F. T. van Manen, M. A. Haroldson, K. West, and S.C. Soileau, editors. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2013. U.S. Geological Survey, Bozeman, Montana, USA.

Haroldson, M. A, M. A. Ternant, K. A. Gunther, and C. C. Schwartz. 2002. Grizzly bear denning chronology and movements in the Greater Yellowstone Ecosystem. Ursus 13:29-37.

Haroldson, M. A, S. Podruzny, and R. Renkin. 2003. Whitebark pine cone production. Pages 41-43 *in* C. C. Schwartz and M. A. Haroldson, eds. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2002. U.S. Geological Survey, Bozeman, MT.

Hartman, R. L. and B. E. Nelson. 1994. Final Report on Field Inventory for Ute ladies' tresses (*Spiranthes diluvialis*) in Eastern Wyoming and a Detailed Discussion of a New Locality. Rocky Mountain Herbarium, University of Wyoming, Laramie, Wyoming. 3 pp. + Attachment.

Hazlett, D. L. 1995. A 1995 Search for *Spiranthes diluvialis* in SE Wyoming. Preliminary Report prepared for the Bureau of Land Management, Wyoming State Office. Cheyenne, Wyoming. October 1995.

Hazlett, D. L. 1996. The Discovery of *Spiranthes diluvialis*, Along the Niobrara River in Wyoming and Nebraska, Final Report to Bureau of Land Management, Wyoming State Office. Cheyenne, Wyoming. 16 pp.

Hazlett, D. L. 1997. A 1997 search for *Spiranthes diluvialis* in southeastern Wyoming and western Nebraska. Report prepared for the Bureau of Land Management, Wyoming State Office. Cheyenne, Wyoming. October 1997. 12 pp.

Hazlett, D. L. 1999. A 1999 survey of 25 parcels of BLM land for *Spiranthes diluvialis* (Ute ladies'-tresses orchid) and *Gaura neomexicanus* ssp. *coloradensis* (Colorado butterfly plant). Report prepared for the Bureau of Land Management, Wyoming State Office, Cheyenne, Wyoming. September 1999. 19 pp.

Interagency Conservation Strategy Team (ICST). 2003. Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area. Website accessed November 2005. http://www.fs.fed.us/r1/wildlife/igbc/ConservationStrategy/replacement_cs.pdf

Interagency Conservation Strategy Team (ICST). 2007. Final conservation strategy for the grizzly bear in the Greater Yellowstone Area. 86 pp. plus Appendices. Website accessed May 2015. http://www.fws.gov/mountain-prairie/species/mammals/grizzly/Final_Conservation_Strategy.pdf

Interagency Grizzly Bear Committee (IGBC). 1986. Interagency grizzly bear guidelines. U.S. Forest Service, Washington, D.C.

Interagency Grizzly Bear Study Team (IGBST). 2005. Interagency grizzly bear committee taskforce report: grizzly bear/motorized access management. Missoula, Montana, USA. 8 pages. As cited in USFWS. 2005. Endangered and Threatened Wildlife and Plants; Designating the Greater Yellowstone Ecosystem Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife; Proposed Rule. Federal Register 70(221):6985-69884.

Interagency Grizzly Bear Study Team. 2012. Updating and evaluating approaches to estimate population size and sustainable mortality limits for grizzly bears in the Greater Yellowstone Ecosystem. Interagency Grizzly Bear Study Team, U.S. Geological Survey, Northern Rocky Mountain Science Center, Bozeman, Montana, USA.

Interagency Grizzly Bear Study Team. 2013. Response of Yellowstone grizzly bears to changes in food resources: a synthesis. Report to the Interagency Grizzly Bear Committee and Yellowstone Ecosystem Subcommittee. Interagency Grizzly Bear Study Team, U.S. Geological Survey, Northern Rocky Mountain Science Center, Bozeman, Montana, USA.

Interagency Grizzly Bear Study Team. 2014a. Unpublished data from IGBST. On file, IGBST, Northern Rocky Mountain Science Center, U.S. Geological Survey, Bozeman, Montana, USA.

Interagency Grizzly Bear Study Team. 2014b. Preliminary population estimates of females with cubs-of-the-year. Yellowstone Ecosystem Subcommittee Meeting. Jackson, WY. Spring 2014.

Interagency Lynx Biology Team. 2013. Canada lynx conservation assessment and strategy. 3rd edition. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-13-19, Missoula, MT. 128 pp.

Jacoby, M. E., G. V. Hilderbrand, C. Servheen, C. C. Schwartz, S. M. Arthur, T. A. Hanley, C. T. Robbins, and R. Michener. 1999. Trophic relations of brown and black bears in several western North American ecosystems. Journal of Wildlife Management 63:921–929.

Kasworm, W.F., M. F. Proctor, C. Servheen, and D. Paetkau. 2007. Success of grizzly bear population augmentation in northwest Montana. Journal of Wildlife Management 71:1261-1266.

Kendall, K. C., J. B. Stetz, J. Boulanger, A. C. Macleod, D. Paetkau, and G. C. White. 2009. Demography and genetic structure of a recovering grizzly bear population. Journal of Wildlife Management 73(1):3-17.

Knight, R. R. and L. L. Eberhardt. 1984. Projected future abundance of the Yellowstone grizzly bear. Journal of Wildlife Management 48:1434-1438.

Knight, R. R. and L. L. Eberhardt. 1985. Population dynamics of Yellowstone grizzly bears. Ecology 66(2):323-334.

Knight, R. R. and S. L. Judd. 1983. Grizzly bears that kill livestock. International Conference for Bear Research and Management 5:186-190.

Knight, R. R., B. M. Blanchard, and L. L. Eberhardt. 1988. Mortality patterns and population sinks for Yellowstone grizzly bears, 1973-1985. Wildlife Society Bulletin 16:121-125.

Knight, R. R., B. M. Blanchard, and L.L. Eberhardt. 1995. Appraising status of the Yellowstone grizzly bear population by counting females with cubs-of-the-year. Wildlife Society Bulletin 23:245-248.

Knight, R. R., D. J. Mattson, and B. M. Blanchard. 1984. Movements and habitat use of the Yellowstone grizzly bear. Interagency Grizzly Bear Study Team, Montana State University, Bozeman, Montana.

Linnell, J. D. C., J. E. Swenson, R. Anderson, and B. Barnes. 2000. How vulnerable are denning bears to disturbance? Wildlife Society Bulletin 28(2):400-413.

Mace, R. and L. Roberts. 2011. Northern Continental Divide Ecosystem Grizzly Bear Monitoring Team Annual Report, 2009-2010. Montana Fish, Wildlife & Parks, 490 N. Meridian Road, Kalispell, MT 59901. Unpublished data.

Mattson, D. J. 1997. Selection of microsites by grizzly bears to excavate biscuitroots. Journal of Mammalogy 78:228-238.

Mattson, D. J. 2001. Myrmecophagy by Yellowstone grizzly bears. Canadian Journal of Zoology 79:779-793.

Mattson, D. J., and D. P. Reinhart. 1995. Influences of cutthroat trout (*Onchorhynchus clarki*) on behavior and reproduction of Yellowstone grizzly bears (*Ursus arctos*), 1975-1989. Canadian Journal of Zoology 73:2072-2079.

Mattson, D. J., and D. P. Reinhart. 1997. Excavation of red squirrel middens by grizzly bears in the whitebark pine zone. Journal of Applied Ecology 34:926-940.

Mattson, D. J., and R. R. Knight. 1991. Effects of access on human-caused mortality of Yellowstone grizzly bears. USDI National Park Service, Interagency Grizzly Bear Study Team Report 1991B.

Mattson, D. J., B. M. Blanchard, and R. R. Knight. 1991a. Food habits of Yellowstone grizzly bears. Canadian Journal Zoology 69:1619-1629.

Mattson, D. J., C. M. Gillin, S. A. Benson, and R. R. Knight. 1991b. Bear feeding activity at alpine insect aggregation sites in the Yellowstone ecosystem. Canadian Journal of Zoology 69:2430-2435.

Mattson, D. J., M. G. French, and S. P. French. 2002. Consumption of earthworms by Yellowstone grizzly bears. Ursus 13:105-110.

McArthur-Jope, K. L. 1980. Habituation of grizzly bears to people: A hypothesis. International Conference on Bear Research and Management 5:322-327.

McClaren, M. P. and P. C. Sundt. 1992. Population dynamics of the rare orchid *Spiranthes delitescens*. Southwestern Naturalist 37(3):299-333.

McClellan, B. N. 1989. Relationships between human industrial activity and grizzly bears. International Conference on Bear Research and Management 8:57-64.

Miller, C. R. and L. P. Waits. 2003. The history of effective population size and genetic diversity in the Yellowstone grizzly (*Ursus arctos*): Implications for conservation. Proceedings of the National Academy of Sciences 100(7):4334-4339.

Moseley, R. K. 1998. Ute ladies'-tresses (*Spiranthes diluvialis*) in Idaho: 1998 status report. Report prepared by the Idaho conservation Data Center, Idaho Department of Fish and Game, Boise, Idaho.

Nelson, B. E. and R. L. Hartman. 1995. Report on field inventory for Ute lady's tresses *Spiranthes diluvialis*) in southeastern Wyoming and southeastern Nebraska. Report prepared for the Bureau of Land Management, Wyoming State Office, Cheyenne. December 31, 1995. Cooperative Agreement No. 5-31982.

Podruzny, S. and K. Gunther. 2001. Spring Ungulate Availability and Use by Grizzly Bears in Yellowstone National Park. Pages 33-36 *in* C. C. Schwartz and M. A. Haroldson, editors. Yellowstone Grizzly Bear Investigations: Annual report of the Interagency Grizzly Bear Study Team, 2000. U.S. Geological Survey. Bozeman, MT.

Podruzny, S., S. Cherry, C. C. Schwartz, and L. A. Landenburger. 2002. Grizzly Bear Denning and Potential Conflict Areas in the Greater Yellowstone Ecosystem. Ursus 13:19-28.

Proctor, M. F., D. Paetkau, B. McLellan, G. Stenhouse, K. Kendall, R. Mace, W. Kasworm, C. Servheen, C. Lausen, M. Boyce, and C. Strobeck. 2012. Population fragmentation and inter-ecosystem movements of grizzly bears in western Canada and the northern United States. Wildlife Monographs 180:1-46.

Pyare, S., S. Cain, D. Moody, C. Schwartz, and J. Berger. 2004. Carnivore re-colonisation: reality, possibility, and a non-equilibrium century for grizzly bears in the southern Yellowstone Ecosystem. Animal Conservation 7:1-7. As cited in: USFWS. 2005. Endangered and Threatened Wildlife and Plants; Designating the Greater Yellowstone Ecosystem Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife; Proposed Rule. Federal Register 70(221):69854-69884.

Reinhart, D. P., M. A. Haroldson, D. J. Mattson, and K. A. Gunther. 2001. Effects of exotic species on Yellowstone grizzly bears. Western North American Naturalist 61(3):227-288.

Robbins, C. T., C. C. Schwartz, K. A. Gunther and C. Servheen. 2006. Grizzly bear nutrition and ecology studies in Yellowstone National Park. Yellowstone Science 14(3):19-26.

Robison, H. L., C. C. Schwartz, J. D. Petty, and P. F. Brussard. 2006. Assessment of pesticide residues in army cutworm moths (*Euxoa auxiliaris*) from the Greater Yellowstone Ecosystem and their potential consequences to foraging grizzly bears (*Ursus arctos horribilis*). Chemosphere 64:1704-1712.

Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Nancy, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000. Canada lynx conservation assessment and strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and UDSI National Park Service. Missoula, MT.

Schwartz, C. C., M. A. Haroldson, S. Cherry and K. A. Keating. 2008. Evaluation of rules to distinguish unique female grizzly bears with cubs in Yellowstone. Journal of Wildlife Management 72:543-554.

Schwartz, C. C., M. A. Haroldson, and K. West, editors. 2011. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2010. U.S. Geological Survey, Bozeman, MT, USA.

Schwartz, C. C., M. A. Haroldson, K. A. Gunther, and D. Moody. 2002. Distribution of Grizzly Bears in the Greater Yellowstone Ecosystem, 1990-2000. Ursus 13:203-212.

Sheviak, C. J. 1984. *Spiranthes diluvialis* (Orchidaceae), a new species from the western United States. Brittonia 36(1):8-14.

Sipes, S. D. and V. J. Tepedino. 1994. Unpublished data presented at Ute ladies'-tresses information exchange meeting in Salt Lake City, Utah.

Swenson, J. E., F. Sandegren, S. Brunberg, and P. Wabakken. 1997. Winter den abandonment by brown bears *Ursus arctos*: causes and consequences. Wildlife Biology 3(1):35-38.

United States Bureau of Land Management (BLM). 1990. Record of Decision and Approved Management Plan for the Cody Resource Area. Worland District, Worland, Wyoming. November 1990. 102 pp.

United States Bureau of Land Management. 1998. Record of Decision and Approved Resource Management Plan for the Grass Creek Planning Area. Worland District Office, Worland, Wyoming. September 1998. 87 pp.

United States Bureau of Land Management. 1988. Record of Decision and Approved Resource Management Plan for the Washakie Resource Area. Worland District, Worland, Wyoming. September 1988. 211 pp.

United States Bureau of Land Management. 2006. Final Statewide Programmatic Grizzly Bear (*Ursus arctos*) Biological Assessment. Wyoming State Office. Updated June 29, 2006.

United States Bureau of Land Management. 2007. Final Report Statewide Programmatic Biological Assessment: Ute ladies'-tresses (*Spiranthes diluvialis*). U.S. Bureau of Land Management Cheyenne Office. March 2007. 57 pp.

United States Bureau of Land Management. 2015a. Biological Assessment for the Bighorn Basin Resource Management Plan. Worland and Cody Field Offices.

United States Bureau of Land Management. 2015b. Proposed Resource Management Plan and Final Environmental Impact Statement for the Bighorn Basin Planning Area. U.S. Bureau of Land Management. Big Horn Basin, Wyoming

U.S. Fish and Wildlife Service (USFWS). 1975. Endangered and Threatened Wildlife: Amendment Listing the Grizzly Bear of the 48 Conterminous States as a Threatened Species. Federal Register 40(145):31734-31736.

U.S. Fish and Wildlife Service. 1992. Endangered and threatened Wildlife and Plants: Final Rule to List the Plant *Spiranthes diluvialis* (Ute ladies'-tresses) as a Threatened Species. Federal Register 57(12):2048-2054.

U.S. Fish and Wildlife Service. 1993. Grizzly Bear Recovery Plan. Missoula, MT. 181 pp.

U.S. Fish and Wildlife Service. 1995. Draft Ute ladies' tresses (*Spiranthes diluvialis*) recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 46 pp.

U.S. Fish and Wildlife Service. 1999. Biological opinion based on our review of the proposed Medicine Bow Lateral project located in Weld County, Colorado, and Laramie, Platte, and Converse Counties, Wyoming (Formal Consultation No. WY2567). U.S. Fish and Wildlife Service Correspondence dated July 16, 1999.

U.S. Fish and Wildlife Service. 2002. Final Biological and Conference Opinion for the Powder River Basin Oil and Gas Project, Campbell, Converse, Johnson, and Sheridan Counties, Wyoming (Formal Consultation No. ES-6-WY-02-F006). U.S. Fish and Wildlife Service Correspondence dated December 17, 2002.

U.S. Fish and Wildlife Service. 2004a. Removal of Black-footed Ferret Survey Recommendation Across Much of Wyoming. February 2004. Cheyenne Ecological Services Office. Cheyenne, Wyoming. 2 pp. + 2 attachments.

U.S. Fish and Wildlife Service. 2004b. Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to Delist the Ute Ladies'-Tresses Orchid and Initiation of a 5-Year Review. Federal Register 69(196):60605-60607.

U.S. Fish and Wildlife Service. 2004c. Biological Opinion for Livestock Grazing Permit Authorization for the Shoshone National Forest (ES-6-WY-04-F026). Wyoming Ecological Services Office, Cheyenne, Wyoming. September 30, 2004. 39 pp.

U.S. Fish and Wildlife Service. 2004d. Ute ladies'-tresses orchid Biology/Ecology Summary - August 2004. Prepared by Dr. Lucy Jordan, Recovery Team Leader, U.S. Fish and Wildlife Service. 6 pp.

U.S. Fish and Wildlife Service. 2005. Endangered and Threatened Wildlife and Plants; Designating the Greater Yellowstone Ecosystem Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife; Proposed Rule. Federal Register 70(221):69854-69884.

U.S. Fish and Wildlife Service. 2007a. Endangered and threatened wildlife and plants; final rule designating the Greater Yellowstone Area population of grizzly bears as a distinct population segment; removing the Yellowstone distinct population segment of grizzly bears from the Federal List of Endangered and Threatened Wildlife; 90-day finding on a petition to list as endangered the Yellowstone distinct population segment of grizzly bears. Federal Register 72:14866-14938.

U.S. Fish and Wildlife Service. 2007b. Revised demographic recovery criteria for the Yellowstone Ecosystem; supplement to the 1993 Grizzly Bear Recovery Plan. 34pp. Available at: http://www.fws.gov/mountain-prairie/species/mammals/grizzly/Grizzly_Bear_Recovery_Plan_Supplement_Demographic.pdf.

U.S. Fish and Wildlife Service. 2007c. Habitat-based recovery criteria for the Yellowstone Ecosystem; supplement to the 1993 Grizzly Bear Recovery Plan. 52 pp.

U.S. Fish and Wildlife Service. 2011. Grizzly bear (*Ursus arctos horribilis*) 5-year review: summary and evaluation. Missoula, MT. 205 pp.

U.S. Forest Service (USFS). 2003. Documentation of the Biological Assessment Process for Proposed and Listed Species Related to Commercial Livestock Grazing on the Shoshone National Forest. USDA, Forest Service, Shoshone National Forest, Cody, Wyoming. 62 pp.

U.S. Forest Service. 2011. 2011 amendment to the 2003 biological assessment for commercial livestock grazing on the Shoshone National Forest. Shoshone National Forest. 69pp.

U.S. Forest Service. 2014. 2014 Supplement to the 2013 Supplement and 2010 Amendment to the 1999 Biological Assessment for Livestock Grazing on the Northern Portions of the Pinedale Ranger District. 55 pp.

U.S. Geological Survey (USGS). 2005. Website accessed March 2005. Katherine Kendall, Principal Investigator. http://nrmsc.usgs.gov/research/grizzlyb.htm.

Wakkinen, W. L. 2010. Research and management update, Selkirk Ecosystem, Fall 2010. Update to the Selkirk and Cabinet-Yaak Ecosystem Subcommittee of the Interagency Grizzly Bear Committee. Dec. 1. 2 pp.

Wells, T. C. E. 1967. Changes in a population of *Spiranthes spiralis* (1) Chevall. at Knocking Hoe National Nature Reserve, Bedfordshire, 1962-65. Journal of Ecology 55:83-99.

White Jr., D. D., Kendall, K. C., Picton, H. D. 1999. Potential energetic effects of mountain climbers on foraging grizzly bears. Wildlife Society Bulletin 27:146–151.

APPENDIX 1 - DESCRIPTION OF PROGRAM ACTIVITIES FOR THE BIGHORN BASIN RMP

These program descriptions are summarized from the U.S. Bureau of Land Management's (BLM) Bighorn Basin Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement (EIS) (BLM 2015) and the Biological Assessment (BLM 2015). It is expected that the activities described here will be implemented in the Cody and Worland RMP areas over the life of the approved Big Horn Basin RMP (10-15 years).

Air Quality

The BLM's air quality program includes monitoring efforts in cooperation with the U.S. Forest Service (USFS), Wyoming Department of Environmental Quality (DEQ), and the U.S. Environmental Protection Agency (EPA), and evaluating and restricting surface development. Monitoring for air quality components (i.e., carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, particulate matter, visibility, and atmospheric deposition) is conducted from various facilities around Wyoming. Regional air quality is influenced by the interaction of several factors, including meteorology, climate, the magnitude and spatial distribution of local and regional air pollutant sources, as well as the chemical properties of emitted air pollutants. Air quality management actions typically are associated with limiting, reducing, and monitoring pollutant levels and dust during other BLM management actions.

The planning area is located in a semi-arid midcontinental climate typified by dry windy conditions, limited rainfall, and long cold winters. A semiarid continental climate is characterized by seasonal variations in temperature (cold winters and warm summers) and precipitation levels that are low, but sufficient for the growth of short, sparse grass. Air quality in the planning area generally is considered to be good based on the limited amount of air quality monitoring currently being conducted in the area. The planning area has no regions designated as nonattainment for National Ambient Air Quality Standards (NAAQS) or Wyoming Ambient Air Quality Standards (WAAQS).

Pollutant concentration refers to the mass of pollutant present in a volume amount of air. The BLM supports ambient air quality monitoring programs within Wyoming for criteria pollutants, visibility, and air quality-related values in Class I pristine areas. Atmospheric deposition refers to processes in which air pollutants are removed from the atmosphere and deposited into terrestrial and aquatic ecosystems. Much of the concern about deposition is due to secondary formation of sulfur and nitrogen compounds, which may contribute to acidification of lakes, streams, and soils and affect other ecosystem characteristics, including nutrient cycling and biological diversity.

Hazardous air pollutants (HAPs) include air pollutants that can produce serious illnesses or increased mortality, even in low concentrations. HAPs are compounds that do not have established Federal ambient standards, but may have thresholds established by some states and are typically evaluated for potential chronic inhalation and cancer risks.

Soil

Extraction of minerals generally involves surface-disturbing activities, including road building, well pad construction, pipeline installation, and vegetation treatments. Other actions that affect soils are a variety of surface uses that disturb native topsoil and remove vegetation or other ground cover, such as mining and energy development, concentrated grazing and browsing by animals, OHV use, development of trails and campgrounds and ROWs, fire-suppression activities, and the use of prescribed fire. Soil compaction resulting from surface-disturbing activities and associated development can reduce infiltration, increase runoff, and hamper reclamation.

Protection of soil resources is accomplished through the application of use restrictions or preferred management practices intended to limit soil erosion and loss of soil productivity. Some restrictions may be general, such as programmatic constraints, which are applied to all surface-disturbing activities, including limitations during periods of wet or frozen soils or prohibition of operations on steep slopes. Typically, the protection of soil resources is accomplished through the application of site-specific management techniques. These mitigation measures are designed to conserve topsoil, minimize erosion, and reestablish vegetation on disturbed areas with a long-term goal of maintaining soil productivity. Examples of site-specific mitigation measures include exclusion of mechanized vehicle use on highly erodible soils, use of water bars or diversion channels to control surface water runoff around a disturbed area or off a road, or development of a specific seed mixture or seeding technique appropriate to the area and soil type being reclaimed. Additional mitigation measures typically are required on highly erodible soils to achieve adequate erosion control.

Actions associated with soil resources may include the identification and interpretation of existing soil resources and conditions; conducting soil inventories; identifying highly erosive soils; utilizing soil use limitation ratings for land use actions; evaluating current erosion condition of the soils in the planning area; preventing accelerated soil erosion from disturbed areas; utilizing effective Best Management Plans (BMPs); establishing successful reclamation or rehabilitation on disturbed areas within the planning area; restoring disturbed areas to pre-disturbance conditions; managing actions to maintain or improve soil chemical, physical, and biotic properties and maintain long-term soil stability; controlling the extent of surface disturbance in the planning area by establishing acreage limits for total surface disturbance; and periodically monitoring, evaluating, and adapting management actions.

Water

Within the Water Program, the BLM conducts data collection, resource monitoring, and analysis in support of other management actions, such as range management, forest management, and mineral extraction. Watershed management actions include evaluating proposed projects, applying soil management practices, applying seasonal closures, monitoring public drinking water, and completing groundwater studies. Some of these field actions involve the use of heavy machinery and hand tools. Field actions can involve developing riparian exclosures and constructing stream crossings. Other actions can involve imposing restrictions on actions and

structures, such as mineral exploration and development, pipelines, powerlines, roads, recreational sites, fences, and wells.

Through water management, the BLM seeks to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable State and Federal water quality standards, provide for the availability of water to facilitate authorized uses, and minimize harmful consequences of erosion and surface runoff. Water resources also are to be protected or enhanced through site-specific mitigation guidelines.

During watershed management actions, the BLM develops pollution prevention plans, ensures that rights to water-related projects are filed, delineates no chemical-use buffer zones, designs actions to promote reduction of channel erosion, and restores damaged wetlands or riparian areas. The BLM also provides technical expertise on other actions, such as for constructing livestock ponds, monitoring water quality actions, and providing impact analyses of oil and gas development or any surface disturbance projects.

Surface-disturbing and other activities associated with the Water Program include, but are not limited to (1) evaluating and permitting surface discharges of produced water; (2) restricting surface disturbance near water resources and sensitive soils; (3) closing areas, including roads, where accelerated erosion is occurring; (4) installing stream crossings for appropriate sediment and flow passage (e.g., culverts and bridges); (5) developing riparian and wetland exclosures; (6) restoring channels using heavy equipment; and (7) cutting, planting, and seeding to restore function in riparian or wetland areas.

Cave and Karst Resources

BLM policy and guidance for managing cave resources is to protect sensitive, fragile, biological, ecological, hydrological, geological, scientific, recreational, cultural, and other cave values from damage and to ensure they are maintained for public use, both now and in the future. Actions associated with cave and karst management include timing restrictions to protect cave resources, closing cave and karst areas for safety reasons or to protect resources, allowing scientific research and recreational use of caves, and installing gates as necessary to protect resources. The BLM manages all caves in the planning area in a wild state; there are no developed caves on public lands in the planning area.

Locatable Minerals

The BLM's mineral development program is divided into three categories: locatable, leasable, and salable minerals. Leasables are further divided into coal, sodium (trona), oil and gas, and other solid leasables. The BLM has the statutory authority under the Mineral Leasing Act of 1920, the Mineral Leasing Act for Acquired Lands, and the Federal Land Policy and Management Act of 1976 to take reasonable measures to avoid or minimize adverse environmental impacts that may result from federally authorized mineral lease activities. This authority exists regardless of whether the surface is federally owned.

Actions associated with commercial locatable minerals include surface disturbance for mining, reclamation, and construction of access roads, buildings, and utility lines. Small scale mining

may occur in the planning area, but individual casual use actions do not require an environmental assessment unless actions become significant. All lands must be reclaimed after closure of the mine.

Leasable Minerals – Coal

Coal in Wyoming generally is extracted using surface mining methods, although in the past, some coal was mined underground. Surface mining involves the use of large equipment, such as draglines, shovels, and haul trucks. Small drill rigs are used for exploration to determine the location and thickness and to obtain cores (for determining quality). Extracting coal using surface mining methods often results in large areas of surface disturbance from road construction, removal of topsoil and overburden, and stock piling of these materials. Once an area is mined out, reclamation begins and includes recontouring as closely to the original landscape as possible, reconstruction of drainages, and reseeding and monitoring to ensure the habitats are useable.

Coal is the only solid leasable mineral currently mined in the planning area. There is only one active coal mine in the planning area, and it produces about 70,000 to 100,000 tons per year from the Grass Creek Coal Field. This coal mine is on private land (BLM 2015). At present, there is no coal leasing or production on BLM-administered land in the planning area. However, there are Federal coal resources in the planning area, primarily in the Cretaceous Mesa Verde, Meeteetse, and Paleocene Fort Union Formations.

Leasable Minerals – Oil Shale

Oil shale is considered a leasable solid mineral under the Mineral Leasing Act of 1920. The BLM manages oil shale leasing, research and development leasing, and production, and performs other administrative duties related to oil shale production from Federal lands in the western United States. The BLM anticipates the potential for oil shale exploration and development activity would be low for the next planning cycle because of the relative thinness of oil shale beds, thickness of overburden, and poor quality of oil shale in the planning area. Oil shale exploration, development, and leasing in the planning area would require additional evaluation and an RMP amendment. The BLM did not consider oil shale leasing and development under the Proposed RMP due to the absence of known, commercially exploitable resources and lack of anticipated leasing and development.

Leasable Minerals – Geothermal

As an energy source, geothermal resources of hot water or steam are extracted and supplied to steam turbines that generate electrical energy. Geothermal resources also include subsurface areas of hot, dry rock. The BLM field offices in the Bighorn Basin are responsible for supervising and managing all exploration, development, and production operations on any Federal geothermal leases in the planning area. There are three geothermal areas in the planning area, although none is considered viable for use to generate electricity (with current technology and market conditions), and the BLM has not issued Federal geothermal leases. The BLM is aware of a low to moderate potential for some level of interest in Bighorn Basin geothermal

resources over the next 10 to 20 years. Should geothermal leasing begin in the Bighorn Basin at some level, the BLM may be able to accommodate some geothermal resource development over the next planning cycle (BLM 2015). The BLM would work carefully to ensure that interests in geothermal development in the Bighorn Basin would not adversely affect the geothermal resource at Thermopolis, Wyoming. Most likely geothermal resources will not generally be associated with the energy sector, rather it will likely be restricted to municipalities, and therefore will create little to no impact to lands beyond those associated with the structures they are designed to heat (BLM 2015). A total of 363,675 acres are closed to geothermal leasing in the planning area and a total of 3,839,538 acres are open to geothermal leasing.

Leasable Minerals – Oil and Gas

The Mineral Leasing Act of 1920 states that all public lands are open to oil and gas leasing unless a specific order has been issued to close an area. Oil and gas exploration and development is one of the major industries in the planning area.

Geophysical exploration is a tool of the oil and gas industry that bounces shock waves off subsurface rock layers to determine their thickness and geometry. The energy typically comes from the detonation of explosives in a shallow drill hole or from a heavy weight either dropped or vibrated on the ground surface. Seismic operations use existing roads, when feasible, but also require off-road travel, which may include new surface disturbance. Geophysical exploration (primarily three-dimensional) is expected to continue through the life of the plan.

Ancillary oil and gas development involves allowing the construction of roads, pads, pipelines, and other facilities, such as aboveground powerlines. Stipulations involve implementing leases with no surface occupancy (NSO) or controlled surface use (CSU) restrictions, timing limitation stipulations (TLSs), or with other standard surface protection restrictions; negotiating mitigated impacts between lessees and the BLM's authorized officer; and deciding mitigation measures and limitations, as well as reclamation plans. Reclamation actions take place following the expiration of a lease and may include reseeding, reshaping land contours, well pad and road closure, and revegetation.

Surface-disturbing and other activities associated with the minerals program include, but are not limited to, the following actions: applying dust-control measures; restricting flaring of natural gas; controlling or limiting emissions; constructing and reclaiming well pads, access roads, and reserve pits; constructing reservoirs associated with water disposal; constructing compressor stations, product enhancements and disposal facilities; building pipelines associated with leases or units; installing powerlines associated with leases or units; building wind-power facilities and turbines associated with leases or units; and conducting geophysical exploration.

Oil and gas occurs in the planning area in numerous geologic formations. There are 137 named fields and 1 unnamed field in the planning area. Since a production high during 1978, the rate of oil production in the planning area has steadily declined, with only a few short periods when production rates were flat (BLM 2015).

Leasable Minerals Other Solid Leasables

Other solid leasable minerals are those solid minerals, other than coal and oil shale, leased under the Mineral Leasing Act of 1920 and not related to energy production. Examples of other solid leasable minerals are phosphate, chloride minerals, sulfate minerals, carbonate minerals, silicate minerals, borate minerals, and other "hardrock minerals." Hardrock (locatable) minerals on acquired public lands open to mineral leasing can be developed only under a leasing system. Access to other solid leasable minerals on Federal estate is at BLM discretion.

Salable Minerals

Salable minerals are non-energy-related materials typically used in construction, agriculture, and decorative applications. Under the BLM mineral materials program, the BLM manages exploration, development, and disposal of salable minerals by sale (disposal) or free use. Recreational collection of this material is allowed, but large-volume removal requires a mineral sale.

The primary salable minerals found in commercial quantities in the planning area are sand and gravel (aggregate), limestone, and decorative/construction stone (sandstone or limestone). Other salable minerals known to occur in the planning area in lesser quantities include flagstone and petrified wood. Alluvial sand and gravel, terrace sand and gravel, and conglomeratic sand and gravel deposits are all found in the Bighorn Basin.

Mineral materials are basic natural resources used in construction; however, they are generally bulky and have low unit prices. The sheer weight of mineral materials results in high transportation costs. Adequate local supplies of these basic resources are important to the area's economy. The BLM's policy is to make these materials available to the public and local government agencies whenever possible and wherever it is environmentally acceptable.

Before issuing contracts or free use permits for salable minerals, the BLM conducts environmental assessments. These include studies or inventories of threatened or endangered plant and wildlife species. Stipulations or conditions may be included in the terms of the contract to ensure protection of the natural resource found there and reclamation of the land following project completion. Site reclamation is required following any surface-disturbing mining activity for salable minerals.

Fire and Fuels Management – Wildfires (Unplanned Ignitions)

The BLM's fire management program focuses on two categories of fires: unplanned (or wildland fire) and planned (or prescribed fire). Unplanned or wildland fire occurs as the result of an act of nature, such as lightning, human accident, or by intent to cause damage.

Wildfires are unplanned ignitions and include fires that burn outside the parameters defined in land use plans and fire management plans. These are fires burning in areas where fire is specifically excluded; fires that exhibit burning characteristics (intensity, frequency, and seasonality) outside prescribed ranges, including fires expected to produce severe fire effects;

and fires that occur during periods of high fire danger. Wildfires are typically caused by lightning, unauthorized and accidental human-caused action (e.g., arson, escaped camp fires, and equipment fires), or escaped prescribed fires.

Fire suppression activities depend on the severity and size of the fire and the resources determined to be in danger from the fire. Initial attack of a wildland fire will consist of a ground crew (or smoke-jumper crew if the fire is in a remote location) dispatched to the site to evaluate the fire and estimate the suppression requirements needed. Ground access to the site may be by road or trail, cross-country, by vehicle, or on foot. If the fire is small, the crew will immediately extinguish the fire using hand and power tools (e.g., pulaskis, shovels, and chainsaws), and sometimes water from an engine pumper unit or backpack pumps. If additional firefighting resources are needed, more personnel and equipment will be dispatched to the site. Additional work may include building fire lines by scraping a line down to mineral soil around the fire with hand tools. Hand-built fire lines (hand lines) typically are about 2-feet wide and generally surround the fire perimeter. If the fire increases in size or burns across the hand line, additional measures may be taken, including cutting trees, constructing wider fire lines with mechanized equipment, filling water pumper trucks from water bodies and spraying the water onto burning vegetation, water drops from helicopter buckets with water obtained at the nearest source accessible to helicopters, or air tanker drops of chemical retardant (a slurry of water, chemical fertilizers, and a binding agent, such as clay). If additional personnel are required to fight the fire, a camp will be established in a safe location close enough to the fire to allow efficient movement of personnel and equipment. Camps may require areas large enough to accommodate personnel, cooking facilities, equipment areas, and sufficient area for storage of supplies and equipment needed to suppress the fire. Following containment and control of the fire, "mop-up" operations will begin and continue until the fire is declared extinguished. Mop-up is a tactic to extinguish burning materials that could cause a fire to spread beyond the control lines. During mop-up operations, hazardous snags within the fireline are felled, and all remaining burning embers are extinguished until cold. Rehabilitation currently is conducted on a case-by-case basis in the planning area.

Fire and Fuels Management – Prescribed Fires

The BLM uses prescribed fire for specific purposes, such as improving habitat and plant community health, and reducing hazardous fuels. The BLM manages the fire program in the planning area to protect public safety, life, and property, and uses both wildland fire and fuels treatments. Fire and fuels treatments are used as management tools to maintain or increase age-class diversity within plant communities; rejuvenate fire-dependent plant communities; maintain or increase vegetation productivity, nutrient content, and palatability; and maintain or improve wildlife habitat, rangeland, and watershed condition. Fire is also a management tool for disposing of timber slash, preparing seedbeds, reducing hazardous fuels, controlling disease or insects, improving rangeland health, managing livestock grazing, thinning, or manipulating species in support of forest management objectives. Concerns about cheatgrass and greater sage-grouse habitat have decreased the feasibility of the BLM using prescribed fire in some areas.

Fire and Fuels Management – Stabilization and Rehabilitation

The BLM implements long-term rehabilitation measures to repair land damaged by wildfire that is unlikely to recover naturally according to BLM Emergency Stabilization and Rehabilitation standards. The BLM implements rehabilitation measures for reasons such as preventing impacts to crucial fisheries habitat from erosion and sediment, preventing mass wasting onto private property, preventing the invasion of noxious weeds, and restoring a municipal watershed.

Forests, Woodlands, and Forest Products

Forests and woodland communities in the planning area include aspen woodlands, Douglas-fir, juniper woodlands, lodgepole pine, limber pine, spruce-fir, whitebark pine, and ponderosa pine. Most mature stands are on terrain inaccessible or too steep for equipment, not economically feasible to harvest, or are in areas administratively excluded from active forest management, such as WSAs or isolated tracts of BLM-administered land that have no legal access. At present, forest productions from BLM-administered lands play a small role in the wood product industry (BLM 2015).

Forest management involves timber harvesting, cutting and removal of diseased trees, disease treatment by spraying, and the spraying of grasses and shrubs. The BLM allows precommercial thinning, chaining, and shearing. The BLM allows timber harvesting, permits clearcuts, ensures slash disposal, and allows commercial thinning, logging, and skidder-type yarding, as well as cable yarding. The BLM permits the construction of roads and landings for use in forest management operations. Slash is lopped and scattered, roller chopped, or burned. Non-commercial forest management involves collecting and cutting of firewood, Christmas trees, posts, poles, and wildlings. During restoration efforts following forest management, the BLM ensures site regeneration and stand replacement, fences regeneration areas, and conducts rehabilitation surveys. The BLM also assesses effects of prescribed burning and grazing and manages forests for recreation, livestock grazing, and wildlife habitats. Forest management actions that the BLM engages in that involve all uses of the forest include acquiring easements, pursuing legal access, allowing road development, and installing drain culverts and water bars.

Grassland and Shrubland Communities

The BLM manages grassland and shrubland communities in accordance with the Wyoming Standards for Healthy Rangelands. BLM actions associated with managing grassland and shrubland communities include using mechanical, chemical, biological methods, and livestock grazing to achieve objectives; conducting rangeland health evaluations; managing for sustainable levels of forage for livestock and habitat for wildlife; implementing guidelines on allotments that do not meet rangeland health standards; and conducting vegetation treatments.

Riparian/Wetland Resources

As part of the Bighorn Basin RMP, the BLM plans to manage all riparian/wetland areas to meet or make progress toward proper functioning condition, giving priority to areas that are functioning at risk with a downward trend or that are in non-functioning condition. BLM also

plans to: (1) manage streams with unique recreational or aquatic values to obtain Desired Future Condition, (2) prohibit surface-disturbing activities within 500 feet of surface water and riparian/wetland areas except when such activities are necessary and when their impacts can be mitigated, and (3) apply an NSO restriction on wetland areas larger than 20 acres and on designated 100-year floodplains.

Invasive Species and Pest Management

The BLM controls invasive species on BLM-administered lands through cooperative agreements with the Big Horn County, Hot Springs County, Park County, and Washakie County Weed and Pest Control Districts in the planning area. In addition to the county weed and pest control districts, both the BLM works in cooperation with the Wyoming Game and Fish Department (WGFD), State Lands Division, State Parks, local Natural Resources Conservation Service office, and private landowners.

The BLM in the planning are is targeting plants that are designated on the State of Wyoming Noxious Weed List or declared on the county noxious weed lists. The primary species targeted on BLM-administered lands include cheatgrass, Russian knapweed, spotted knapweed, diffuse knapweed, leafy spurge, Dalmatian toadflax, Canada thistle, scotch thistle, musk thistle, houndstongue, hoary cress (whitetop), field bindweed, puncture vine, Russian olive, and Tamarisk. These plants are typically found in sagebrush/grassland, desert shrub, and riparian/wetland community types. In the planning area, the BLM treats approximately 2,500 acres of invasive-species-occupied areas annually. Treatment efforts appear to be keeping invasive plant species populations from continued rapid spread, but are not necessarily reducing existing populations (BLM 2015).

Wyoming-designated pests under include grasshoppers, Mormon crickets, prairie dogs, ground squirrels, mountain bark beetle, and beet leafhopper. According to BLM (2015), the preferred method for treating grasshoppers and Mormon crickets is by Reduced Agent Area Treatments (RAAT). RAATs are a grasshopper suppression method in which the rate of insecticide is reduced from conventional levels, and treated swaths are alternated with swaths that are not directly treated. The RAAT strategy relies on the effects of an insecticide to suppress grasshoppers within treated areas while conserving grasshopper predators and parasites in areas not directly treated.

Fish and Wildlife Resources

Through wildlife and fisheries habitat management, the BLM seeks to maintain and enhance habitats for a diversity of fish and wildlife species and provide habitats for threatened, endangered, candidate, proposed, and special status species in compliance with the ESA, approved species Recovery Plans, and BLM's Manual 6840. The BLM's wildlife habitat management program supports population objective levels in the Wyoming Game and Fish Department strategic plan. Big game crucial winter range is an important component of habitat management in the planning area. BLM-administered lands in the planning area provide the habitat for pronghorn, mule deer, and elk populations.

Wildlife program actions may include inventory and monitoring, habitat improvement projects, developing habitat management plans, developing stipulations and protective measures, and acquiring land and easements. The BLM develops stipulations and protective measures for fish and wildlife resources, including the authorization of withdrawals of some areas from mineral entry; limiting access of off-highway vehicle use, snow machines, horseback riders, and pedestrians; prohibiting surface development; and implementing road closures. Habitat improvement projects include, but are not limited to, developing water sources, constructing and maintaining fences, managing other resource programs to conserve forage and protect habitats, improving forage production and quality of rangelands, and treating vegetation (e.g., prescribed fires; mechanical, chemical, and biological treatments; and cutting, thinning, planting, seeding, and pitting).

Other wildlife management actions include monitoring habitats; developing habitat islands; managing access; authorizing agricultural entry and disposal; using surface protection measures; modifying existing projects; constructing artificial nesting structures; using heavy equipment and hand tools; documenting resource damage; allowing new prairie dog towns to become established; improving aquatic and riparian habitat; reestablishing willows; implementing stream improvement practices; developing cooperative agreements to facilitate species transplants; chemically controlling pests; removing exotic fish; constructing instream barriers to protect species from nonnative invaders; installing revetments, fish passage structures, and logs; sampling macroinvertebrate; and placing large boulders instream for fish habitats. The BLM's wildlife educational programs include the distribution of information to landowners, the public, and lessees, as well as developing public education programs.

Special Status Species – Plants

Special status plants are those listed as threatened or endangered, those proposed for listing, are candidates for listing under the provisions of the ESA, or are designated by the BLM's State director as sensitive. Currently, four species of plants within Wyoming are listed as either endangered or threatened by the ESA, none of which is known to occur in the planning area, although potential habitat for one of these species does occur within the planning area. No designated critical habitat exists in the planning area.

Species in Wyoming are considered to be of special concern if (1) the species is vulnerable to extinction at the global or state level due to inherent rarity, (2) the species has experienced a significant loss of habitat, or (3) the species is sensitive to human-caused mortality or habitat disturbances. The Wyoming Natural Diversity Database (WYNDD) tracks, studies, and documents these special status species and other species considered to be rare within the State. By continuing to identify and avoid actions that could result in adverse impacts to these species and their habitats, their populations can be maintained so they will not need to be listed by the BLM as sensitive in the future.

The BLM determines the presence of special status plant species and applicable restrictions in areas with known populations on a case-by-case basis to contribute to the recovery of species currently listed under the ESA and of promoting the recovery and conservation of all special status plant species within their Field Offices, respectively. The BLM manages public lands to

conserve and/or improve the habitats for special status plants. During special status species management actions, the BLM identifies habitat; protects known populations; enforces timing stipulations; conducts surveys; closes known locations to surface-disturbing activities; holds mineral material sales; monitors off-road vehicle use; and monitors and restricts the use of explosives and blasting.

Special Status Species – Fish and Wildlife

Special status fish and wildlife species are those listed as threatened or endangered, are proposed or candidates for listing under the provisions of the ESA, or designated by the BLM's State Director as sensitive. Issues that affect special status species in the planning area include habitat degradation and fragmentation; livestock, wildlife, and ungulate grazing and browsing; invasive species; motor vehicles; and climate.

The BLM manages public lands to conserve and/or improve the habitats for special status fish and wildlife. During special status species management actions, the BLM identifies habitat; protects known populations; enforces timing stipulations; conducts surveys; closes known locations to surface-disturbing activities, holds mineral material sales; monitors off-road vehicle use; and monitors and restricts the use of explosives and blasting.

Wild Horses

The BLM is responsible for protecting, managing, and controlling wild horses on public lands in the planning area. The BLM collects data about the animals and their habitat and prescribes management actions to ensure that free-roaming populations are in balance with other uses. In addition, the BLM ensures that the productive capability of wild-horse habitat and a thriving natural ecological balance is achieved and maintained. Opportunities for public viewing, education, and interpretation of wild horses are promoted in the McCullough Peaks Herd Management Area (HMA), but special recreation permits using domestic horses would be prohibited in the McCullough Peaks HMA and avoided in the Fifteenmile HMA. Under the Proposed RMP, the BLM applies seasonal restrictions on surface-disturbing activities from February 1 to July 31 to prevent foal abandonment or jeopardy of wild horse health and welfare.

Cultural Resources

The BLM performs a variety of actions to preserve, protect, and restore cultural and historical resources. During inventory actions, the BLM inventories, categorizes, and preserves cultural resources, conducts field actions, performs excavations, maps and collects surface materials, researches records, and photographs sites and cultural resources. Data collection actions are used for documenting and developing mitigation plans prior to surface-disturbing activities of other resource programs. Land management actions associated with cultural resources involve managing sites for scientific, public, and sociocultural use; developing interpretive sites; restricting certain land uses; closing certain areas to exploration; prohibiting some surface-disturbing activities; and preparing interpretive materials. The BLM also installs protective fencing of trail segments, stabilizes deteriorating buildings, acquires access to sites when necessary, performs certain surface-disturbing activities, pursues withdrawal of areas from

exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets historic trails.

Paleontological Resources

Paleontological resources, usually thought of as fossils, include the bones, teeth, body remains, traces, or imprints of plants and animals preserved in the earth through geologic time. All fossils offer scientific information, but not all fossils offer significant scientific information. Among paleontologists, fossils generally are considered scientifically significant if they are unique, unusual, rare, diagnostically or stratigraphically important, or add to the existing body of knowledge in a specific area of science. Most fossils occur in sedimentary rock formations. Although experienced paleontologists generally can predict which formations will contain fossils and what types of fossils will be found based on the age of the formation and its depositional environment, predicting the exact location where fossils will be found without field surveys is usually not possible.

The planning area is one of the principal areas in the U.S. for paleontological research on plants, dinosaurs, dinosaur tracksites, early mammal evolution, and paleoenvironments, with a long history of producing many important dinosaur, mammal, and plant specimens. The BLM performs a variety of actions to preserve, protect, and restore paleontological resources. During inventory actions, the BLM inventories, categorizes, and preserves paleontological resources, conducts field actions, performs excavations, maps and collects surface materials, researches records, and photographs sites and paleontological resources. Management actions involve managing sites for scientific and public use, developing interpretive sites, restricting certain land uses, closing certain areas to exploration, prohibiting some surface-disturbing activities, stabilizing erosion (e.g., burying exposed sites), preparing interpretive materials, allowing hobby collection of common invertebrate or plant fossils, and permitting collecting for scientific research. Inventory data-collection actions are used for documentation and development of mitigation plans prior to surface-disturbing activities of other resource programs. Inventory actions commonly entail the use of hand tools, power tools, or heavy machinery; collecting invertebrate and plant fossils; inventorying paleontological resources; developing interpretive sites; and stabilizing erosion.

Visual Resource Management

Visual Resource Management (VRM) involves applying methodologies for evaluating landscapes and determining appropriate techniques and strategies for maintaining visual quality and reducing adverse impacts. The inventory process evaluates landscapes based on scenic quality, public perception (sensitivity), and location from key observation points (distance). VRM class recommendations were made based on the inventory process, with final class determinations being set by the RMP.

Lands and Realty

The lands and realty program is aimed at managing the underlying land base that hosts and supports all resources and management programs. The program's objectives are to (1) manage

public lands to support goals and objectives of other resource programs, (2) provide for uses of public lands according to regulations and compatibility with other resources, and (3) improve management through land-tenure adjustments. The key actions of the lands and realty program include (1) land use authorizations (e.g., leases and permits, airport leases); (2) land tenure adjustments (e.g., sales, exchanges, donations, purchases); and (3) withdrawals, classifications, and other segregations. The BLM works cooperatively to execute the lands and realty program with other Federal agencies, the State of Wyoming, counties and cities, and other public and private landholders in the planning area.

In its lands and realty management program, the BLM implements stipulations and protective measures. These actions include processing stock trail withdrawals and locatable mineral entry withdrawals, establishing protective withdrawals, and developing stipulations. The BLM also pursues cooperative agreements, develops recreation site facilities, considers offsite mitigation, minimizes access in wildlife habitats, fences revegetation sites, blocks linear ROWs to vehicle use, considers temporary use permits, considers new withdrawals, and leases acres for landfills.

Land sales are disposals or transfers of public lands through desert land entry, public sale, exchange, State of Wyoming indemnity selection, or recreation and public purposes (R&PP) leases or patents

Renewable Energy

Under the Renewable Energy Program, the BLM considers authorization of renewable energy projects consistent with the management of other resource values. Activities involved include (1) road construction, maintenance, evaluating, maintaining, and constructing transportation routes, (2) designing roads to minimize total disturbance, to conform with topography, and to minimize disruption of natural drainage patterns, minimizing excavation, retaining vegetation on cut slopes (3) improving inadequately surfaced roads to minimize sediment production, (4) retaining adequate vegetation between roads and streams to filter runoff caused by roads., (5) avoiding riparian/wetland areas where feasible and locate roads and limit mechanized equipment activity to minimize their influence on riparian areas and water quality, and (6) abandoning, closing, and rehabilitating roads that are no longer needed.
Solar, wind, biomass, geothermal, and hydroelectric power are considered renewable energy resources. BLM policy is to encourage the development of renewable energy in acceptable areas. One of the most notable management challenges associated with renewable energy resources is the ability to transmit power generated by renewable energy sources to the grid and to deliver it to the load centers where the energy is needed. Capacity to transmit new power out of the planning area appears to be limited unless existing lines are upgraded or new transmission lines built. Like wind turbines, power transmission lines include vertical structures, but also introduce a linear feature that can be particularly noticeable on a visual horizon on certain landscapes. Adverse impacts to other resources and resource uses caused by the development of renewable energy facilities can create additional management challenges.

Proximity to transmission lines to transfer energy produced at wind-energy sites influences the potential for wind-energy facilities. There are no current or pending ROW authorizations for wind energy facilities in the planning area. If meteorological data confirm wind resource potential along the Absaroka Mountain Front, this area could be a viable site for wind-energy

development because there is major transmission infrastructure nearby (BLM 2015). Given the current policy direction for renewable energy and the wind resources present in the planning area, there could be wind-energy development during the life of this RMP. However, the BLM does not anticipate widespread wind-energy development in the planning area (BLM 2015).

There are no solar facilities or pending applications for solar facilities in the planning Area. There are no locations in the planning area that receive six or more kilowatt hours per square meter per day of solar insolation. As a result, the potential for development of solar resources in the planning Area is not likely.

Biomass power is obtained from the energy in plants and plant-derived materials, such as food crops and grassy and woody plants, residues from agriculture or forestry, and the organic component of municipal and industrial wastes. Biomass can be used for direct heating (e.g., burning wood in a fireplace or wood stove) and for generating electricity, or it can be converted directly into liquid fuels to meet transportation energy needs. There are no biomass facilities and no pending applications for biomass facilities in the planning area. The potential for biomass energy facilities in the planning area is low because of low precipitation, a short growing season, allocation of grasslands resources to livestock grazing, and minimal availability of commercial forestland.

The BLM has not received applications for hydroelectric power authorizations in the planning area on BLM-administered land, and it is not likely that any additional hydroelectric facilities would be developed in the future. However, there could be a need for new electrical transmission lines that serve hydroelectric turbines on non BLM-administered land.

Although geothermal resources are present throughout the Bighorn Basin, there are no active or pending Federal geothermal leases in the planning area (BLM 2015). Policy direction, advances in technology, and increased interest in renewable energy resources could lead to minimal geothermal resource development in the planning area during the life of this RMP.

Rights-of-Way and Cooridors

Under this program, the BLM processes new and amended ROW applications. There are 2,192 existing ROWs in the planning area covering approximately 44,539 acres. Most ROW applications in the planning area are for the development of powerlines, transportation and delivery of mineral-related commodities and facilities, telephone facilities (including fiber optic lines and communications sites), access roads, and water-related facilities (pipelines, ditches and canals, reservoirs).

Comprehensive Travel and Transportation Management

Within this program, the BLM manages legal access to and across public lands utilized for recreation, renewable and nonrenewable energy development, range management, public access, and communication site management. Access is acquired using several different tools, including purchase, exchange, reciprocal ROW, donation, and condemnation. The primary components of the transportation network and facilities in the planning area include roads, railroads, and

airports. A large number of the BLM's system roads that currently provide access to public lands were first built and maintained by the oil and gas industry. The transportation infrastructure within the planning area is closely related to historic trails, as many automobile routes and railroads eventually paralleled some of the trail routes. At the beginning of the twentieth century, there was a dramatic increase in Wyoming roadways as a result of increased automobile use and the burgeoning oil and gas industry.

The BLM rehabilitates access roads no longer needed, proposes easement negotiations, pursues access across private lands, acquires ROW or easements, and exchanges lands under this program. Road networks within the planning area comprise a series of county roads, BLM-maintained roads, two-track trails, and other trails. The maintenance and use of these travel ways has become an integral part of public land management, as these roads are used for both recreational and non-recreational purposes. Typical recreational OHV activities within the planning area include enduro races, trial competitions, and all-terrain vehicle and motorcycle trail riding. OHV use, in itself, has become a popular method to exploring public lands. In addition, OHV use provides access for non-motorized recreational purposes, such as fishing, hiking, mountain biking, horseback riding, and primitive camping opportunities. People with disabilities may be allowed to travel on OHVs in otherwise closed areas on a case-by-case basis. Non-recreational OHV use of the planning area includes agricultural management, energy development, and land management activities. The BLM uses OHVs for range inspections, vegetation treatments, surveying and mapping, inventories, monitoring, fire suppression, project construction, and maintenance.

The popularity and use of OHVs has grown substantially in a relatively short period of time. Areas that were once infrequently visited are now popular places for recreational touring and other OHV-related activities. However, off-road or other inappropriate use of these vehicles can cause environmental degradation and increased conflicts among user groups. Certain environments are more susceptible to OHV damage, including crucial winter ranges, wildlife breeding areas, riparian habitats, and areas with steep slopes or sensitive soils. OHV use in the planning area is expected to continue. The lack of appropriate signage, a shortage of law enforcement personnel, the increase in OHV use throughout the planning area, and a general lack of understanding of land-use ethics have increased inappropriate uses of OHVs on Federal lands and represent management challenges for the BLM.

BLM actions concerning OHV use include designating closed, limited, or open areas for OHV use; posting signs and developing maps or brochures; permitting OHV rallies, cross-country races, and outings; monitoring OHV use; and performing necessary tasks requiring OHV use. Under normal conditions and when OHV travel is limited, there is no substantial surface disturbance associated with OHV use. However, excessive use, cross-country travel, or use in sensitive habitats (e.g., wet soils) can result in soil compaction and erosion, increased stream sedimentation, increase and spread of non-native invasive species, habitat fragmentation, and disruption to visual resources.

Recreation

Categories of recreation management actions include allowing recreational access and use by the public, administering special recreational permits, developing recreational areas and campsites, imposing restrictions, acquiring recreational access, and assessing effects of recreational use to the environment. The BLM allows recreational actions, including sightseeing, touring, photography, wildlife viewing, floating, mountain biking, camping, fishing, and hunting. Large recreational events may include organized group hikes, motocross competitions, or horse endurance rides. Recreational land and access acquisition actions involve maintaining public access, pursuing ROW, providing continued access, and pursuing land acquisition. Recreational site development includes maintaining or developing recreational sites and facilities, developing campgrounds, providing fishing and floating opportunities, maintaining developed and undeveloped recreational sites, adding developments as opportunities arise, adding interpretive markers, and constructing roads and interpretive sites.

Development and enforcement of stipulations and protective measures include designating OHV use, enforcing recreational-oriented regulations, patrolling high-use areas, and contacting users in the field. The BLM places boundary signs, identifies hazards on rivers, restricts recreational uses, limits motorized vehicles to existing trails, designates road use and recreational areas, requires facilities to blend with the natural environment, and conducts field inventories. Special recreation permits (SRP) are processed on a case-by-case basis; categories include competitive, vending, individual or group use in identified areas, organized group activity, and event use.

While assessing adverse effects of recreational actions to the environment, the BLM analyzes actions that increase human activity, especially in riparian areas. The BLM monitors recreational use, develops management plans, and evaluates and updates recreational potential in the planning area.

Surface disturbance and other activities associated with the recreational resources program include, but are not limited to, the following actions: (1) managing recreational use, (2) permitting competitive recreational events, (3) developing recreational trails, (4) constructing recreational sites, (5) maintaining developed and undeveloped recreational sites (campgrounds), (6) placing boundary signs and interpretive markers, (7) allowing commercial recreational uses, and (8) developing public water sources for recreational facilities.

Lands with Wilderness Characteristics

The BLM maintains an inventory of all resources that have wilderness characteristics. The BLM analyzes management of resources with wilderness characteristics. No specific management for retention of wilderness characteristics exists under the current Cody, Worland-Washakie, or Worland-Grass Creek RMPs.

Livestock Grazing Management

The BLM's livestock management program includes livestock management actions; range management; range improvements, such as fencing and water sources; detrimental impacts

management; and lease management. Livestock management includes converting to new types of livestock, and authorizing livestock grazing, such as adjusting season of use, distribution, kind, class, and number of livestock. One method that livestock producers can use to change the distribution of livestock is to provide salt or mineral supplements in specified areas. Range management actions include using prescribed fire, vegetation-manipulation projects, changing composition of existing vegetation, using noxious weed control, using mechanical or biological vegetative treatments to improve forage production, using heavy equipment, and herbicide treatment of sagebrush. Fencing actions include fence construction and repair, designing and implementing grazing systems, and building livestock exclosures for important riparian habitats. Water management actions include developing reservoirs, springs, pipelines, and wells, and providing access to these developments. Managing detrimental impacts include documenting, treating, and preventing resource damage. Potential detrimental impacts include the degradation of streambanks, the introduction and spread of invasive species, increasing soil erosion, and a reduction in cottonwood tree recruitment. Lease management actions include conducting monitoring studies, performing project work to enhance and improve riparian zones, designating stock trails, managing leases, developing management plans and agreements, and canceling or changing livestock trails.

Special Designations – Areas of Critical Environmental Concern, National Back Country Byways, National Historic Trails, Wild and Scenic Rivers, and Wilderness Study Areas.
Special designations include Areas of Critical Environmental Concern (ACEC), National Back Country Byways, National Historic Trails, Wild and Scenic Rivers, and Wilderness Study Areas. Areas managed under special designations can be regulatory or congressionally mandated and are designed to protect or preserve certain qualities or uses. The BLM emphasizes the management of certain specific resources in these areas. There are 9 existing ACECS in the planning area and 9 additional ones proposed for ACEC designation (BLM 2015b). The BLM manages one National Back Country Byway in the planning area, as well as one National Historic Landmark and one National Historic Trail. There are no Wild and Scenic Rivers in the planning area. There are 10 Wilderness Study Areas in the planning area, but there are no congressionally designated wilderness areas in the planning area.

Socioeconomic Resources

In this discussion, socioeconomic resources include social and economic conditions, environmental justice, and tribal treaty rights. The BLM has the capacity, through its decision-making responsibilities, to manage resource development in the planning area and thereby influence the economy of the wider region. Industries most affected by BLM land management policies and programs are agriculture (especially livestock grazing), mining and mineral development, and recreation and tourism. Environmental justice pertains to fair treatment and meaningful involvement of minority and low-income populations. Where the impacts of a proposed Federal action may involve such populations, an analysis of the potential for disproportionate impacts and meaningful community outreach and public involvement is required. It is the policy of the U.S. Department of Interior to recognize and fulfill its legal obligation to identify, protect, and conserve the trust resources of federally recognized American Indian tribes and tribal members, and to consult with tribes on a government-to-government

basis whenever plans or actions affect tribal trust resources, trust assets, or tribal health and safety.

Health and Safety

The BLM is required to address hazards that create safety risks to visitors to BLM-administered lands. The Hazard Management and Resource Restoration Program (HMRRP) is designed to manage hazards on public lands to reduce risks to visitors and employees, restore contaminated lands, and carry out emergency-response actions. The BLM coordinates with appropriate regulatory agencies to reduce hazards.

The HMRRP allows the BLM to provide warnings; secure and dispose of hazardous waste discharged on public lands; report, secure, and clean up public lands contaminated with hazardous wastes; use precautionary measures; establish precautions; and respond to emergencies. The HMRRP allows the BLM to seek to protect public and environmental health and safety on BLM-administered public lands, comply with Federal and State laws, prevent waste contamination due to any BLM-authorized actions, minimize Federal exposure to the liabilities associated with waste management on public lands, and integrate hazardous materials and waste management policies and controls into all BLM programs. Hazardous waste sources may be from illegal dumping, mine tailings, and abandoned waste. Natural geologic hazards include landslides and earthquakes. A wide range of permitted uses that occur on BLM-administered public lands have the potential to introduce hazardous substances and petroleum products into the environment.

References

U.S. Bureau of Land Management (BLM). 2015. Proposed Resource Management Plan and Final Environmental Impact Statement for the Bighorn Basin Resource Management Plan Planning Area. Bureau of Land Management, Bighorn Basin Field Office, Cody, Wyoming and Worland, Wyoming.

U.S. Bureau of Land Management (BLM). 2015. Biological Assessment for the Big Horn Basin Resource Management Plan. Cody and Worland Field Offices.

APPENDIX 2 – CONSERVATION MEASURES FOR THE BIG HORN BASIN RESOURCE MANAGEMENT PLAN

These conservation measures are taken from the Big Horn Basin Resource Management Plan (RMP) Revision Biological Assessment (BA) (BLM 2015). Implementation of the following conservation measures are intended to minimize, or eliminate, adverse impacts to threatened, endangered, candidate, and proposed species that are likely to result from implementation of the management actions provided in the Big Horn Basin Planning Area. The U.S. Bureau of Land Management (BLM) has committed to implementing the following conservation measures. The BLM has been active in conservation of listed and candidate species, and is committed to playing a key role in the recovery effort for these species.

The binding conservation measures that follow will reduce potential effects to those species and their habitats and highlight the steps the BLM can take to work towards recovery of the species. The following conservation measures will be implemented within the Big Horn Basin Planning Area where there is potential for listed species to occur. Conservation measures are binding measures which the BLM will implement to facilitate the conservation of threatened, endangered, candidate, and proposed species.

Coordination and Conservation Measures

Section 7(a)(1) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*) requires the Federal agency (e.g., the BLM) to utilize all of its authorities in furthering the purposes of the ESA by implementing programs for the conservation of threatened and endangered species. To meet the requirements of section 7(a)(1), the BLM needs to consider conservation programs for the management of threatened and endangered species separate from any consultation requirements for actions affecting other special status species (e.g., BLM-sensitive species, State or Federal species of concern). Those conservation programs that are adopted need to be incorporated into the approved RMP.

Conservation recommendations serve several purposes, including (1) presenting ways the BLM can assist species conservation in furtherance of statutory responsibilities, (2) minimizing or avoiding the adverse impacts of a proposed action on threatened or endangered, and (3) identifying and recommending studies aimed at improving the understanding of a species' biology or ecology.

Management of listed threatened and endangered species is addressed in four primary ways:

(1) Through conservation measures, reasonable and prudent measures, and BMPs identified as part of a species listing package, recommended in the Biological Opinion (BO) from the USFWS in response to a BA, and through species protection measures determined through collaborative interagency and multidiscipline efforts.

(2) The BLM Wyoming Field Offices incorporate the *Wyoming BLM Mitigation Guidelines for Surface-Disturbing and Disruptive Activities*. These guidelines state that before performing activities in known or suspected habitats, the lessee or permittee is required to

perform inventories or studies in accordance with BLM and/or USFWS guidelines to verify the presence or absence of federally listed threatened and endangered species. If the presence of one or more of these species is verified, the operation plans of a proposed action will be modified to include the protection of the species and its habitat, as necessary. Possible protective measures include seasonal or activity limitations, or other surface management and occupancy constraints.

(3) The BLM incorporates *Wyoming Standards for Healthy Rangelands* (BLM 1998b). As stated, the "standards apply to all resource uses on public lands," while the "guidelines apply specifically to livestock grazing management practices on the BLM-administered public lands." The development and application of these standards and guidelines are intended to achieve the following four fundamentals of rangeland health: (1) proper functioning of air and watersheds, (2) proper cycling of air, water, soil nutrients, and energy, (3) attainment of state water quality standards, and (4) sustained maintenance and management of the native fauna and flora of the area, including federally listed threatened and endangered species. These fundamental goals are achieved through inventory of natural resources, appropriate management actions aimed at these resources, monitoring and evaluation of the effectiveness of these management actions, and land management adjustments as necessary.

(4) *BLM Manual 6840, Special Status Species Management,* directs Field Office managers to implement special status species programs within their area of jurisdiction by (a) performing and maintaining current inventories, including surveys for occupancy of special status species on public lands, (b) providing for the conservation of special status species in the preparation and implementation of recovery plans with which the BLM has concurred, interagency plans, and conservation agreements, (c) ensuring that all actions comply with the ESA, its implementing regulations, and other directives associated with conserving special status species, (d) coordinating field office activities with Federal, state, and local groups to ensure the most effective program for special status species conservation, (e) ensuring actions are evaluated to determine if special status species objectives are being met, (f) ensuring all actions authorized, funded, or carried out by the BLM follow the interagency consultation procedures as outlined in 50 Code of Federal Regulations Part 402, and (g) ensuring results of formal section 7 consultations including terms and conditions in incidental take statements are implemented.

The conservation measures described in Conservation Measures Common to All Species of this document are intended to minimize adverse impacts likely to result from implementation of the management actions provided in the Bighorn Basin Proposed RMP. Conservation measures can take three forms, as follows: (1) the existing conservation measures in the Bighorn Basin Proposed RMP (Proposed Protections); (2) BLM implementation of additional conservation measures that would reduce impacts to listed species; and (3) an additional group of measures that the BLM will consider implementing that include any appropriate BMPs to further protect the species and its habitats. If new populations of the species are discovered, these measures would apply until such time that further investigation and subsequent consultation with the USFWS results in more appropriate management prescriptions.

Conservation Measures Common to All Species

The following general conservation measures for all listed threatened and endangered species will be applied under all resource programs and are not repeated in this BA under each management program. The conservation measures in the Statewide Programmatic Species-specific BAs and BOs will be implemented for the Bighorn Basin Planning Area.

1. Surface-disturbing activities are subject to the *Wyoming BLM Mitigation Guidelines for Surface-Disturbing and Disruptive Activities,* the *Wyoming BLM Reclamation Policy* issued under Instruction Memorandum WY 2009-022, and similar guidance and policy as updated over time. The *Wyoming BLM Mitigation Guidelines for Surface-Disturbing Activities* requires any lessee or permittee to perform inventories or studies in accordance with BLM and USFWS guidelines to verify the presence or absence of threatened or endangered species before any activities can begin onsite. In the event the presence of one or more of these species is verified, the operation plans of a proposed action will be modified to include the protection of the species and its habitat, as necessary. Possible protective measures may include seasonal or activity limitations or other surface management and occupancy constraints.

2. The BLM will postpone or modify projects that may affect special status species to protect these species and will consult with the USFWS in such cases, as required by the ESA.

4. The BLM will consult with stakeholders in postponing or modifying projects that may affect special status species.

5. The BLM will assist authorized agencies in the restoration, reintroduction, augmentation, or re-establishment of threatened, endangered, and other special status species populations and/or habitats.

6. Motorized vehicle use is limited to designated roads and trails in essential and recovery habitat for threatened or endangered species.

7. All types of forest management will apply appropriate mitigation, that riparian/wetland areas will be managed to meet Proper Functioning Condition and the *Wyoming Standards for HealthyRangelands*, and the BLM work cooperatively to control outbreaks of grasshoppers and Mormon crickets.

8. Areas harvested for timber are to be regenerated by natural or artificial means consistent with BLM policy, and vegetative communities are managed in accordance with the *Wyoming Standards for Healthy Rangelands*.

9. Management prescriptions for invasive species include developing and maintaining an invasive species and pest management plan, prohibiting aerial application of pesticides within the boundaries of the Spanish Point Karst Area of Critical Environmental

Concern, and coordinating with appropriate stakeholders to manage for the reduction of cheatgrass and other invasive species.

10. Fish and wildlife management includes actions to appropriately mitigate the effects of surface-disturbing activities. Management actions include maintaining or improving important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies, and the application of applicable guidance.

11. The BLM prohibits surface-disturbing and disruptive activities in the Bighorn River Habitat and Recreation Management Plan (HRMP) tracts and the BLM-administered tracts in Yellowtail Wildlife Habitat Management Area and applies a No Surface Occupancy restriction as appropriate.

12. The BLM will continue to use and update existing Habitat Management Plans (HMPs) (including the West Slope HMP, Bighorn River HRMP and Absaroka Front HMP) as necessary to include management objectives and prescriptions for wildlife.

13. BLM-administered public lands that contain identified habitat for Threatened and Endangered Species will not be exchanged or sold, unless it benefits the species.

Black-footed Ferret Conservation Measures

1. When project proposals are received for areas that still require black-footed ferret surveys [i.e., non-block-cleared (see Map 3 of the black-footed ferret biological assessment [BLM 2005] or the USFWS block clearance letter of February 2, 2004 [USFWS 2004]) and meet potential habitat criteria as defined by the USFWS's guidelines (USFWS 1989), the BLM shall initiate coordination with the USFWS at the earliest possible date so that the USFWS can provide input. This should minimize the need to redesign projects at a later date to include black-footed ferret conservation measures, determined as appropriate by the USFWS (Black-footed ferret surveys are no longer applicable [USFWS 2013].

2. In areas identified in conservation measure number one above (non-block-cleared areas), if suitable prairie dog town/complex avoidance is not possible, surveys of towns/complexes for black-footed ferrets shall be conducted in accordance with current USFWS guidelines and recommendations. This information shall be provided to the BLM and the USFWS in accordance with section 7 of the Endangered Species Act of 1973 (ESA), as amended (50 CFR §402.10 and 13), and the Interagency Cooperation Regulations (Black-footed ferret surveys are no longer applicable [USFWS 2013].

3. Observations of black-footed ferrets, their sign, or carcasses on a project area and the location of the suspected observation, however obtained, shall be reported within 24 hours to the appropriate local the BLM's wildlife biologist and Field Supervisor of the USFWS's office in Cheyenne, Wyoming, (307) 772-2374. Observations will include a description including what was seen, time, date, exact location, suspected cause of death, and observer's name and telephone number. Carcasses or other "suspected" ferret remains shall be collected by the USFWS or BLM employees, and deposited with the

USFWS's Wyoming Field Office or the USFWS's law enforcement office. [This type of specimen collection is authorized as described in 50 CFR 17.21(c)(3-4). It is imperative that any fresh black-footed ferret carcass be salvaged and immediately transported to the USFWS so pertinent information concerning the cause of death can be gathered, including photographs in order to document an accurate depiction of the fatality.]

4. Discovery of a live black-footed ferret outside of the Experiment Non-essential population areas in Wyoming would have profound importance to the species' recovery. Reporting of such a discovery by staff, contractors, permittees, etc. will be fully encouraged by the BLM staff and management.

5. If black-footed ferrets or their sign are found on public lands outside of the Non-essential Experimental population areas in Wyoming, all previously authorized surface disturbing activities (or actions on any future application that may directly, indirectly, or cumulatively affect the colony/complex ongoing) in the complex in which black-footed ferrets are found shall temporarily cease until further direction is developed by a task force consisting of the BLM's Field Office Manager, the USFWS's Field Office Supervisor, the Wyoming Game and Fish Department (WGFD) Non-game Coordinator, and other potentially affected parties. This task force will be formed within 48 hours of the find to determine appropriate conservation/protection actions. The BLM shall coordinate with these affected parties to ensure that ferret surveys or appropriate actions are conducted as deemed necessary. The BLM will also re-initiate section 7 consultation with the USFWS. An emergency road closure limiting access to the site will be enacted by the BLM within 48 hours of the find to protect the newly discovered black-footed ferrets. This emergency road closure will be for all non-paved roads within at least one mile of the find. On a case-by-case basis and with approval of the USFWS, certain surface disturbing activities within the town or complex may be allowed to continue.

6. Information on ferret identification shall be provided and posted in common areas and circulated in a memorandum among all employees and service providers. This information shall illustrate the black-footed ferret and its sign; describe morphology, tracks, scat, skull, habitat characteristics, behavior, and current status; and the relationship between project development and possible impacts to black-footed ferrets, especially regarding canine distemper and recreational shooting.

7. New prairie dog towns shall be allowed to become established on public lands in all circumstances where they would not interfere with other previously established activities. All white-tailed prairie dog towns/complexes greater than 200 acres in size and black-tailed prairie dog towns/complexes greater than 80 acres shall be assessed and mapped for any projects that are proposed within such areas, and associated burrow densities on potentially affected towns shall be determined, when necessary, pursuant to USFWS and BLM approved techniques to determine whether the criteria established for ferret occupancy in the USFWS guidelines for black-footed ferrets are met.

8. The BLM shall work with the USFWS and the Wyoming Game and Fish Department (WGFD) to identify and select Special Management Areas for potential reintroduction

sites for black-footed ferrets. These areas will be selected based upon a number of factors including the BLM's ability to protect and manage them, their size (5,000 to 10,000 acre sites, optimally), and potential utility to black-footed ferrets. Because of the need to manage reintroduction sites (of prairie dog complexes) on a landscape scale, and because plague is a significant but unpredictable event, Special Management Areas may be selected that are currently "plagued out", but may recover in time. Complexes can be selected from, but not necessarily restricted to, those shown in block cleared areas (see Map 3 of BLM 2005). Protective measures will be drawn up for these Special Management Areas, and may include being withdrawn from leasing and protected from commercial development (i.e., land disposal through Recreation and Public Purposes actions, etc.). Examples of protective measures that will be included in these Special Management Areas are:

a. The BLM shall work with respective State Game and Fish agencies and USFWS offices to ensure that enough reintroduction sites are maintained to successfully recover the black-footed ferret. If areas available for reintroduction are removed through the BLM's authorized actions below a threshold level, so that the black-footed ferret can no longer be recovered, then those actions reducing availability of reintroduction sites will be modified or discontinued until the blackfooted ferret has been recovered.

b. The BLM shall monitor and post restrictions, if necessary, on recreational opportunities and other uses on BLM-administered lands within 1 mile of formally proposed and active reintroduction sites for black-footed ferrets.

c. The BLM and operators shall conduct educational outreach to employees regarding the nature, hosts, and symptoms of canine distemper and its effects on black-footed ferrets, focusing attention on why employees should not have pets on work sites during or after hours. The BLM shall encourage operators to develop policies to prohibit dogs from operation sites or require current distemper vaccinations within black-footed ferret reintroduction areas. It is recommended that vaccinated puppies shall not be allowed until one month after their final distemper vaccination due to potential effects of the modified live virus vaccine.

Canada Lynx Conservation Measures

1. Within an LAU, the BLM shall ensure that mapping occurs of lynx habitat and non-habitat, and that denning habitat, foraging habitat, and topographic features important for lynx movement are mapped. The BLM or project proponent shall identify whether all lynx habitat within an LAU is in suitable or unsuitable condition. This will involve interagency coordination where LAUs cross administrative boundaries.

2. The BLM shall limit disturbance in each LAU to 30 percent of the suitable lynx habitat within the LAU. If 30 percent of the habitat within an LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of management activities. The BLM shall map oil and gas production and transmission facilities, mining activities and facilities, dams, timber harvest, and agricultural lands on

public lands and evaluate projects on adjacent private lands to assess cumulative effects. This will involve interagency coordination where LAUs cross administrative boundaries, primarily with the United States Forest Service.

3. BLM management actions shall not change more than 15 percent of lynx habitat within an LAU to an unsuitable condition within a 10-year period. This will involve interagency coordination where LAUs cross administrative boundaries.

4. The BLM shall maintain denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat. Where less than 10 percent is currently present in an LAU, defer any management actions that would delay development of denning habitat structure. This will involve interagency coordination where LAUs cross administrative boundaries.

5. The BLM shall ensure that key linkage areas that may be important in providing landscape connectivity within and between geographic areas across all ownerships are identified, using best available science.

6. The BLM shall ensure that habitat connectivity within and between LAUs is maintained.

7. The BLM shall document lynx observations (tracks, sightings, along with date, location, and habitat) and provide these to the Wyoming Natural Diversity Database (WYNDD); and request an annual update from them on all sightings for review in each field office.

8. Following a disturbance (blowdown, fire, insects) that could contribute to lynx denning habitat, the BLM shall allow no salvage harvest when the affected area is smaller than 5 acres. Some exceptions apply, as specified in the Lynx Conservation Assessment Strategy timber management project planning standards.

9. BLM shall only allow pre-commercial thinning when stands no longer provide snowshoe hare habitat.

10. In aspen stands, the BLM shall ensure that harvest prescriptions apply that favor regeneration of aspen.

11. The BLM shall ensure that improvement harvests (commercial thinning, selection, etc.) are designed to retain and improve recruitment of an understory of small diameter conifers and shrubs preferred by hares.

12. In the event of a large wildfire, the BLM shall ensure that a post-disturbance assessment prior to salvage harvest is conducted, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.

13. The BLM shall ensure that construction of temporary roads and fire lines are minimized to the extent possible during fire suppression activities and shall ensure revegetation of

those that are necessary. Construction on ridges and saddles should be avoided if possible.

14. The BLM shall allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas in LAUs unless the designation serves to consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas. This is intended to apply to dispersed recreation, rather than existing ski areas. Winter logging activity is not subject to this restriction.

15. In lynx habitat within an LAU, the BLM shall ensure that Federal actions do not degrade or compromise landscape connectivity or linkage areas when planning and operating new or expanded recreation developments.

16. The BLM shall ensure that trails, roads, and lift termini are designed to direct winter use away from diurnal security habitat.

17. To protect the integrity of lynx habitat, the BLM shall ensure that (as new information becomes available) winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat are evaluated and amended as needed.

18. The BLM shall ensure that livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components is not allowed. This regeneration may take three years or longer and will depend on site-specific conditions.

19. The BLM shall ensure that grazing in aspen stands is managed to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones.

20. Within lynx habitat, the BLM shall ensure that livestock grazing in riparian areas and willow patches is managed to maintain or achieve mid seral or higher condition to provide cover and forage for prey species.

21. On projects where over-snow access is required, the BLM shall ensure use is restricted to designated routes.

22. Predator control activities, including trapping or poisoning on domestic livestock allotments on Federal lands within lynx habitat, shall be conducted by USFWS Wildlife Services personnel in accordance with USFWS recommendations established through a formal section 7 consultation process.

23. The BLM shall ensure that the potential importance of shrub-steppe habitats in the lynx habitat matrix and in providing landscape connectivity between blocks of lynx habitat is evaluated and considered as integral to overall lynx habitat where appropriate. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or

achieve mid seral or higher condition, to maximize cover and prey availability. Such areas that are currently in late seral condition should not be degraded.

24. In high-elevation riparian areas, especially those subject to grazing, the BLM shall ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares.

25. Within lynx habitat, the BLM shall ensure that key linkage areas and potential highway crossing areas are identified, using best available science.

26. The BLM shall work cooperatively and proactively with the Federal Highway Administration and State Departments of Transportation to identify land corridors necessary to maintain connectivity of lynx habitat and map the location of "key linkage areas" where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).

27. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared right-of-way (ROW), or would foreseeably contribute to development or increases in human activity in lynx habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for such upgrades, a thorough analysis should be conducted on the potential direct and indirect effects to lynx and lynx habitat.

28. The BLM shall ensure that proposed land exchanges, land sales, and special use permits are evaluated for effects on key linkage areas.

29. If activities are proposed in lynx habitat, the BLM shall ensure that stipulations and conditions of approval (COAs) for limitations on the timing of activities and surface use and occupancy are developed at the leasing and Notice of Staking/Application for Permit to Drill (APD) stages. For example, requiring that activities not be conducted at night, when lynx are active; and avoiding activity near denning habitat during the breeding season (April or May to July) to protect vulnerable kittens.

30. The BLM shall ensure that snow compaction is minimized when authorizing and monitoring developments. The BLM shall encourage remote monitoring of sites that in lynx habitat so that they do not have to be visited daily.

Gray Wolf Conservation Measures

1. No project actions to be located within 100 meters (330 feet) of den sites between April 1 and June 30. Areas within 0.8 kilometer (½ mile) of a den site are recommended for protection from disturbance.

2. Take action to help reduce human-caused mortality wherever possible. For example, provide educational material, as appropriate, to avoid the inadvertent killing of a wolf mistaken for a coyote; provide information on compatible grazing practices (see conservation measure #3 below); avoid situations that lead to the adoption of human foods and garbage by wolves, which could lead to a bite and subsequent elimination of the wolf.

3. Disseminate information useful to livestock producers on wolf/livestock interactions, alternate livestock practices that minimize conflicts between wolves and livestock (e.g., dispersed grazing rather than concentrated grazing), and compatible lambing and calving methods that reduce or eliminate wolf depredation in occupied habitat.

4. Designate a state representative to attend the annual interagency coordination meeting.

5. Continue to attend the annual coordination meetings with the WGFD.

Grizzly Bear Conservation Measures

1. The BLM shall ensure that authorized activities planned to occur in currently occupied grizzly bear habitat shall be analyzed and planned with active grizzly bear protection measures. Restrictions on timing of activity and spatial considerations for grizzly bears, or other parameters, will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area.

2. The BLM shall provide a packet of educational materials to authorized permittees in grizzly habitat, including, but not limited to, special recreation permittees, livestock permittees, and timber operators.

3. In occupied grizzly bear habitat, and in areas of bear conflicts, the BLM shall install bear-resistant refuse containers in developed campgrounds and picnic areas where refuse containers are provided and maintained. In areas receiving dispersed recreational use, the BLM shall inform the public of proper storage techniques for food and refuse.

4. The BLM shall ensure that operation plans and special use permits in occupied grizzly bear habitat will specify food storage and handling and garbage disposal standards. All temporary living facilities under temporary use permits in occupied grizzly bear habitat will be required to practice proper food storage and keep all potential attractants stored so they are unavailable to bears. Edibles and/or garbage will be secured from access by grizzly bears. Bear proof refuse containers, and timely refuse collection to prevent overflow, shall be required.

5. Important grizzly bear food resources that may occur on BLM-administered land, particularly whitebark pine, army cutworm moths, ungulates (primarily elk calving grounds), and spawning cutthroat trout, shall be noted and monitored. Other important foods may be added to those listed above as our understanding of grizzly bear food

resources on BLM-administered land grows. Monitoring protocols for these food resources can be adapted from Appendix E of the Conservation Strategy (lCST 2003) (http://www.fs.fed.us/r 1/wildlifeligbc/ConservationStrategy/C Sappendices.pdf).

6. The BLM shall continue to attend, and be a member of, the Yellowstone Ecosystem Subcommittee of the Interagency Grizzly Bear Committee (IGBC). After delisting, the BLM shall continue to attend the appropriate coordination group(s) including the Yellowstone Grizzly Coordinating Committee.

7. The BLM shall not approve commercial cutting or other removal of whitebark pine in the two FOs analyzed in this document in occupied or potential grizzly bear habitat.

8. The BLM shall implement strategies to reduce human-bear and domestic livestock-bear conflicts by conducting an evaluation of the causes of such conflicts when they do occur and determining what can be done to avoid or reduce such conflicts in the future. Currently these conflicts are discussed at the NW Wyoming Level 1 meetings (for streamlining ESA section 7 consultations) that are held two to three times per year.

9. All permit holders that conduct activities on public lands in occupied grizzly bear habitat that could result in livestock carcasses being left in locations where bears might be attracted to them shall be informed that all livestock carcasses or parts of carcasses shall be either packed, dragged, or otherwise transported to a location a minimum of ½ mile from any inhabited dwelling, sleeping area, tent, road, trail, or recreation site in as timely a manner as possible, unless otherwise directed by a BLM range/wildlife specialist or ranger. Carcasses shall be moved at least 100 yards from live water. Other options for carcass disposal may include using explosives or burning the carcass at the discretion of a BLM range/wildlife specialist or ranger. In cases of uncertainty about carcass disposition the permit holder (or lessee) shall contact the appropriate BLM field office.

10. The BLM shall require that the Proper Functioning Condition of existing aquatic systems and riparian zones in occupied grizzly bear habitat be maintained for all BLM-administered public lands. If these areas are polluted and/or damaged from activities, lessee/permittee/ grantee or the BLM will be required to assume full responsibility for rehabilitation and restoration of such areas (from IGBC 1986).

11. The BLM shall require that existing roads, drilling pads, and other areas with vegetation removed due to authorized activities in occupied grizzly bear habitat will be revegetated and reclaimed by lessee/permittee/grantee in a fashion that considers all grizzly bear needs or requirements.

12. Wild horse roundups and other intensive wild horse management activities will avoid areas in or immediately adjacent to occupied grizzly bear habitat.

Ute Ladies'-tresses Conservation Measures

1. Surface disturbance will be prohibited within 500 feet of surface water and/or riparian areas.

2. No Surface Occupancy will be allowed within special management areas (e.g., known threatened or endangered species habitat).

3. Portions of the authorized use area are known or suspected to be essential habitat for threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and USFWS guidelines to verify the presence or absence of this species. In the event that an occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications).

4. Within the potential of the ecological site (soil type, landform, climate, and geology), the BLM will ensure that the soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

5. The BLM will ensure that grazing management practices will restore, maintain, or improve plant communities. Grazing management strategies consider hydrology, physical attributes, and potential for the watershed and the ecological site.

6. The BLM will ensure that upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

7. The BLM will ensure that rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

8. The BLM will ensure that grazing management practices will incorporate the kinds and amounts of use that will restore, maintain, or enhance habitats to assist in the recovery of federally threatened and endangered species or the conservation of federally-listed species of concern and other State-designated special status species. Grazing management practices will maintain existing habitat or facilitate vegetation change toward desired habitats. Grazing management will consider threatened and endangered species and their habitats.

9. The BLM will maintain biological diversity of plant and animal species; support the Wyoming Game and Fish Department strategic plan population objective levels to the extent practical and to the extent consistent with BLM multiple use management requirements; maintain, and where possible, improve forage production and quality of rangelands, fisheries, and wildlife habitat; and to the extent possible, provide habitat for

threatened and endangered and special status plant and animal species on all public lands in compliance with the Endangered Species Act and approved recovery plans.

10. In any proposed new access, wetland and riparian areas will be avoided where possible.

11. Grazing will be intensively managed within known habitat containing populations from July through September, to allow plants to bloom and go to seed.

12. Recreational site development will not be authorized in known Ute ladies'-tresses habitat.

13. The BLM will manage stream habitats to retain, re-create, or mimic natural hydrology, water quality, and related vegetation dynamics. Projects that may alter natural hydrology or water quality, change the vegetation of the riparian ecosystem and cause direct ground disturbance will be evaluated and redesigned to ensure that adverse effects to populations of the orchid do not occur.

14. The BLM will add the following two conservation measures to grazing permit renewals in allotments with known Ute ladies'-tresses populations.

    A. The BLM will ensure the placement of mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known Ute ladies'-tresses populations. Supplemental feed for livestock, wildlife, or wild horses will not be authorized within 1.0 mile of known Ute ladies'-tresses populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from Ute ladies'-tresses populations and potential overgrazing of the areas occupied by these orchids. Surveys for Ute ladies'-tresses will be conducted in potential Ute ladies'-tresses prior to livestock operations-related construction projects.

    B. The BLM will not increase permitted livestock stocking levels in any allotment with pastures containing known Ute ladies'-tresses populations without consulting with the USFWS.

15. Biological control of noxious plant species will be prohibited within 1.0 mile from known orchid habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The BLM will monitor biological control vectors.

16. Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be well-regulated within 0.25 miles of known populations of the orchid and insecticide/pesticide treatments will be well-regulated within 1.0 mile of known populations of the orchid to protect pollinators.

17. Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above the following will apply: where needed and only on a case-by-case basis, a pesticide use proposal or other site specific plan will address

concerns of proper timing, methods of use, and chemicals. Pesticides specifics to dicots will be preferred where these are adequate to control the noxious weeds present.

18. Aerial application of herbicides will be carefully planned to prevent drift in areas near known populations of the orchid (outside of the 0.25 mile buffer). The BLM will work with the Animal and Plant Health Inspection Service (APHIS), the USFWS, and County Weed and Pest Agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect the orchid.

19. If revegetation projects are conducted within 0.25 miles of known habitat for the orchid, only native species will be selected. This conservation measure will reduce the possibility that non-native species will be introduced and will compete with Ute ladies'-tresses orchids.

20. The BLM will limit the use of off highway vehicles (OHVs) to designated roads and trails within 0.5 mile of known Ute ladies'-tresses populations, with no exceptions for the "performance of necessary tasks" other than fire fighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known Ute ladies'-tresses populations. Roads that have the potential to impact Ute ladies'-tresses orchids and are not required for routine operations or maintenance of developed projects, or lead to abandoned projects will be reclaimed as directed by the BLM.

21. The BLM will apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any known populations of the orchid. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing populations of the orchid. Operations outside of the 0.25 mile buffer of orchid populations, such as "directional drilling" to reach oil or gas resources underneath the orchid's habitat, would be acceptable.

22. For known Ute ladies'-tresses populations, the BLM will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 miles of known Ute ladies'-tresses populations. For existing oil and gas leases with known Ute ladies'-tresses populations (these would be for newly discovered populations not currently documented), the BLM will require the COA in conservation measure 21 above including the same 0.25 mile buffer area around those known Ute ladies'-tresses populations.

23. The disposal (sale and removal) of salable minerals is a discretionary BLM action and is prohibited within a 0.25 mile buffer area of known populations of Ute ladies'-tresses orchids.

24. To prevent loss of habitat for the orchid, the BLM "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure

adjustments in *known* habitat for the orchid, the BLM will survey to assess the habitat boundary and retain that area in Federal ownership. BLM-administered public lands that contain identified habitat for the orchid will not be exchanged or sold, unless it benefits the species.

25. All proposed rights-of-way projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 miles from any known orchid habitat to minimize disturbances. If avoidance of adverse effects is not possible, the BLM will re-initiate consultation with the USFWS.

26. All proposed projects will be designed and locations selected to minimize disturbances to known Ute ladies'-tresses populations, and if the avoidance of adverse effects is not possible, the BLM will re-initiate consultation with the USFWS. Projects will not be authorized closer than 0.25 miles from any known Ute ladies'-tresses populations without concurrence of the USFWS and the BLM authorized officer. No ground disturbing construction activities will be authorized within 0.25 miles of any known Ute ladies'-tresses populations during the essential growing season time period (from July to September, the growing, flowering and fruiting stages) to reduce impacts to the species.

25. In order to conserve and protect natural areas, planned recreational foot trails are created to control human traffic. The BLM will create programs that will strive to protect the orchid's habitat and prevent new trails from being constructed within 0.25 miles from known occurrences of the orchid.

References

United States Bureau of Land Management. 2005. Final Statewide Programmatic Biological Assessment: Black-footed Ferret (*Mustela nigripes*). Submitted to the U.S. Department of the Interior, Bureau of Land Management. Wyoming State Office. Cheyenne, Wyoming.

United States Bureau of Land Management. 2015. Biological Assessment for the Big Horn Basin Resource Management Plan. Big Horn Basin Field Office.

U.S. Fish and Wildlife Service. 2004. Block clearance letter (ES-61411/BFF/WY7746) indicating that black-footed ferret surveys are no longer required in all black-tailed prairie dog colonies statewide or in white-tailed prairie dog towns except those noted in an attachment. Wyoming Field Office. February.

U.S. Fish and Wildlife Service. 2013. Block clearance letter (FWS/R6) indicating that the requirement to perform black-footed ferret surveys in Wyoming has been alleviated statewide. Region 6 Regional Office. Lakewood, Colorado. March.

APPENDIX 3 – PROPOSED PROTECTIONS FOR THE BIG HORN BASIN RESOURCE MANAGEMENT PLAN

These Proposed Protections were taken from the Big Horn Basin Resource Management Plan (RMP) (BLM 2015) Biological Assessment (BA) (BLM 2015).

Black-footed Ferret Proposed Protections

1. Control surface-disturbing activities to avoid or mitigate adverse effects on about 1,300 BLM-administered surface acres of active prairie dog colonies within the Meeteetse complex. This requirement will remain in effect until completion of a site-specific activity plan being prepared to manage ferrets in this area. The restriction will then be reassessed for its continued appropriateness. This restriction applies to such things as mineral leasing, geophysical exploration (except casual use), and construction activities.

2. If the USFWS and Wyoming Game and Fish Department (WGFD) determine that large prairie dog colonies and/or complexes in the planning area are suitable for black-footed ferret reintroduction, apply a no surface occupancy (NSO) restriction on these areas.

Canada Lynx Proposed Protections

1. Canada lynx analysis units (LAUs) are closed to over-snow travel.

References

United States Bureau of Land Management. 2015. Biological Assessment for the Big Horn Basin Resource Management Plan. Cody and Worland Field Offices.

APPENDIX 4 – BEST MANAGEMENT PRACTICES FOR THE BIG HORN BASIN RESOURCE MANAGEMENT PLAN

These Best Management Practices (BMPs) are taken from the U.S. Bureau of Land Management's (BLM or BLM) Big Horn Basin Resource Management Plan (RMP) Biological Assessment BA (BLM 2015). Implementation of the following best management practices are intended to minimize, or eliminate, adverse impacts to threatened, endangered, candidate, and proposed species that are likely to result from implementation of the management actions provided in the Big Horn Basin RMP. The BLM has been active in conservation of listed and candidate species, and is committed to playing a key role in the recovery effort for these species.

The use of the following recommended Best Management Practices will reduce potential effects to species and their habitats.

Program-specific Best Management Practices

Black-footed Ferret – Best Management Practices

1. Develop prairie dog management plans with ongoing monitoring and protection of prairie dog towns and complexes on towns with high priority for black-footed ferret reintroductions.

2. Follow the guidelines outlined in the Wyoming Black-tailed Prairie Dog Management Plan and the White-tailed Prairie Dog Conservation Assessment (Seglund *et al.* 2004).

3. Establish land stewardship agreements with other agencies and/or private landowners where large (1,000 acres) prairie dog towns or complexes exist. These agreements should manage potential uses that may be detrimental to prairie dogs and their habitats, while preserving the landowner's intent for use.

4. Avoid sale or exchange of lands with potential for black-footed ferret reintroductions and attempt to acquire parcels with suitable prairie dog complexes on them, especially those parcels that could potentially be part of a black-footed ferret reintroduction effort.

5. Initiate, to the extent feasible, land exchanges in the Thunder Basin and Shirley Basin in areas with potential for black-footed ferrets, in order to increase the land area in Federal ownership.

6. Avoid vegetation stand conversions that have been shown to be detrimental to prairie dogs, and reduce or eliminate any other suspected ecosystem-degrading practices.

7. Encourage, support, and/or establish a prairie dog research program, addressing issues such as the effect of recreational shooting and oil and gas development on prairie dogs, sylvatic plague control, and population viability analysis.

8. Because knowledge of the effects of resource extraction on white-tailed prairie dog populations is limited, monitoring at sites before, during, and after energy development is recommended.

Canada lynx – Best Management Practices

1. Design regeneration prescriptions to mimic historical fire (or other natural disturbance) events, including retention of fire-killed dead trees and coarse woody debris.

2 Design harvest units to mimic the pattern and scale of natural disturbances and retain natural connectivity across the landscape. Evaluate the potential of riparian zones, ridges, and saddles to provide connectivity.

3. Provide for continuing availability of foraging habitat in proximity to denning habitat.

4. In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc.). Improvement harvests should be designed to retain and recruit the understory of small-diameter conifers and shrubs preferred by hares; retain and recruit coarse woody debris, consistent with the likely availability of such material under natural disturbance regimes; and maintain or improve the juxtaposition of denning and foraging habitat.

5. Provide habitat conditions through time that support dense horizontal understory cover, and high densities of snowshoe hares. This includes, for example, mature multi-storied conifer vegetation. Focus vegetation management, including timber harvest and use of prescribed fire, in areas that have potential to improve snowshoe hare habitat (dense horizontal cover) but that presently have poorly developed understories that have little value to snowshoe hares.

6. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare and thus regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine).

7. Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.

8. Consider the need for pre-treatment of fuels before conducting management ignitions.

9. Design burn prescriptions and, where feasible, conduct fire suppression actions in a manner that maximizes lynx habitat.

10. Map and monitor the location and intensity of snow-compacting activities (e.g., snowmobiling, snowshoeing, cross-country skiing, dog sledding, etc.) that coincide with lynx habitat, to facilitate future evaluation of effects on lynx as information becomes

available. Discourage recreational use in areas where it is shown to compromise lynx habitat. Such actions should be undertaken on a priority basis considering habitat function and importance.

11. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow-compacting activities are minimized or discouraged.

12. Identify and protect potential security habitats in and around proposed developments or expansions.

13. Determine where high total road densities (more than 2 miles per square mile) coincide with lynx habitat and prioritize roads for seasonal restrictions or reclamation in those areas.

14. Minimize roadside brushing in order to provide snowshoe hare habitat.

15. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.

16 Limit public use on temporary and permanent roads constructed for access to timber sales, mines, and leases. Design new roads, especially the entrance, for effective closure. Upon project completion, reclaim or obliterate these roads.

17 Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.

18 To reduce mistaken shooting of lynx, initiate and/or augment interagency information and education efforts throughout the range of lynx in the contiguous states. Utilize trailhead posters, magazine articles, news releases, state hunting and trapping regulation booklets, etc., to inform the public of the possible presence of lynx, field identification, and their status.

19. Where needed, develop measures such as wildlife fencing and associated underpasses or overpasses to reduce mortality risk.

20. Where feasible within identified key linkage areas, maintain or enhance native plant communities and patterns, and habitat for potential lynx prey. Pursue opportunities for cooperative management with other landowners. Evaluate whether land ownership and management practices are compatible with maintaining lynx highway crossings in key linkage areas. On public lands, management practices will be compatible with providing habitat connectivity. On private lands, agencies will strive to work with landowners to develop conservation easements, exchanges, or other solutions.

21. Dirt and gravel roads t raversing lynx habitat (particularly those that could become particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development orincreases in human activity in lynx habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for such upgrades, a thorough analysis should be conducted on the potential direct and indirect effects to lynx and lynx habitat.

22. In land adjustment programs, identify key linkage areas. Work toward unified management direction via habitat conservation plans, conservation easements or agreements, and land acquisition.

23. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.

24. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts to lynx.

25. Using best available science, develop a plan to protect key linkage areas on Federal lands from activities that would create barriers to movement. Barriers could result from an accumulation of incremental projects, as opposed to any one project.

26. When opportunities for vegetation treatments come up, develop treatments that provide or develop characteristics suitable for snowshoe hare.

27. Protect existing snowshoe hare and red squirrel habitat.

Gray Wolf – Best Management Practices

1. Avoid an increase in miles of road in elk crucial winter range.

2. Avoid situations that allow for wolves to habituate to humans, or become exposed to and use human refuse as a food resource.

3. Foster public outreach/education programs to provide information on wolves in schools, campgrounds, and other places. Topics can include but are not limited to: How to be safe around wolves, wolf ecology, wolf mortality factors, and livestock grazing practices harmful to wolves.

4. Continue to support the research and documentation of wolf/livestock interactions and livestock grazing practices to improve these practices so that they are more compatible with wolves.

5. Continue to provide and improve wolf habitat by monitoring elk populations and improving habitat for elk.

6. Encourage reporting of wolf observations by BLM staff and the public to the WGFD.

Grizzly Bear – Best Management Practices

1. With the intent of reducing potential conflicts between grizzly bears and livestock and the BLM should phase out sheep allotments in occupied grizzly bear habitat as the opportunity arises. Existing sheep allotments in occupied grizzly bear habitat should be monitored and evaluated for conflicts between grizzly bears and sheep. The BLM should offer no new permitted sheep AMUs in grizzly bear habitat where conflicts have occurred in the past, or are likely to occur in the future.

2. The BLM should adjust management of domestic livestock on public land allotments or leases to minimize grizzly bear-livestock conflicts (e.g., season of use, class of livestock, etc.).

3. The BLM should include a clause on all use authorizations that allows for permanent cancellation, temporary cancellation, or temporary cessation of activities if such are needed to resolve a grizzly-human conflict situation.

4. Wherever possible, the BLM should reduce motorized access routes in occupied grizzly bear habitat and will try to avoid authorizing any new motorized access in occupied grizzly bear areas (e.g., big game ranges).

5. Wherever possible, the BLM will implement appropriate closures or seasonal restriction areas to cross-country motorized travel to provide more security in occupied grizzly bear habitat.

6. Where possible, maintain road densities of less than one mile per square mile in occupied grizzly bear habitat. Where existing road densities are currently below 1 mile per square mile, avoid increases in road density to maintain management options and secure habitat. Consider all big game winter range areas as areas where road density objectives are less than 1 mile of road per square mile.

7. The BLM should initiate a habitat mapping and monitoring effort for the grizzly bear. Habitat mapped on BLM lands will be done using Geographic Information System (GIS) technology. Secure habitat, open motorized access route density ([OMAARD] refers to roads that are actively used) greater than 1 mile per square mile, and total motorized access route density ([TMARD], includes all roads, even gated roads) greater than 2 miles per square mile will be monitored utilizing the Yellowstone Grizzly Bear Cumulative Effects Model (CEM) GIS databases and will be reported annually, as described in ICST (2003) and conducted in the Primary Conservation Area (PCA).

8. In areas of vital importance to grizzly bears (e.g., known denning areas, army cutworm moth aggregations, cutthroat trout spawning sites, spring ungulate concentration sites, etc.) activities that adversely affect grizzly bear populations and/or their habitat should be avoided. Adverse habitat effects could result from land surface disturbances; water table alterations; reservoirs, ROWs, roads, pipelines, canals, transmission lines, or other structures; increased human foods; and reduced availability of natural foods. Areas of vital importance to grizzlies are identified through the evaluation process described in the Grizzly Bear Management Guidelines (IGBC 1986).

Ute Ladies'-tresses – Best Management Practices

1. When project proposals are received, the BLM will initiate coordination with the USFWS at the earliest possible date so that both agencies can advise on project design. This should minimize the need to redesign projects at a later date to include orchid conservation measures, determined as appropriate by the USFWS.

2. The BLM will participate in the development of both a conservation agreement/assessment strategy and a species-specific Recovery Plan for the orchid in coordination with the USFWS and other agencies, as appropriate. Orchid habitats on BLM-administered lands will be monitored to determine if recovery and conservation objectives are being met.

3. The BLM will coordinate with the USFWS, the National Resource Conservation Service, and private landowners to ensure adequate protection for the orchid and its habitat when new activities are proposed and to work proactively to enhance the survival of the plant.

4. In the event that a new population of the orchid is found, the USFWS's Wyoming Field Office (307-772-2374) will be notified within 48 hours of discovery.

5. Livestock grazing, mowing and haying, and some burning are specific management tools that the BLM may use to maintain favorable habitat conditions for the orchid where feasible. Mowing and grazing, with proper timing and intensity, reduce the native and exotic plant competition for light and possibly for water, space, and nutrients.

6. Recreational foot trails that may be located adjacent to Ute ladies'-tresses plant habitat should be constructed to reduce impacts to this species.

7. To prevent loss of habitat for the orchid, the BLM "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure adjustments in potential orchid habitats, the BLM will survey to assess the potential for the existence of the orchid. While it is difficult to assess whether the orchid was historically present on such sites, the BLM should try and retain in Federal ownership all habitats essential for the survival and recovery of the orchid, including habitat that was used historically, that has retained its potential to sustain this listed species, and is

deemed to be essential to their survival (BLM 2001). Potential orchid habitat may be used for reintroduction efforts and is important for the recovery and enhancement of the species.

8. Prescribed fire and grazing activities shall be coordinated between biologists, rangeland management specialists, and fire personnel to ensure that no damage occurs to the plant habitat when being used to maintain the habitat for the species.

9. Maintain and restore the dynamics of stream systems, including the movement of streams within their floodplains, which are vital for the life-cycle of the orchid. Flow timing, flow quantity, and water table characteristics should be evaluated to ensure that the riparian system is maintained where these plants occur. The BLM should continue water use in a manner that maintains suitable habitat for the Ute ladies'-tresses orchid to benefit the species.

10. Maintain and restore the natural species composition and structural diversity of plant communities in riparian zones and wetlands.

11. For the protection of Ute ladies'-tresses and its potential habitat, surface-disturbing activities should be avoided in the following areas when they occur outside the protective ¼-mile buffer from known populations: (1) identified 100-year floodplains; (2) areas within 500 feet from perennial waters, springs, wells, and wetlands, and (3) areas within 100 feet from the inner gorge of ephemeral channels.

12. Form a steering committee to develop and prioritize management practices and assist the BLM and the USFWS with research projects.

13. Conduct inventories for the orchid in areas with potential habitat.

14. Maintain a database of all searched, inventoried, or monitored orchid sites.

15. Analyze vegetation treatments (mowing, prescribed fire, mechanical treatments, etc.) in potential habitats for the orchid to determine impacts to the species. The BLM does not currently anticipate that these treatments will ever occur in potential Ute ladies'-tresses habitat. However, if such treatments are proposed, and adverse effects from vegetation treatments are anticipated from such projects, the BLM will reinitiate section 7 consultation.

16. Establish monitoring, biological, ecological, population demographics, and life-history studies as funding and staffing allow, such as monitoring current populations each year for trends, studies regarding identification of pollinators, genetics, life history, effects of pesticides and herbicides, seed viability and germination, and studies regarding monitoring the success of reintroduction efforts. Monitor orchid population sites for invasion by noxious and invasive plant species.

17. Perform monitoring and analysis pertaining to flow timing, flow quantity, and water table characteristics with the goal of ensuring that riparian vegetation in areas of potential habitat for the orchid is maintained.

18. When possible, collect and bank orchid seeds at local, regional, national, and international arboreta, seed banks, and botanical gardens as insurance against catastrophic events, for use in biological studies, and for possible introduction or reintroduction into potential habitat.

19. Train law enforcement personnel on protections for the orchid and its habitat, its status, and current threats to its existence.

20. Educate resource specialists, rangers, and fire crews about the orchid and its habitat to help with project design for the general area and for fire-suppression actions occurring in potential habitat for the orchid and on the habitat characteristics and plant identification for the plant, so that if they encounter the orchid occurring in riparian habitat, they can report it to their office's threatened and endangered species specialist.

21. The BLM should work toward developing reintroduction sites in coordination with the USFWS and to maintain the integrity of these sites for the survival of the orchid. The objective would be to reintroduce populations of the orchid into areas of historic occurrence and introduce new populations in suitable habitat within the plant's historic range.

22. Develop propagation techniques and use them to reintroduce or introduce the orchid and to repopulate known populations in the event population recovery becomes necessary.

References

Interagency Conservation Strategy Team (ICST). 2003. Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area. Website accessed November 2005. http://www.fs.fed.us/r1/wildlife/igbc/ConservationStrategy/replacement_cs.pdf

Interagency Grizzly Bear Committee (IGBC). 1986. Interagency grizzly bear guidelines. U.S. Forest Service, Washington, D.C.

Seglund, A. E., A. E. Ernst, M. Grenier, B. Luce, A. Puchniak, and P. Schnurr. 2004. White-tailed Prairie Dog Conservation Assessment. Jackson, Wyoming.

United States Bureau of Land Management. 2015. Biological Assessment for the Big Horn Basin Resource Management Plan. Cody and Worland Field Offices.

This page intentionally
left blank

Appendix L. Implementation

L.1. General

Implementation of the Bighorn Basin Resource Management Plan (RMP) will require continued involvement of cooperating agencies, both in terms of funding and time, and continued public participation. This appendix describes the basic elements of implementing the Bighorn Basin RMP.

L.2. Implementation Working Group

To ensure overall coordination, Bureau of Land Management (BLM) and the cooperating agencies should meet at least yearly to provide support for the implementation prioritization, review recommendations for changes to implementation strategies and review monitoring evaluation results. This group is called the Implementation Working Group. Implementation Working Groups will serve in a recommending capacity as the BLM cannot relinquish its decision-making authority or responsibility. A single Implementation Working Group may serve both the Worland and Cody field offices, or an Implementation Working Group may be convened for each field office. All Implementation Working Group meetings will be open to the public, and announced on the BLM website.

The Implementation Working Group will ensure implementation is orderly and without duplication or confusion. The Implementation Working Group will look at interdisciplinary and interagency implementation rather than resource-by-resource implementation to make recommendations regarding the best use of funding and personnel from both cooperating agencies and the BLM.

L.3. Implementation Tracking Database

A database has been developed the Worland Field Office to track the budget, monitoring, and implementation actions. Once the database has been populated, it will require continual maintenance and updates to accurately track the implementation process. Information will be collected based on quarterly performance evaluation accomplishment reporting, and complete fiscal year reports will be published with analysis on the BLM website by December 31 of each calendar year.

L.4. Monitoring Working Group

To ensure that monitoring methods are in place, a Monitoring Working Group will be assembled to develop an overall monitoring plan, utilizing existing monitoring information from the various members of the Implementation Working Group. The team's guidance and direction will be provided through Appendix H, *Monitoring and Evaluation* (p. 365). The BLM is responsible to apply monitoring procedures and protocols that are based on BLM policies, field office priorities and available funding. The BLM intends to monitor the implementation of the entire RMP as a separate process from monitoring the impacts. The appropriate field manager will make final decisions on the monitoring plans, monitoring priorities, and whether or not monitoring data collected by other agencies meets the specific needs of the BLM. The BLM Field Manager will

assess the monitoring needs and consider additions or changes proposed by the Monitoring Working Group.

Since some monitoring data is being collected and provided by other federal and state agencies to the extent of their specific missions and expertise, a system will be established to regularly collect and coordinate this data. The team will also be responsible for collecting data to determine if the implemented actions are meeting stated goals and objectives or desired outcomes.

L.5. Activity Plan Working Groups

Activity Plan Working Groups (APWGs) consisting of local, state, and federal governments will be formed for new projects when circumstances dictate. Cooperating agencies in these APWGs will assist the BLM in developing alternatives and preparing environmental analyses. APWGs will serve in a recommending capacity as the BLM cannot relinquish its decision-making authority or responsibility. As an example, travel management plans would be developed with an APWG.

The objectives of APWGs include the following:

- Minimizing analysis and decision making controversy by being proactive rather than reactive to public land use and resource conflicts.
- Providing effective, cost-efficient, and collaboratively-based solutions to resource conflicts.
- Improving resource conditions by recommending practices appropriate to special situations.
- Streamlining public land authorizations, increasing implementation flexibility, and notifying public land users of required practices.
- All APWG meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement. This includes providing web-based information to the public prior to any APWG meetings; such that members of the public can provide input to the working session, both early and mid-way through the scheduled meetings.

L.6. Public Involvement

A website where the public can quickly and easily access data concerning implementation should be developed and kept current. Creating this website and maintaining it through the implementation cycle will be a vital part of implementation success. The public is welcome to provide implementation comments to the BLM any time during the cycle, but schedules for implementation planning decisions will be posted so the public can make timely comments. All APWG meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement. This includes providing web-based information to the public prior to any APWG meetings; such that members of the public can provide input to the working session, both early and mid-way through the scheduled meetings.

Appendix M. Bighorn Basin Air Resource Management Plan

M.1. Introduction

M.1.1. Background

Preparation of the Analysis of the Management Situation in 2008 disclosed monitoring data within and adjacent to the Bighorn Basin Planning Area is limited. Concern arose over the need to establish background concentrations and to have monitoring in place prior to increased development.

The need for establishing background concentrations was not based on concern over existing air quality, but rather to provide adequate monitoring to characterize changes over time. Table M.1, "Applicable National and State Primary Air Quality Standards for Criteria Pollutants and Baseline Representative Concentrations for the Planning Area" (p. 548) is an overview of the applicable primary Wyoming Ambient Air Quality Standards (WAAQS) and National Ambient Air Quality Standards (NAAQS) and baseline representative maximum pollutant concentrations measured in and at sites near the Planning Area. These representative concentrations can be compared with the applicable WAAQS and NAAQS to indicate the status of recent air quality conditions within the Planning Area relative to the standards.

The examination of these data indicates that the current air quality for criteria pollutants in the Planning Area is considered good overall. Based upon measurements taken at the North Absaroka IMPROVE site (Figure M.1, "Visibility – Standard Visual Range (SVR, miles) for the North Absaroka, Wyoming, IMPROVE Site" (p. 549)) and the Cloud Peak IMPROVE site (Figure M.2, "Visibility – Standard Visual Range (SVR, miles) for the Cloud Peak, Wyoming, IMPROVE Site" (p. 549)), visibility in the Planning Area is considered excellent.

To address the monitoring data limitation at the land use planning level, the BLM and cooperating agencies developed Management Action 1002 to establish a monitoring network to provide additional data for describing background concentrations.

The Bureau of Land Management (BLM) established a monitoring site approximately 25 miles north of Worland in Big Horn County, known as the Basin site. The purpose of this station is to provide a general indicator of existing air quality and long term trends in air quality but is not intended for NAAQS compliance.

The emissions projected in the emissions calculations in Appendix U of the Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement (EIS) (available on the Bighorn Basin RMP website) have potential to negatively impact visibility and air quality in Bridger, Fitzpatrick, North Absaroka, and Washakie Wilderness Areas and Yellowstone National Park depending upon the temporal and spatial distribution of development. This emission inventory was compiled for the Planning Area to determine the relative magnitude of total air pollutant emissions to compare emissions and associated impacts between the alternatives. The estimated levels of emissions for each alternative are summarized in Table M.2, "Total Annual Emissions Summary for BLM Activities within the Bighorn Basin Planning Area" (p. 550). Projected emissions are similar to those of the base year, 2008, as shown in

Table M.2, "Total Annual Emissions Summary for BLM Activities within the Bighorn Basin Planning Area" (p. 550) and Table M.3, "Percent Change in Emissions Compared to Base Year 2008" (p. 550). The emission inventory also revealed that emissions would primarily result from mineral development and production.

Table M.1. Applicable National and State Primary Air Quality Standards for Criteria Pollutants and Baseline Representative Concentrations for the Planning Area

Pollutant	Averaging Time	NAAQS			WAAQS			Representative Concentrations		
		(ppm)	(ppb)	(µg/m³)	(ppm)	(ppb)	(µg/m³)	(ppm)	(ppb)	(µg/m³)
Carbon Monoxide	1 hour[1]	35	35,000	40,000	35	35,000	40,000	1.7	1,730	1,979
	8 hour[1]	9	9,000	10,000	9	9,000	10,000	0.8	814	931
Nitrogen Dioxide	1 hour [2]	0.10	100	189	0.10	100	189	0.014	14	26.4
	Annual[3] (Arithmetic Mean)	0.053	53	100	0.053	53	100	0.00168	1.68	2.9
Ozone	8 hour[4]	0.075	75	147	0.075	75	147	0.062	62	121
PM_{10}	24 hour[5]	N/A	N/A	150	N/A	N/A	150	N/A	N/A	78
	Annual[6]	N/A	N/A	N/A	N/A	N/A	50	N/A	N/A	11
$PM_{2.5}$	24 hour[7]	N/A	N/A	35	N/A	N/A	35	N/A	N/A	5.0
	Annual[8]	N/A	N/A	12	N/A	N/A	15	N/A	N/A	1.8
Sulfur Dioxide[10]	1 hour[9]	0.075	75	197	0.075	75	197	0.033	33	86

[1]Not to be exceeded more than once per year. Data collected at Yellowstone National Park during 2005.
[2]To attain this standard, the 3-year average of the 98th percentile of 1-hour concentrations at each monitor within an area must not exceed 100 ppb. Thunder Basin data, 2009.
[3]Thunder Basin annual average for 2009.
[4]To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 75 ppb. Measured fourth highest concentration for 2009 for the Thunder Basin site.
[5]Not to be exceeded more than once per year on average over 3 years. Maximum 24-hour average for 2009 at Cody SLAMS site.
[6]Annual average for 2009 for Cody SLAMS site.
[7]To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor in an area must not exceed 35 µg/m³. Maximum 24-hour average for 2009 for the North Absaroka IMPROVE site.
[8]To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 12.0 µg/m³. Annual average for 2009 for the North Absaroka site.
[9]To attain this standard, the 3-year average of the 98th percentile of 1-hour concentrations at each monitor within an area must not exceed 75 ppb.
[10]The SO_2 value is from the Wyoming DEQ Casper monitor, located in Natrona County and is the 3-year average of the 98th percentile of 1-hour concentrations measured for 2011, 2012, and 2013. Although not located in the Bighorn Basin, this is the closest monitor with available recent data.

µg/m³ micrograms per cubic meter
N/A Not Applicable
NAAQS National Ambient Air Quality Standards
$PM_{2.5}$ particulate matter less than 2.5 microns in diameter
PM_{10} particulate matter less than 10 microns in diameter
ppb parts per billion
ppm parts per million
SLAMS State and Local Air Monitoring Site
WAAQS Wyoming Ambient Air Quality Standards

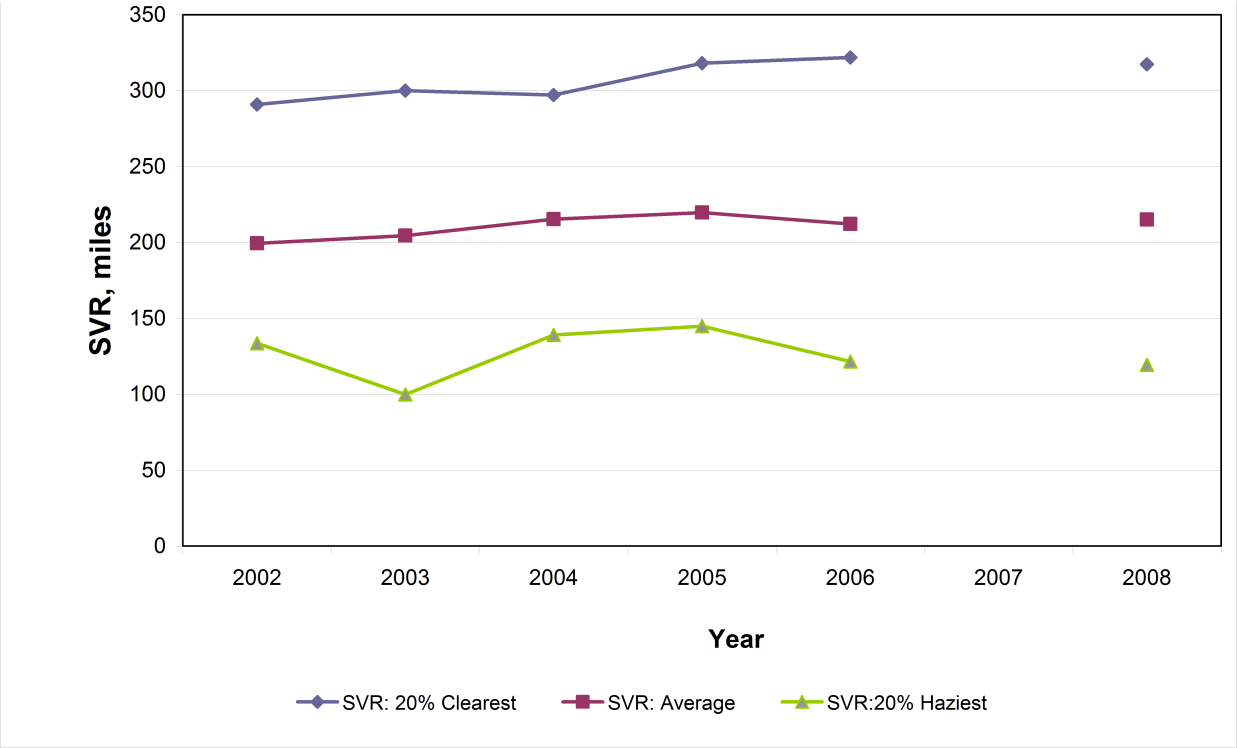


Figure M.1. Visibility – Standard Visual Range (SVR, miles) for the North Absaroka, Wyoming, IMPROVE Site

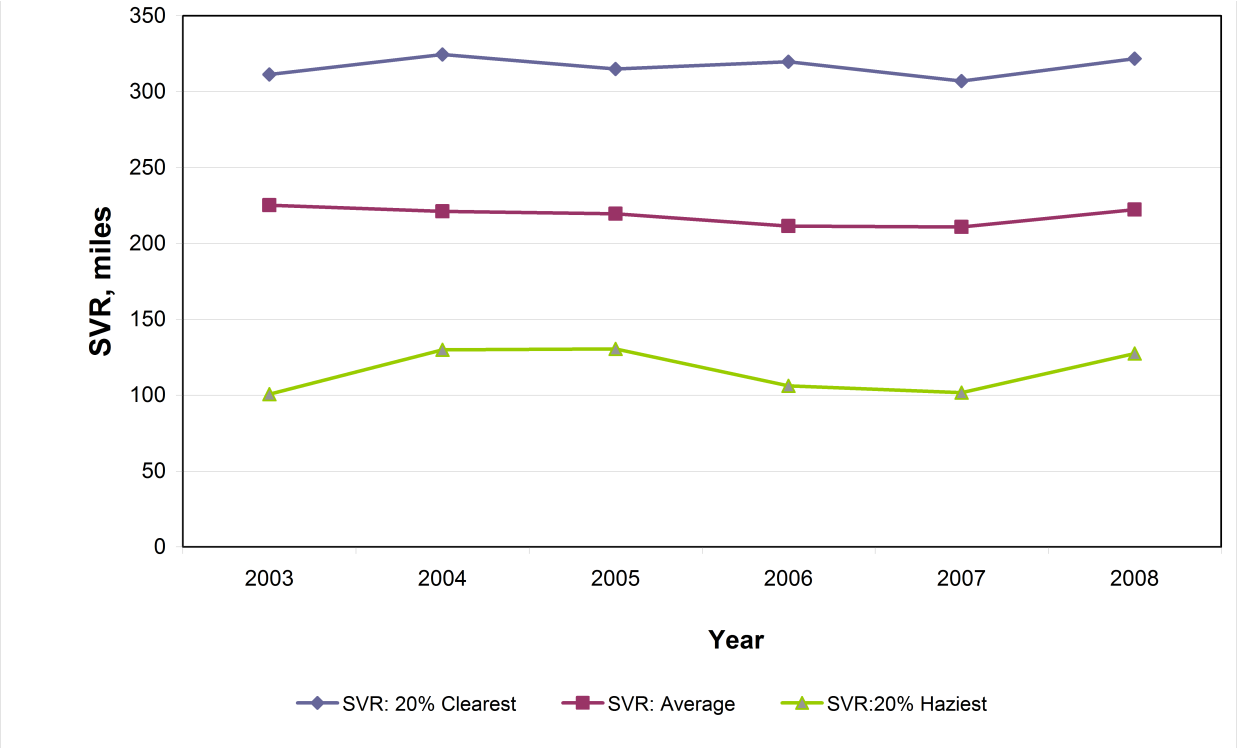


Figure M.2. Visibility – Standard Visual Range (SVR, miles) for the Cloud Peak, Wyoming, IMPROVE Site

Table M.2. Total Annual Emissions Summary for BLM Activities within the Bighorn Basin Planning Area

Summary Year	Emissions (tons per year)						
	PM_{10}	$PM_{2.5}$	NO_x	SO_2	CO	VOC	HAP
2018 Total	4,056	697	709	29	4,458	1,627	89
2027 Total	3,973	679	744	30	4,234	1,390	95

BLM Bureau of Land Management
CO carbon monoxide
HAP hazardous air pollutant
NO_x nitrogen oxides
$PM_{2.5}$ particulate matter less than 2.5 microns in diameter
PM_{10} particulate matter less than 10 microns in diameter
SO_x sulfur oxides
VOC volatile organic compound

Table M.3. Percent Change in Emissions Compared to Base Year 2008

Summary Year	Percent Change in Emissions (tons per year)						
	PM_{10}	$PM_{2.5}$	NO_x	SO_2	CO	VOC	HAP
2018 Total	5%	4%	-2%	4%	4%	-11%	5%

% percent
CO carbon monoxide
HAP hazardous air pollutant
NO_x nitrogen oxides
$PM_{2.5}$ particulate matter less than 2.5 microns in diameter
PM_{10} particulate matter less than 10 microns in diameter
SO_x sulfur oxides
VOC volatile organic compound

In June 2011, Memorandum of Understanding among the U.S. Department of Agriculture, U.S. Department of Interior and U.S. Environmental Protection Agency Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process (MOU) was signed. This MOU outlines how to protect air quality and air quality related values, such as visibility and Class I areas, while allowing for oil and gas development on federally managed lands.

The Environmental Protection Agency's (EPA) comments on the Draft Resource Management Plan (RMP) and Draft Environmental Impact Statement (EIS), included "the EPA believes that the 'level of concern' that would warrant modeling under Management Action 1005 (contained in the Draft RMP) has already been reached." This concern is based on the level of emissions from existing activity disclosed in the Draft EIS and the proximity of proposed leasing areas to five Federal Class I areas, including Bridger, Fitzpatrick, North Absaroka, and Washakie Wilderness Areas and Yellowstone National Park.

Emissions from future activities have potential to negatively impact visibility and air quality in the Class I areas depending upon the temporal and spatial distribution of development.

M.1.2. Purpose

The purpose of this Air Resources Management Plan (ARMP) is to further clarify Physical Resources – Air Quality goals, objectives, and management actions set forth in Table 3.2, "1000 PHYSICAL RESOURCES (PR) – Air Quality" (p. 50). This ARMP describes air resources management; authorization of activities that have the potential to adversely impact air resources within the Planning Area; acknowledges areas where data is incomplete or difficult to obtain; sets a plan to obtain additional information; and outlines specific informational requirements and mitigation measures that may apply to projects that have the potential to generate air emissions and adversely affect air resources in the Planning Area.

This ARMP may be modified as necessary to comply with law, regulation, and policy and to address new information and changing circumstances. Amendment of the RMP is necessary to change the goals, objectives or management actions set forth in Table 3.2, "1000 PHYSICAL RESOURCES (PR) – Air Quality" (p. 50) while change to implementation, including this ARMP, may be made without Amending the RMP.

M.1.3. Characterization of Air Resources in the Environmental Impact Statement

M.1.3.1. Emissions Inventory for Land Use Planning

An air emissions inventory was compiled for the Planning Area to determine the relative magnitude of total air pollutant emissions and to compare emissions between alternatives. This emissions inventory is summarized in Appendix U of the Bighorn Basin Proposed RMP and Final Environmental Impact Statement (EIS) (available on the Bighorn Basin RMP website). Emissions were calculated using assumptions about the likelihood of potential future activities occurring under each alternative which are found in Appendix T of the Bighorn Basin Proposed RMP and Final EIS (available on the Bighorn Basin RMP website). As a result, the compiled air emissions inventory represents a comparison of emissions of air pollutants based on best available but speculative information for future development projections.

The emissions inventory is valuable for contrasting the impact of land use allocations on air resources among alternatives and useful for identifying those activities that are likely to be major contributors of emissions.

The air emissions inventory supports two major conclusions: 1) there is not a substantial difference in total air emissions among alternatives (Table 4-2 of the Bighorn Basin Proposed RMP and Final EIS), and 2) oil and gas development activities and mining are major contributors to air emissions.

M.1.3.2. Class I Areas

Class I areas in or near the Planning Area are Yellowstone National Park, North Absaroka Wilderness Area, Washakie Wilderness Area, Fitzpatrick Wilderness Area, and Bridger Wilderness Area. Visibility estimates for the North Absaroka site (western boundary of the Planning Area) and the Cloud Peak site (eastern boundary of the Planning Area) are shown in Figures 3-12 and 3-13 of the Final EIS, respectively. The data from these two monitoring locations indicate excellent visibility.

M.2. Air Resources Management Plan

M.2.1. Resource Inventory and Characterization

A characterization of air quality conditions in Class I areas in the vicinity of the Planning Area will be conducted to measure progress towards meeting the Air Quality goals and objectives (Table 3.2, "1000 PHYSICAL RESOURCES (PR) – Air Quality" (p. 50)). BLM will conduct this characterization in partnership with federal and state agencies with responsibility for

managing air quality in Class I areas, including the Wyoming Department of Environmental Quality (DEQ), EPA, Forest Service and National Park Service, as soon as possible subject to funding and staffing levels.

This Class I area characterization will consist of two separate parts. Part I will be compilation of existing air quality data on the Class I area as provided and analyzed by partnering agencies. Part II will consist of a regional modeling analysis to characterize air quality in the Class I areas listed in Section M.1.1, "Background" (p. 547). This modeling would be conducted either 1) as part of a specific development project air impact analysis being conducted by BLM for a NEPA analysis or 2) as part of an interagency regional modeling analysis that includes the Planning Area. With this modeling, the BLM could effectively predict direct Bighorn Basin emissions impacts to nearby Class I areas. Information from other modeling efforts and monitoring data will also be used to inform the Class I characterization. Details of this modeling are presented in Section M.2.4, "Modeling" (p. 554).

Until such time as both parts of the Class I characterization are completed Applications for Permit to Drill (APDs), field development proposals, and mining plans of operation, will include an emissions inventory. The emissions inventory will quantify emissions of regulated air pollutants from all sources related to the proposed project, emissions impacting Class I areas, including fugitive emissions and greenhouse gas emissions, estimated for each year for the life of the project. Additional information on permitting and emission inventories is provided in Section M.2.2, "Permitting" (p. 552) and Section M.2.5, "Mitigation" (p. 554).

Based upon the findings of the Class I characterization, and as provided for by law and consistent with lease rights and obligations, BLM will ensure implementation of reasonable mitigation, control measures and design features through appropriate mechanisms, which may include lease stipulations and conditions of approval, notices to lessees, and permit terms and conditions (see Section M.2.2, "Permitting" (p. 552) and Section M.2.5, "Mitigation" (p. 554).

M.2.2. Permitting

The BLM has the authority and responsibility under the Federal Land Policy and Management Act to manage public lands in a manner that will protect the quality of air and atmospheric values. Therefore, BLM may manage the pace, place, density, and intensity of leasing and development to meet air quality goals.

The BLM will, prior to authorization, consider the magnitude of potential air emissions from the project or activity, existing air quality conditions, proximity to Class I areas, and issues identified during project scoping to identify pollutants of concern and to determine the appropriate level of air analysis to be conducted for the project.

The BLM will require an emissions inventory, as set forth in the MOU. The MOU states "As early as possible in its planning process, the Lead Agency will identify the reasonably foreseeable number of oil or gas wells that can be expressed as a range, expected to be located within the Bighorn Basin Planning Area. Existing reasonably foreseeable development scenarios can be used to identify the number of wells." The BLM may require an emissions inventory for mineral development projects (such as mining operations and individual applications for permit to drill) and may require project specific air quality modeling (see Management Action 1006) depending on project characteristics, proximity to a federally mandated Class I area, sensitive Class II area, or population center, location within a non-attainment or maintenance area, meteorological

or geographic conditions, existing air quality conditions, magnitude of existing development in the area, or issues identified during project scoping. The emissions inventory will quantify emissions of regulated air pollutants from all sources related to the proposed project, emissions impacting Class I areas, including fugitive emissions and greenhouse gas emissions, estimated for each year for the life of the project. BLM will use this estimated emissions inventory to identify pollutants of concern and to determine the appropriate level of air analysis to be conducted for the proposed project. This information will inform monitoring (see Section M.2.3, "Monitoring" (p. 553)), modeling (see Section M.2.4, "Modeling" (p. 554)) and mitigation (see Section M.2.5, "Mitigation" (p. 554)).

The BLM has the responsibility to implement the decisions of the RMP in a manner that protects air quality. BLM also must recognize valid and existing leasing rights. The BLM can require specific actions and measures necessary to protect air quality in response to adverse impacts at the project permitting stage (Management Action 1003).

BLM will consider applying mitigation to emissions sources not otherwise regulated by Wyoming DEQ for mineral development projects where an air quality impact analysis determines there are or will likely be future impacts above acceptable levels, including impacts to Class I areas. Mitigation may include reduction in the pace or scale of development.

Until such time as both phases of the Class I area characterization are completed, the BLM will require the following in addition to those items listed above:

1. The proponent of a project will be required to minimize air pollutant emissions by complying with all applicable state and federal regulations (including application of best available control technology) and may be required to apply mitigation such as best management practices, and other control technologies or strategies identified by the BLM or Wyoming DEQ in accordance with delegated regulatory authority.

2. The proponent of a mineral development project that has the potential to emit any regulated air pollutant will be required to provide a detailed description of operator committed measures to reduce project related air pollutant emissions including greenhouse gases and fugitive dust. Project proponents for oil and gas development projects should refer to Table M.4, "Sample Emission Reduction Strategies for Oil and Gas Development" (p. 556) as a reference for potential mitigation technologies and strategies. The list is not intended to preclude the use of other effective air pollution control technologies that may be proposed. Details of the mitigation measure would be submitted by the applicant and enforced as a condition of the BLM-issued authorization.

3. The BLM may require the proponent of other projects to comply with measures 1 and 2 above, depending on project characteristics, proximity to a federally mandated Class I area, sensitive Class II area, or population centers, location within a non-attainment or maintenance area, meteorological or geographic conditions, existing air quality conditions, magnitude of existing development in the area, or issues identified during project scoping.

M.2.3. Monitoring

As part of a comprehensive air management plan for the Planning Area, BLM will work cooperatively with federal and state agencies with responsibility for managing air resources to determine, characterize, and track air resource conditions. (Management Action 1004).

The BLM may require project proponents to conduct air monitoring. The requirement for monitoring will be based on the absence of existing monitoring; existing air quality conditions; magnitude of potential air emissions from the project or activity; magnitude of existing emission sources in the area; proximity to a federally mandated Class I area, sensitive Class II area, or population center; location within a non-attainment or maintenance area; meteorological or geographic conditions; project duration; or issues identified during project scoping. The project proponent will be responsible for siting, installing, operating, and maintaining any required air monitoring.

The BLM will support and participate in regional monitoring efforts to meet Management Action 1002 which reads as follows:

"Define a criteria pollutant and air quality related values monitoring strategy and cooperatively establish a monitoring network by creating a method for siting air quality monitors in order to provide additional data for describing background concentrations."

M.2.4. Modeling

Air dispersion and photochemical grid models are useful tools for predicting project specific impacts to air quality, predicting the potential effectiveness of control measures and strategies, and for predicting trends in regional concentrations of some air pollutants.

BLM may require project proponents to conduct air quality modeling based on the absence of sufficient data to ensure compliance with laws regulations or to determine the effectiveness of mitigation options. The requirement for modeling will follow the MOU and will be based on existing air quality conditions; magnitude of potential air emissions from the project or activity; magnitude of existing emission sources in the area; proximity to a federally mandated Class I area, sensitive Class II area, an area expected to exceed a NAAQS or PSD increment or population center; location within a non-attainment or maintenance area; meteorological or geographic conditions; project duration; or issues identified during project scoping (Management Action 1006).

BLM will support and participate in regional modeling efforts through multi-state and/or multi-agency organizations such as Western Governors' Association – Western Regional Air Partnership (WRAP), the Federal Leadership Forum (FLF), and Wyoming DEQ's Ozone Technical Forum (OTF). If results from an interagency, regional modeling study are used to evaluate impacts within the Bighorn Basin, BLM will ensure that direct emissions from BLM's management actions within the region are included in the study. This model would predict direct Bighorn Basin emissions impacts to nearby Class I areas and would satisfy the Air Resources Management Plan Class I Characterization part II as set forth in Section M.2.1, "Resource Inventory and Characterization" (p. 551), above.

M.2.5. Mitigation

Many of the activities that BLM authorizes, permits, or allows generate air pollutant emissions that have the potential to adversely impact air quality. The primary mechanism to reduce air quality impacts is to reduce emissions (mitigation).

BLM will require additional air emission control measures and strategies within its regulatory authority and in consultation with federal and state agencies with responsibility for managing air

resources if proposed or committed measures are insufficient to achieve air quality goals (Goal PR: 1 and Goal PR: 2) and objectives (PR:1.1, PR:1.2, PR:2.1, PR2.2) and Management Action 1003.

The proponent of a project will be required to minimize air pollutant emissions by complying with all applicable state and federal regulations (including application of best available control technology) and may be required to apply mitigation including but not limited to best management practices, and other control technologies or strategies identified by the BLM or Wyoming DEQ in accordance with delegated regulatory authority (Management Action 1003).

The proponent of a project will demonstrate regard for air resources and will demonstrate consideration of measures to reduce emissions to achieve Management Action 1003. A project proponent will be required to identify operator-committed measures in its proposal. Example, mitigation strategies for oil and gas development activities are presented in Table M.4, "Sample Emission Reduction Strategies for Oil and Gas Development" (p. 556).

Development and implementation of appropriate protection measures is most effective at the project approval stage, because the proposed action has been defined in terms of temporal and spatial characteristics as well as development processes and procedures. This better defined information allows more precise identification of impacts to air quality which results in more specific impact analysis, and identification of effective mitigation. As part of the project approval process, the BLM will identify project-specific measures in response to identified impacts to air resources.

M.2.6. Contingency Plans

The BLM may require project proponents to submit a contingency plan that provides a strategy for reduction in emissions should observed effects or modeled impacts show state or federal standards or applicable thresholds for air quality related values may be exceeded. Specific operations and pollutants to be addressed in the contingency plan will be determined by BLM on a case-by-case basis taking into account existing air quality and pollutants emitted by the project. This is to ensure conformance with air quality goals and objectives.

If observed effects or modeled impacts show state or federal regulatory standards or applicable thresholds for air quality related values may be exceeded, BLM may require mitigation measures to comply with such standards. Mitigation may include management of the pace, place, density and intensity of development or require smaller emission projects to demonstrate compliance with standards or applicable thresholds through quantitative air quality analysis. This is to ensure conformance with the air quality goals and objectives in Table 3.2, "1000 PHYSICAL RESOURCES (PR) – Air Quality" (p. 50).

Table M.4. Sample Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Control Strategies for Drilling and Compression			
Directional Drilling.	Reduces construction related emissions (dust and vehicle and construction equipment emissions). Decreases surface disturbance and vegetation impacts (dust and CO_2 and nitrogen flux). Reduces habitat fragmentation.	Could result in higher air impacts in one area with longer sustained drilling times.	Depends on geological strata.
Improved engine technology (Tier 2 or better) for diesel drill rig engines.	Reduced NO_x, PM, CO, and VOC emissions.		Dependent on availability of technology from engine manufacturers.
Selective Catalytic Reduction (SCR) for drill rig engines and/or compressors.	NO_x emissions reduction, potential decreased formation of visibility impairing compounds and ozone. NO_x control efficiency of 95% achieved on drill rig engines. NO_x emission rate of 0.1 g/hp-hr achieved for compressors.	Potential NH_3 emissions and formation of visibility impairing ammonium sulfate. Regeneration/disposal of catalyst can produce hazardous waste.	Not applicable to 2-stroke engines.
Non-selective catalytic reduction (NSCR) for drill rig engines and/or compressors.	NO_x emissions reduction, potential decreased formation of visibility impairing compounds, and ozone. NO_x control efficiency of 80-90% achieved for drill rig engines. NO_x emission rate of 0.7 g/hp-hr achieved for compressor engines greater than 100 hp.	Regeneration/disposal of catalysts can produce hazardous waste.	Not applicable to lean burn or 2-stroke engines.
Natural Gas fired drill rig engines.	NO_x emissions reduction, potential decreased formation of visibility impairing compounds, and ozone.		Requires onsite processing of field gas.
Electrification of compressors.	Decreased emissions at the source. Transfers emissions to more efficiently controlled source (i.e., electric generating unit).	Displaces emissions to electric generating unit.	Depends on availability of power and transmission lines.
Improved engine technology (Tier 2 or better) for all mobile and non-road diesel engines.	Reduced NO_x, PM, CO, and VOC emissions.		Dependent on availability of technology from engine manufacturers.

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Green (a.k.a. closed loop or flareless) completions.	Reduction in VOC and CH_4 emissions. Reduces or eliminate flaring and venting and associated emissions. Reduces or eliminates open pits and associated evaporative emissions. Increased recovery of gas to pipeline rather than atmosphere.	Temporary increase in truck traffic and associated emissions.	Need adequate pressure and flow. Need onsite infrastructure (tanks/dehydrator). Availability of sales line. Green completion permits required by WY BACT in some areas.
Green workovers	Same as above.	Same as above.	Same as above.
Minimize/eliminate venting and/or use closed loop process where possible during "blow downs".	Same as above.		Best Management Practices required by WY BACT.
Reclaim/remediate existing open pits, no new open pits.	Reduces VOC and GHG emissions. Reduces potential for soil and water contamination. Reduces odors.	May increase truck traffic and associated emissions.	Requires tank and/or pipeline infrastructure.
Electrification of wellhead compression/pumping.	Reduces local emissions of fossil fuel combustion and transfers to more easily controlled source.	Displaces emissions to electric generating unit.	Depends on availability of power and transmission lines.
Wind (or other renewable) generated power for compressors.	Low or no emissions.	May require construction of infrastructure. Visual impacts. Potential wildlife impacts.	Depends on availability of power and transmission lines.
Control Strategies Utilizing Centralized Systems			
Centralization (or consolidation) of gas processing facilities (separation, dehydration, sweetening, etc.).	Reduces vehicle miles traveled (truck traffic) and associated emissions. Reduced VOC and GHG emissions from individual dehy/separator units.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure.
Liquids Gathering systems (for condensate and produced water).	Reduces vehicle miles traveled and associated emissions. Reduced VOC and GHG emissions from tanks, truck loading/unloading, and multiple production facilities.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure.
Water and/or fracturing liquids delivery system.	Reduced long term truck traffic and associated emissions.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure. Not feasible for some terrain.
Control Strategies for Tanks, Separators, and Dehydrators			
Eliminate use of open top tanks.	Reduced VOC and GHG emissions.		Required by WY BACT for produced water tanks in some areas.

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Capture and control of flashing emissions from all storage tanks and separation vessels with vapor recovery and/or thermal combustion units.	Reduces VOC and GHG emissions.	Pressure build up on older tanks can lead to uncontrolled rupture.	98% VOC control if ≥ 10 TPY required statewide by WY BACT.
Capture and control of produced water tank emissions.	Reduces VOC and GHG emissions.		98% VOC control and no open top tanks required by WY DEQ in some areas.
Capture and control of dehydration equipment emissions with condensors, vapor recovery, and/or thermal combustion.	Reduces VOC, HAP, and GHG emissions.		Still vent condensors required and 98% VOC control if ≥ 8 TPY required statewide and in CDA by WY BACT. All dehy emissions controlled at 98% in JPAD (no 8 TPY threshold).
Control Strategies for Misc. Fugitive VOC Emissions			
Install and maintain low VOC emitting seals, valves, hatches on production equipment.	Reduces VOC and GHG emissions.		
Initiate an equipment leak detection and repair program (including use of FLIR cameras, grab samples, organic vapor detection devices, visual inspection, etc.).	Reduction in VOC and GHG emissions.		
Install or convert gas operated pneumatic devices to electric, solar, or instrument (or compressed) air driven devices/controllers.	Reduces VOC and GHG emissions.	Electric or compressed air driven operations can displace or increase combustion emissions.	
Use "low" or "no bleed" gas operated pneumatic devices/controllers.	Reduces VOC and GHG emissions.		or closed loop required statewide by WY BACT.
Use closed loop system or thermal combustion for gas operated pneumatic pump emissions.	Reduces VOC and GHG emissions.		Required statewide by WY BACT (98% VOC control or closed loop).
Install or convert gas operated pneumatic pumps to electric, solar, or instrument (or compressed) air driven pumps.	Reduces VOC and GHG emissions.	Electric or compressed air driven operations can displace or increase combustion emissions.	Required statewide by WY BACT if no thermal combustion used.
Install vapor recovery on truck loading/unloading operations at tanks.	Reduces emissions of VOC and GHG emissions.	Pressure build up on older tanks can lead to uncontrolled rupture.	WY BACT analysis required if VOC ≥ 8 TPY or HAP≥ 5 TPY.
Control Strategies for Fugitive Dust and Vehicle Emissions			
Unpaved surface treatments including watering, chemical suppressants, and gravel.	20% - 80% control of fugitive dust (particulates) from vehicle traffic.	Potential impacts to water and vegetation from runoff of suppressants.	

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Use remote telemetry and automation of wellhead equipment.	Reduces vehicle traffic and associated emissions.		
Speed limit control and enforcement on unpaved roads.	Reduction of fugitive dust emissions.		
Reduce commuter vehicle trips through car pools, commuter vans or buses, innovative work schedules, or work camps.	Reduced combustion emissions, reduced fugitive dust emissions, reduced ozone formation, reduced impacts to visibility.		
Miscellaneous Control Strategies			
Use of ultra-low sulfur diesel in engines, compressors, construction equipment, etc.	Reduces emissions of particulates and sulfates.		Fuel not readily available in some areas.
Reduce unnecessary vehicle idling.	Reduced combustion emissions, reduced ozone formation, reduced impacts to visibility, reduced fuel consumption.		
Reduced pace of (phased) development.	Peak emissions of all pollutants reduced.	Emissions generated at a lower rate but for a longer period. Local oversight program, duration of impacts is longer.	May not be economically viable or feasible if multiple mineral interests.

BACT Best Available Control Technology
CH_4 Methane
CO Carbon Monoxide
DEQ Department of Environmental Quality
EGHG Greenhouse Gas
HAP Hazardous Air Pollutant
NH_3 Ammonia
NO_X Nitrogen Oxide
PM Particulate Matter
SCR Selective Catalytic Reduction
TPY Tons per year
VOC Volatile Organic Compound
WY Wyoming

This page intentionally
left blank

Appendix N. Seasonal Raptor Stipulations for All Surface-Disturbing and Disruptive Activities

Many raptors are sensitive to disturbance during the breeding and nesting season. Such disturbance may result in take. The United States Fish and Wildlife Service recommend spatial and seasonal buffer zones to avoid or minimize disturbance and the risk of take. Seasonal restrictions and spatial buffers are outlined in the table below. These seasonal restrictions may be modified on a site-specific or project-specific basis based on field observations and local conditions. Included in this appendix is information on raptor nesting periods and spatial buffers (Table N.1, "Seasonal Restrictions and Spatial Buffers" (p. 561)).

Table N.1. Seasonal Restrictions and Spatial Buffers

Common Name	Period of Seasonal Restriction	Spatial Buffer Radius (TLS)[1,2]
American Kestrel	April 1 – August 15	¼-mile
Bald Eagle	January 1 – August 15	½-mile
Boreal Owl	February 1 – July 31	¼-mile
Burrowing Owl	April 1 – September 15	¼-mile
Common Barn Owl	February 1 – September 15	¼-mile
Cooper's Hawk	March 15 – August 31	¼-mile
Eastern Screech-owl	March 1 – August 15	¼-mile
Ferruginous Hawk	March 15 – July 31	1-mile
Golden Eagle	January 15 – July 31	½-mile
Great Gray Owl	March 15 – August 31	¼-mile
Great Horned Owl	December 1 – September 30	¼-mile
Long-eared Owl	February 1 – August 15	¼-mile
Merlin	April 1 – August 15	½-mile
Northern Goshawk	April 1 – August 15	½-mile
Northern Harrier	April 1 – August 15	¼-mile
Northern Pygmy-Owl	April 1 – August 1	¼-mile
Northern Saw-whet Owl	March 1 – August 31	¼-mile
Osprey	April 1 – August 31	¼-mile
Peregrine Falcon	March 1 – August 15	½-mile
Prairie Falcon	March 1 – August 15	½-mile
Red-tailed Hawk	February 1 – August 15	¼-mile
Sharp-shinned Hawk	March 15 – August 31	¼-mile
Short-eared Owl	March 15 – August 1	¼-mile
Swainson's Hawk	April 1 – August 31	¼-mile
Western Screech-owl	March 1 – August 15	¼-mile

[1]Timing Limitation Stipulation (TLS)
[2]To protect the actual nest site, a year-round Controlled Surface Use (CSU) stipulation will be applied within a ¼-mile radius of all raptor nests.

This page intentionally
left blank

Appendix O. Livestock Grazing

This appendix consists of three tables that provide detailed information on grazing allotments in the planning area. Table O.1, "Current Livestock Grazing Allotment Information" (p. 563) summarizes basic characteristics of each grazing allotment, including current size, management, and use. Table O.2, "Standards and Guidelines Summary of Grazing Allotments" (p. 573) summarizes the results of the most recent assessment of the *Wyoming Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management* for each grazing allotment. Table O.3, "Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas" (p. 577) lists grazing allotments that are wholly or partially within Greater Sage-Grouse Priority Habitat Management Areas, and identifies the current management category for each. The information portrayed within the appendix is subject to changes or updates as necessary. Changes or updates would be in response to allotment monitoring, Rangeland Health determinations and/or environmental analysis.

Table O.1. Current Livestock Grazing Allotment Information

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00001	Manderson Group	I	9,039	779	Cattle
00002	Weber Lower	I	32,156	2,762	Cattle
00003	Cold Springs	I	4,510	696	Cattle/Horses
00004	Gapen Hyatt	I	10,032	751	Cattle
00005	Southside Group	I	29,412	3,151	Cattle/Horses
00006	Sand Creek Group	I	7,874	713	Cattle
00007	Worland Cattle Group	I	13,241	1,110	Cattle
00008	Castle Gardens	M	17,887	3,495	Cattle
00009	Kimball	I	6,909	811	Cattle/Sheep
00010	Gordon	M	3,209	863	Cattle
00011	Joe Henry	I	7,000	1,301	Cattle/Sheep
00012	Big Trails Group	M	24,356	5,309	Cattle
00014	Mileski Badlands	I	8,988	825	Cattle
00015	Lower Nowater	I	5,620	577	Cattle
00016	Badlands	I	8,332	659	Sheep
00017	Billy Creek	M	240	80	Sheep
00018	Upper Nowater	I	5,650	577	Cattle
00019	Double H	I	5,133	1,071	Cattle/Horses
00021	Little Cottonwood	I	2,560	283	Cattle
00022	South Brokenback	I	599	48	Cattle
00023	Leikham	I	1,760	175	Cattle
00024	Beckley	I	2,130	485	Cattle/Sheep
00025	Nowood Individual	I	800	71	Cattle
00026	Cottonwood Draw	I	1,575	139	Cattle
00028	Upper Nowood	C	60	15	Cattle
00029	West Lost Creek	M	80	20	Cattle
00030	Big Cottonwood	I	5,055	366	Cattle
00031	Brokenback	I	10,669	1,468	Cattle/Horses
00032	Hidden Dome	I	8,565	718	Cattle
00033	Alkali	I	3,008	264	Cattle/Horses
00034	Rattlesnake Ridge	I	11,885	1,243	Sheep
00035	Buffalo Canyon	I	3,463	719	Cattle

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00036	Manderson	C	8,805	814	Cattle/Sheep
00037	North Butte	I	1,850	139	Cattle
00039	Warner Draw	C	800	58	Cattle
00041	Fatty Allen	I	1,380	166	Cattle
00042	East Fork	I	8,888	900	Cattle
00043	North Tensleep	M	1,101	100	Cattle/Horses
00044	South Tensleep	M	400	49	Cattle/Horses
00045	South Pasture	I	280	67	Cattle
00046	Sand Springs	I	1,240	160	Cattle
00047	Hyattville Individual	I	2,400	210	Cattle
00048	Neiber	I	17,055	1,860	Cattle
00049	Murphy Dome	I	2,540	423	Cattle
00050	Mud Creek	I	1,130	170	Cattle
00051	Farley	I	400	80	Cattle
00052	Prevo Individual	C	250	25	Sheep
00053	Ranch	C	280	46	Cattle
00054	North Paintrock	I	920	101	Cattle
00055	Lost Pasture	C	100	25	Cattle
00056	Scott Mountain	I	560	177	Cattle/Sheep
00057	Blue Ridge	I	2,133	143	Cattle
00058	Mathews Ridge	I	1,398	546	Cattle
00059	North House	C	360	26	Horses
00060	Mesa	M	80	22	Cattle
00061	Ainsworth Individual	M	44	10	Cattle
00062	Ainsworth	I	900	130	Cattle/Horses
00063	Railroad Swamp	M	100	11	Cattle
00064	Spanish Point	I	707	185	Cattle
00065	Sheep Springs	I	1,186	501	Cattle/Horses/ Sheep
00066	Meyers Spring	I	1,542	416	Sheep
00067	Deeter	M	380	119	Cattle/Sheep
00068	Box Elder	I	1,000	423	Cattle
00069	Mahogany Butte	I	2,330	433	Cattle/Sheep
00070	S V	I	2,930	330	Cattle
00071	Chalk Butte	M	3,165	644	Cattle
00072	Helms	M	220	45	Cattle/Sheep
00073	Lower Sand Creek	I	11,884	1,462	Cattle
00074	Antelope Draw	I	15,786	1,776	Cattle/Sheep
00075	Battle Creek	M	283	109	Cattle
00076	Lower Walker	I	6,007	555	Cattle
00077	Middle Walker	I	2,618	310	Cattle
00078	Upper Walker	I	1,300	173	Cattle
00079	Pack Saddle Creek	I	1,520	244	Cattle
00080	North Murphy Dome	I	6,385	888	Cattle
00081	Lower Arnold	I	1,600	258	Cattle
00082	Upper Arnold	I	1,852	213	Cattle
00083	K I S	I	1,991	449	Cattle
00084	Trapper Creek	I	1,227	153	Cattle
00085	Tower	C	50	2	Cattle

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00086	Daugherty Dewitt	M	740	148	Cattle
00087	Mountain Individual	M	170	34	Cattle
00088	Patras	I	843	332	Cattle
00089	Big Bend	I	8,847	1,429	Cattle
00090	Split Rock - V's	I	2,680	811	Cattle/Horses
00091	Sand Creek	I	25,993	2,183	Cattle
00092	Paintrock Canyon	M	7,947	1,260	Cattle
00093	Long Point	I	646	103	Cattle
00094	Red Hills	M	8,321	691	Cattle
00095	Forks	M	4,158	1,004	Cattle
00097	Deadline Draw	M	3,130	611	Cattle
00099	Schoolhouse Gulch	I	3,107	170	Cattle/Sheep
00100	Sand Creek Individual	I	1,865	159	Cattle
00101	Ranch Individual	M	840	153	Cattle
00102	Mountain Lost Creek	M	120	43	Cattle
00103	Little Lost Creek	M	121	12	Cattle
00104	Cottonwood	I	3,008	243	Sheep
00105	Nowater	I	7,958	732	Sheep
00106	Bald Ridge	M	317	51	Cattle
00107	Honey Combs	I	28,975	2,320	Cattle
00108	Dixon Canyon	I	740	60	Cattle
00109	Coyote Springs	C	420	75	Cattle
00110	Bud Kimball	I	7,275	900	Cattle
00111	Otter Creek	I	600	134	Cattle
00112	Faure Nowater	I	3,542	471	Cattle/Sheep
00113	North Nowood	I	1,000	155	Cattle
00114	South Nowood	I	2,574	257	Cattle
00116	Brush Cabin	M	240	44	Cattle
00117	Pierson Mountain	M	40	5	Cattle
00118	Scorpion	I	14,182	1,497	Cattle
00119	Bluebank	M	7,600	1,267	Cattle
00120	Buffalo Creek	I	7,026	1,349	Cattle/Horses
00122	Harvard Individual	M	320	37	Cattle/Sheep
00123	Buffalo Sand Point	I	29,046	6,972	Cattle/Horses
00124	West Side Summer	I	2,945	710	Cattle/Horses
00125	East Side Summer	I	1,880	460	Cattle
00127	Otter Creek Pastures	I	2,820	575	Cattle
00129	Mazet	M	80	26	Cattle
00130	Lower V's	I	1,950	429	Cattle/Sheep
00131	High Camp	I	900	216	Cattle
00132	Big Cottonwood Creek	I	13,634	1,270	Cattle/Sheep
00133	Potter Butte	I	4,480	678	Cattle
00134	Bonanza	C	1,550	141	Cattle

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00135	Axtell Ditch Creek	M	320	58	Cattle
00136	Black Hills	C	520	32	Cattle
00137	Paintrock South	I	800	57	Cattle/Horses
00138	Hurtig	I	1,720	258	Cattle
00141	Greet Individual	M	240	52	Cattle
00142	Rannells	M	1,752	700	Cattle
00143	Medicine Lodge	I	9,332	1	Cattle
00144	Lower Nowood	C	11,700	984	Cattle/Sheep
00145	Cedar Ridge	M	9,811	1,321	Cattle/Horses/ Sheep
00146	East Allotment	I	610	130	Cattle
00147	West Allotment	I	3,042	515	Cattle
00148	Renner Individual	I	11,782	383	Cattle
00149	Lost Creek	M	33	10	Cattle
00150	Juniper Hills	M	630	56	Cattle/Horses
00151	Homestead	C	400	20	Cattle
00153	Denver Jake Draw	C	10,856	1,358	Cattle/Sheep
00155	Mary's Creek	I	975	58	Cattle
00156	Rome Hill	I	5,300	558	Cattle
00157	South Butte	M	2,180	502	Cattle
00158	Seaman	I	6,680	1,922	Cattle
00159	Tie Down	C	2,791	93	Cattle
00160	Spring Creek Common	I	1,557	152	Cattle/Sheep
00161	North Blue Ridge	C	2,703	211	Cattle
00162	Slick Water	I	12,368	1,388	Cattle
00163	Demer Nowater	I	7,000	234	Cattle
00164	Cottonwood-North Butte	I	10,299	350	Cattle
00166	Jacobs Creek	I	745	51	Cattle
00167	Switchback	I	1,405	146	Cattle
00168	Lower Spring Creek	I	1,240	73	Cattle
00169	Bader Gulch	M	200	20	Sheep
00170	Oilfield	C	6,233	763	Cattle
00171	East Nowood	C	1,560	179	Cattle
00172	West Nowood	I	785	39	Cattle
00173	Tensleep	I	1,945	275	Cattle
00174	Lower Brokenback	I	1,062	107	Cattle
00175	Upper Brokenback	I	4,771	486	Cattle
00177	Red Springs Rock Butte	I	850	166	Cattle
00178	Dry Tensleep	I	1,196	326	Cattle
00179	Tharp Individual	C	145	10	Cattle
00181	Torchlight	C	19,337	1,571	Sheep
00182	Buttes	I	2,800	700	Cattle/Sheep
00183	Onion Gulch	I	920	164	Cattle/Sheep
00184	Upper Sand Creek	C	5819	783	Cattle
00185	Healy	C	15,572	1,435	Cattle
00186	Rim	I	2,640	278	Sheep

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00188	Small Pasture	I	767	114	Cattle/Horses
00189	Jolly Pasture	I	884	210	Cattle/Horses
00190	Turner Pasture	I	440	67	Cattle
00191	Lower Black Mountain Draw	I	2,442	407	Cattle
00192	Upper Black Mountain Draw	I	402	80	Cattle
00193	Little Mud Creek	I	310	33	Cattle
00194	Upper Black Mountain	I	621	136	Cattle
00195	Lower Black Mountain	I	360	72	Cattle
00196	Lake Creek	I	360	58	Cattle
00197	Duncan	M	415	37	Cattle
00199	Big Cedar	I	1,955	498	Cattle/Horses
00200	South Individual	M	1,470	161	Cattle/Horses
00201	East Basin Draw	C	160	15	Cattle
00202	Airport	I	7,412	641	Cattle
00203	Tobes Pastures	I	1,020	231	Cattle
00204	North Of Ditch	I	720	30	Cattle
00205	West Black Mountain	I	885	141	Cattle
00206	Bear Creek Common	I	1,503	263	Cattle
00210	Willow Creek	I	4,096	931	Cattle
00211	Wyman Draw	I	217	18	Cattle
00212	Signal Butte	I	111	12	Horses
00213	East Hyattville	C	80	12	Horses
00214	South Bank	C	20	5	Cattle
00215	Deeded	M	2,334	408	Cattle
00216	Mud Gulch	M	1,870	192	Cattle/Sheep
00217	East Alkali	I	4,192	314	Cattle/Horses/ Sheep
00218	West Alkali	I	12,696	814	Sheep
00219	Robson Mountain	M	240	50	Cattle
00220	East Flats	C	3,924	255	Cattle/Sheep
00221	Parker	I	1,846	126	Cattle
00222	Anthony Timber	I	870	109	Cattle
00223	Wood's Split Rock	M	300	64	Cattle
00294	O'Brien Camp	C	363	105	Cattle
00501	Blue Springs	I	12,979	2,789	Cattle/Horses
00502	South Lucerne Group	M	5,077	494	Cattle/Horses/ Sheep
00504	Hamilton Dome	I	11,125	799	Cattle/Horses
00506	Common Harvey	I	965	98	Cattle
00507	South Gooseberry Group	I	58,468	4,526	Cattle/Sheep
00508	North Gooseberry	I	113,805	8,519	Cattle/Sheep
00509	New Burlington Group	I	94,834	6,207	Cattle/Sheep
00510	Fernandez Blu-Jay	I	8,900	710	Cattle
00511	East Tanner	M	252	33	Cattle

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00512	Coulter Group	I	11,516	666	Cattle/Horses
00513	Dockery Hammond	C	741	80	Cattle
00515	Upper Gooseberry	M	3,301	864	Cattle
00516	Blue Creek	I	1,888	84	Cattle
00517	Cedar Mountain	C	8,320	690	Cattle
00518	Home Place	M	1,250	175	Cattle
00519	Middle Creek	I	545	126	Cattle
00520	Red Creek	C	124	21	Cattle
00521	Lower Cottonwood	I	6,566	411	Cattle
00522	Grass Creek	I	8,994	949	Cattle
00523	Highway Junction	I	5,590	663	Cattle
00524	Cottonwood Creek	I	1,202	233	Cattle/Horses
00525	Rock Creek	I	4,311	_[2]	
00526	Rimrock Basin	I	3,331	665	Cattle
00527	Blackstone	C	797	171	Cattle
00528	Six Mile	I	1,766	134	Sheep
00529	Prospect Common	I	7,832	1,207	Cattle
00530	Grass Creek Basin	C	1,819	300	Cattle/Horses
00531	Spring Gulch	I	1,982	295	Cattle
00532	Whisky Gulch	I	356	79	Cattle/Horses
00533	Home Ranch	I	938	132	Cattle/Horses
00534	East Cottonwood	C	3,413	_[1]	
00535	West Cottonwood	C	7,113	_[1]	
00536	Heifer	M	882	225	Cattle
00537	Padlock	I	2,257	510	Cattle
00538	East Waugh Dome	C	2,600	208	Cattle
00539	Buchanan Basin	I	339	125	Cattle
00540	Bridges	C	757	190	Cattle
00541	Three Peaks	I	985	60	Cattle
00543	Cannady Individual	I	928	58	Cattle
00545	Grass Point	I	4,138	547	Cattle/Horses
00546	Highway	I	1,149	107	Cattle
00547	Red Farm	M	1,317	172	Cattle
00548	D & LM Individual	I	1,903	151	Sheep
00549	Greybull Bend	C	380	37	Cattle
00551	Coulee-Mill Iron	M	2,461	_[2]	
00552	Milk Creek	M	382	108	Cattle
00553	Richmond	I	3,934	599	Cattle/Horses
00554	Waugh Dome	C	2,255	138	Cattle
00556	21 Creek	I	1,808	322	Cattle
00557	Ramul Individual	M	135	18	Cattle
00558	Buck Creek	I	488	95	Cattle
00559	East Five Mile	C	1,888	400	Cattle
00560	Sfnf	I	1,086	82	Cattle
00561	Freudenthal Individual	C	1,935	268	Cattle
00562	Gardner Badlands	I	11,641	1,934	Cattle
00563	Winter Camp	I	2,310	490	Cattle

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00564	Little Buffalo Basin	M	2,277	562	Cattle
00565	Red Hole	I	2,106	307	Cattle
00566	Meeteetse Draw	I	2,026	218	Cattle
00567	Lucerne	C	2,460	188	Cattle/Horses
00568	Basin	I	8,527	_[2]	
00569	Curtis	M	3,388	_[2]	
00570	Red Springs Draw	I	6,431	900	Cattle
00571	Zimmerman Buttes	I	4,059	503	Cattle
00572	Eagle Draw	M	1,882	440	Cattle
00573	Wagonhound Bench	I	3,478	_[2]	
00574	Coal Draw	M	6,551	_[2]	
00575	Slab Creek	I	1,016	_[2]	
00577	South Basin	I	42,331	3,123	Sheep
00578	North Basin Group	I	5,392	350	Cattle/Sheep
00579	Hillberry Rim	I	9,187	1,452	Cattle/Sheep
00580	Coal Mine	I	469	97	Cattle
00581	Cherry Creek	I	670	164	Cattle
00582	Mill Iron-East	M	404	_[2]	
00583	Mud Creek Pasture	C	182	21	Cattle
00584	Jones Flat	M	121	_[2]	
00585	North Hart	I	561	_[2]	
00586	South Hart	C	85	_[2]	
00587	Typer Pasture	C	254	_[2]	
00588	Sandstone	C	536	_[2]	
00589	Kirby Creek	I	10,032	1,044	Cattle/Horses/ Sheep
00590	Little Sand Draw	I	7,372	304	Cattle
00591	Zimmerman Springs	I	4,779	476	Sheep
00592	Wild Horse Butte	I	1,325	443	Cattle/Sheep
00593	Hamilton Rim	M	570	59	Horses
00594	Buffalo Basin	M	1,369	389	Cattle
00595	Iron Creek	M	1,312	410	Cattle
00596	Wagonhound	I	8,198	_[2]	
00598	Powder River	I	3,374	921	Cattle/Sheep
00599	Gooseberry	M	3,108	555	Cattle
00600	Wall Rock	M	1,084	533	Cattle
00601	Mormon Creek	M	307	107	Cattle
00602	Rock Springs Draw	I	5,191	869	Cattle/Horses
00603	Pistol Draw	C	2,280	431	Cattle
00604	Lu	I	101,548	16,031	Cattle/Horses/ Sheep
00607	Lake	I	3,621	734	Cattle
00608	Vass	I	693	100	Cattle
00609	Owl Creek	I	1,867	144	Cattle/Horses
00610	South Owl Creek	I	888	82	Cattle
00612	South Tatman	I	2,241	176	Sheep

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00613	Putney Flat	M	817	180	Cattle
00614	Rattlesnake	I	789	139	Cattle
00615	Lime Ridge	I	959	230	Cattle
00616	Home	M	3,851	378	Cattle
00617	Gloyd Individual	M	119	10	Cattle
00618	North Blackstone	C	699	118	Horses
00620	Prospect	I	4,956	1,205	Cattle/Horses
00621	North Grass Creek	I	2,348	293	Cattle
00622	South Highway	I	8,977	758	Cattle
00623	North Highway	C	6,655	449	Cattle
00624	Black Willow Draw	I	3,500	596	Cattle
00625	Freeman Draw	C	1,100	134	Cattle
00626	Timber Creek	I	8,098	327	Cattle
00627	Rooster Creek	I	3,017	640	Cattle/Horses
00631	Ditch Creek	I	2,120	385	Cattle
00633	Upper Pastures	I	4,463	1,057	Cattle
00634	Lower Pastures	I	9,998	980	Cattle/Horses
00635	Plummer	I	1,320	268	Cattle
00636	Haynes	C	455	131	Cattle
00637	Adam Weiss Peak	I	3,681	625	Cattle
00638	King Dome	M	4,741	519	Cattle
00639	Tatman Mt Common	I	29,104	2,423	Cattle
00641	Swing Individual	C	472	35	Cattle
00642	Bear Trap	C	400	58	Cattle/Sheep
00643	Buchanan	M	3,358	545	Cattle
00644	Tanner	M	4,266	567	Cattle
00645	South Coal Draw	M	4,738	545	Cattle
00646	Back Of Rim	M	5,223	635	Cattle
00647	Steer	M	2,089	340	Cattle
00648	Shumway Individual	I	357	50	Cattle
00649	Maret	M	480	100	Cattle
00650	South Gebo Common	M	1,857	181	Cattle
00651	West Five Mile	M	39,870	1,000	Cattle
00652	Badger Gulch	I	18,864	2,136	Sheep
00653	Red Lane	C	636	63	Cattle
00654	Ayers Individual	I	609	125	Cattle
00655	Copper Mountain	I	560	121	Cattle
00656	Sand Draw	I	5,953	839	Cattle
00657	West Lucerne	M	969	90	Cattle
00658	Red Springs	M	1,697	385	Cattle
00659	Black Willow	M	1,902	444	Cattle
00660	West	C	720	106	Cattle
00661	Three Peaks Anchor	I	6,714	_[2]	
00662	Enright	I	9,608	1,423	Cattle
00663	Cow Pasture	C	1,949	164	Cattle
00664	Alamo Creek	I	328	25	Cattle
00665	Nelson	M	14,266	861	Cattle
00667	Turk	C	300	36	Cattle

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
00669	Allen Basin	I	12,900	835	Sheep
00670	Upper 15 Mile	C	441	201	Cattle
00671	Ten Mile	I	24,199	1,651	Sheep
00672	Mountain	I	1,002	187	Cattle
00673	Mountain West	C	179	26	Cattle
00674	North Tatman	C	9,463	752	Cattle
00675	Cheever Flat	C	160	7	Cattle
00676	Pitchfork	I	12,733	1,187	Sheep
00678	South Grass Creek	I	9,068	1,489	Cattle/Horses
00679	North Rim	M	921	111	Cattle/Horses
00680	Lake Creek Pasture	C	758	_[2]	
00681	Spring Creek	I	1,611	_[2]	
00682	Hunt Oil 15 Mile	I	16,692	1,420	Sheep
00683	South Sleeper	I	4,666	1,225	Cattle/Sheep
00685	Bramah	I	1,220	175	Cattle
00686	Middle Fork Powder River	C	99	13	Cattle
00720	Putney Place	C	454	109	Horses
00721	Urwin Homestead	C	167	25	Horses
00722	Wales Homestead	C	108	24	Horses
01502	East Jack Creek	I	440	47	Cattle
01503	Long Point Pasture	I	860	137	Cattle
01504	Wild Horse Flats	C	8,200	509	Sheep
01507	Bush Butte	I	3,710	275	Cattle
01508	Chimney Rock	M	656	32	Horses
01510	Fox Mountain	I	9,946	582	Cattle/Sheep
01511	Lake Ridge	I	546	157	Cattle/Horses
01513	Black Mountain	I	5,393	295	Cattle
01514	White Creek	I	163	72	Cattle
01519	South Shell	I	3,760	289	Cattle
01521	Horse Mountain	M	595	21	Horses
01523	Golf Course	C	480	20	Horses
01524	South Alkali	C	200	22	Horses
01525	Potato	I	27,940	2,544	Cattle
01526	Sabin	I	1,023	187	Cattle
01535	South Shell Group	I	11,862	1,160	Cattle/Horses
01536	Upper White Creek	I	5,496	634	Cattle
01537	Potato Ridge	C	8,600	357	Sheep
01539	Lower White Creek	M	890	77	Cattle
02001	Willow Springs	M	375	94	Cattle
02003	Rose Mountain	M	80	20	Cattle
02005	Tallon V	I	1,240	260	Cattle
02007	Otter Creek Mountain	I	1,730	329	Cattle
02008	Box Canyon	I	280	72	Cattle
02010	Dry Farm	M	496	124	Cattle
02012	Natrona	M	4,028	841	Cattle
02013	Harriet	M	800	163	Cattle/Sheep
02014	Cherry Creek Hill	M	159	26	Cattle

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
02015	Beaton Place	I	160	44	Cattle/Sheep
02016	S.F. Little Canyon Creek	M	240	60	Sheep
02017	Hall Butte	M	240	24	Cattle
02018	Warm Springs	I	1,387	215	Cattle
02019	Hazen Draw	I	400	80	Cattle
02020	Tanner-Mountain	I	600	154	Cattle
02342	Otter Creek Vee Rd	C	80	20	Cattle
02501	Arapahoe Ranch	C	465	161	Cattle
02503	Grider Basin	I	2,144	385	Cattle
02505	Lower Red Canyon	I	2,261	450	Cattle
02506	Dye	I	2,758	460	Cattle
02507	Bridger Creek	I	1,680	244	Cattle
02509	Peak	I	3,742	716	Cattle
02510	Gould Individual	I	2,310	367	Cattle
02512	Billys Flats	M	80	31	Cattle
02514	V-H Draw	I	3,227	503	Cattle
02515	East Fork Jones Creek	M	240	48	Cattle
02516	Wood's Basin	I	400	67	Cattle
02522	Kruger Sec 15	M	80	16	Cattle
02525	Jones Creek Mountain	I	440	75	Cattle
02529	Jones Creek	I	320	51	Cattle
02530	Neilson	I	520	95	Cattle
02531	Jenks Creek	I	40	8	Cattle
02533	Sliver	I	566	43	Cattle
02536	Blue Hill	I	2,227	404	Cattle/Horses
02538	Jones Creek Basin	I	2,342	710	Cattle
02539	Red Canyon	I	6,480	795	Cattle
02541	M.F. Warm Springs	I	400	58	Horses
02542	Stump	I	437	96	Cattle/Horses
02543	Swallow	I	698	156	Cattle
02546	Major Basin	I	4,324	876	Cattle
02547	V Pasture	I	2,304	396	Cattle/Horses
02549	Hawks Butte	I	720	95	Cattle
02550	Melton Mountain	I	680	104	Cattle
02552	Twin Buttes	I	2,516	454	Cattle
02554	Reed Creek	I	2,000	349	Cattle
02555	Lawler Sec 15	C	1,194	115	Cattle
02559	Slope Pasture	I	2,220	563	Cattle
02560	Lysite Creek	I	160	32	Cattle
02562	Meeteetse-East	M	984	131	Cattle/Sheep
02563	Larsen Sec 15	M	515	78	Cattle
02565	Little Canyon Creek #2	C	680	160	Cattle/Horses/ Sheep
02566	Little Canyon Creek Med	C	40	11	Cattle/Sheep

Allotment Number	Allotment Name	Management Category	Total Federal Acres	Active Use (AUMs)[1]	Type of Livestock
02567	Sullivan Creek Valley	C	700	165	Cattle/Sheep

[1]For the purposes of this table, active use is expressed in AUMs.
[2]No AUMs are currently assigned for this grazing allotment/permit/lease.

Note: Data in table derived from Bureau of Land Management Worland Field Office internal databases accessed from 2010 to 2013.

AMP Allotment Management Plan
AUM Animal Unit Month
C Custodial
I Improve
M Maintain
USFS U.S. Forest Service

Table O.2. Standards and Guidelines Summary of Grazing Allotments

Allotment Name	Allotment Number	Year Completed	Progress[1]	Standard[2,3]					
				#1	#2	#3	#4	#5	#6
Adam Weiss Peak	00637	2012		Y	N/A	Y	Y	U	Y
Alamo Creek	00664	1999		Y	N/A	Y	Y	U	Y
Alkali	00033	1999	Y	Y	Y	N	Y	U	Y
Allen Basin	00669	2002		Y	N/A	Y	Y	U	Y
Antelope Draw	00074	1998		Y	N/A	Y	Y	U	Y
Anthony Timber	00222	1999		Y	Y	Y	Y	U	Y
Badger Gulch	00652	2002		Y	N/A	Y	Y	U	Y
Basin	00568	1999		Y	Y	Y	Y	U	Y
Beckley	00024	2011		Y	N/A	Y	Y	U	U
Big Cottonwood Creek	00132	1999	U	Y	N/A	N	Y	U	Y
Big Trails Group	00012	1998	U	Y	Y	Y	Y	N	Y
Black Mountain	01513	1999		Y	Y	Y	Y	U	Y
Black Willow	00659	1999	U	Y	N/A	Y	Y	U	Y
Black Willow Draw	00624	2009		Y	N/A	Y	Y	U	Y
Blue Creek	00516	2009	U	Y	Y	Y	Y	U	U
Blue Hill	02536	2009		Y	N/A	Y	Y	U	Y
Blue Springs	00501	2009		Y	Y	Y	Y	U	Y
Boundary Well	01068	2006	U	N	Y	N	Y	U	Y
Box Canyon	02008	2009		Y	Y	Y	Y	U	U
Box Elder	00068	2001		Y	Y	Y	Y	U	Y
Bramah	00685	1999		Y	Y	Y	Y	U	Y
Bridger Creek	02507	1999		Y	Y	Y	Y	U	Y
Bridges	00540	2009		Y	Y	Y	Y	U	U
Buchanan Basin	00539	1999	Y	N	N	N	Y	U	Y
Buck Creek	00558	1999		Y	Y	Y	Y	U	Y
Buttes	00182	2000	U	Y	U	Y	Y	U	Y
Cedar Ridge	00145	2010		Y	N/A	Y	Y	U	U
Cottonwood Creek	00524	2010		Y	N	Y	Y	U	Y
Cottonwood Draw	00026	2001		Y	Y	Y	Y	U	Y
Coulee-Mill Iron	00551	1999	U	Y	N/A	N	N	U	Y
Curtis	00569	1999		Y	Y	Y	Y	U	Y

Allotment Name	Allotment Number	Year Completed	Progress[1]	Standard[2,3]					
				#1	#2	#3	#4	#5	#6
Deadline Draw	00097	1998		Y	N/A	Y	Y	U	Y
Denver Jake	00153	2010		Y	Y	Y	Y	U	U
Demer Nowater	00163	2011	Y	N	N/A	N	Y	U	U
Ditch Creek	00631	2009		Y	Y	Y	Y	U	Y
Dockery Hammond	00513	2002		Y	N/A	Y	Y	U	Y
Double H	00019	2001		Y	Y	Y	Y	U	Y
Dye	02506	2001		Y	N/A	Y	Y	U	Y
East Alkali	00217	1999		Y	Y	Y	Y	U	Y
East Allotment	00146	2009		Y	Y	Y	Y	U	U
East Jack Creek	01502	1999		Y	Y	Y	Y	U	Y
Farley	00051	1999		Y	Y	Y	Y	U	Y
Faure Nowater	00112	1999	U	Y	Y	N	Y	U	Y
Fernandez Blu-Jay	00510	1999	U	N	N/A	N	Y	U	Y
Fox Mountain	01510	1999		Y	Y	Y	Y	U	Y
Freeman Draw	00625	2010		Y	N/A	Y	Y	U	U
Gould Individual	02510	1998		Y	Y	Y	Y	U	Y
Grass Creek	00522	2001	U	Y	Y	N	Y	U	Y
Grass Creek Basin	00530	2000		Y	N/A	Y	Y	U	Y
Grass Point	00545	2010		Y	Y	Y	Y	Y	U
Hall Butte	02017	2000	Y	Y	N	Y	Y	U	Y
Hamilton Dome	00504	1999		Y	Y	Y	Y	U	Y
Healy	00185	2000		Y	N/A	Y	Y	U	Y
Hidden Dome	00032	1999	U	Y	Y	N	Y	U	Y
High Camp	00131	2000		Y	N/A	Y	Y	U	Y
Hillberry Rim	00579	2010		Y	Y	Y	Y	U	U
Home	00616	1998		Y	N/A	Y	Y	U	Y
Horse Mountain	01521	2001		Y	N/A	Y	Y	U	Y
Hunt Oil 15 Mile	00682	2002		Y	N/A	Y	Y	U	Y
Joe Henry	00011	2011		Y	N/A	Y	Y	U	U
Jolly Pasture	00189	2011	Y	Y	N	Y	Y	U	U
Jones Creek Basin	02538	2001		Y	Y	Y	Y	U	Y
Jones Creek Mountain	02525	2001		Y	N/A	Y	Y	U	Y
K I S	00083	1998		Y	Y	Y	Y	U	Y
Kimball	00009	2011	U	Y	Y	Y	Y	U	U
Kirby Creek	00589	2011		Y	N	Y	Y	N	U
Lake	00607	1999		Y	Y	Y	Y	U	Y
Lake Ridge	01511	2010		Y	Y	Y	Y	U	U
Lime Ridge	00615	1998		Y	Y	Y	Y	U	U
Little Buffalo Basin	00564	1998		Y	N/A	Y	Y	U	Y
Little Sand Draw	00590	2001	U	Y	Y	N	Y	U	Y
Long Point Pasture	01503	2000		Y	Y	Y	Y	U	Y
Lost Creek	00149	2001	U	Y	N/A	Y	Y	U	Y
Lower Arnold	00081	1998	U	Y	Y	Y	N	U	Y
Lower Brokenback	00174	2011		N	N/A	Y	Y	U	U

Allotment Name	Allotment Number	Year Completed	Progress[1]	Standard[2,3]					
				#1	#2	#3	#4	#5	#6
Lower Cottonwood	00521	2001	U	Y	Y	N	Y	U	Y
Lower Nowood	00144	2010		Y	N/A	Y	Y	U	U
Lower Nowater	00015	2000		Y	N/A	Y	Y	U	Y
Lower Red Canyon	02505	2001		Y	Y	Y	Y	U	Y
Lower Sand Creek	00073	1998		Y	N/A	Y	Y	U	Y
Lower V's	00130	1999	U	Y	N/A	N	Y	U	Y
LU	00604	1998	Y	N	Y	N	Y	U	Y
M.F. Warm Springs	02541	2009		Y	N/A	Y	Y	U	Y
Mahogany Butte	00069	1998		Y	Y	Y	Y	Y	Y
Major Basin	02546	2011		Y	Y	Y	Y	U	U
Manderson	00036	1999	U	Y	N/A	Y	Y	U	Y
Maret	00649	2001		Y	N/A	Y	Y	U	Y
Melton Mountain	02550	2001		Y	N/A	Y	Y	U	Y
Meyers Spring	00066	1999		Y	Y	Y	Y	U	Y
Middle Creek	00519	2000	U	Y	Y	Y	Y	U	Y
Milk Creek	00552	1999		Y	Y	Y	Y	U	Y
Mill Iron-East	00582	1999	U	Y	N/A	N	N	U	Y
Mountain	00672	2000	U	Y	Y	Y	Y	U	Y
Mud Creek	00050	1999		Y	Y	Y	Y	U	Y
Mud Creek Pasture	00583	2001		Y	N/A	Y	Y	U	Y
Mud Gulch	00216	1999		Y	N/A	Y	Y	U	Y
Murphy Dome	00049	1999		Y	N/A	Y	Y	U	Y
Neiber	00048	2000		Y	N/A	Y	Y	U	Y
North Grass Creek	00621	1999		Y	N/A	Y	Y	U	Y
North Hart	00585	1999		Y	N/A	Y	Y	U	Y
North Highway	00623	1998		Y	N/A	Y	Y	U	Y
North Murphy Dome	00080	1998		Y	Y	Y	Y	U	Y
Nowood Individual	00025	2001		Y	N/A	Y	Y	U	Y
O'Brien Camp	00294	2010	Y	Y	N	Y	Y	U	U
Oil Field	00170	2009		Y	N	Y	Y	U	U
Onion Gulch	00183	2000		Y	Y	Y	Y	U	Y
Otter Creek Pastures	00127	1999	U	Y	N	N	Y	U	Y
Owl Creek	00609	1999	U	Y	U	U	Y	U	Y
Parker	00221	2010	Y	Y	N/A	Y	Y	U	U
Patras	00088	1999		Y	Y	Y	Y	U	Y
Peak	02509	2009		Y	Y	Y	Y	U	Y
Pistol Draw	00603	2001		Y	N/A	Y	Y	U	Y
Pitchfork	00676	2002		Y	N/A	Y	Y	U	Y
Potato	01525	1999		Y	Y	Y	Y	U	Y
Potato Ridge	01537	1999		Y	N/A	Y	Y	U	Y
Potter Butte	00133	1999		Y	N/A	N	Y	U	Y
Prospect Common	00529	1998		Y	Y	Y	Y	U	Y
Putney Flat	00613	2000		Y	Y	Y	Y	U	Y

Allotment Name	Allotment Number	Year Completed	Progress[1]	Standard[2,3]					
				#1	#2	#3	#4	#5	#6
Putney Place	00720	1999		Y	N/A	Y	Y	U	Y
Ramul Individual	00557	1999		Y	N/A	Y	Y	U	Y
Rattlesnake	00614	1998		Y	Y	Y	Y	U	Y
Red Creek	00520	2000		Y	Y	Y	Y	Y	Y
Red Farm	00547	2000		Y	N/A	Y	Y	U	Y
Red Hole	00565	2009		Y	N/A	Y	Y	U	Y
Red Lane	00653	2002		Y	N/A	Y	Y	U	Y
Red Springs	00658	2009		Y	Y	Y	Y	U	Y
Red Springs Draw	00570	2010		Y	N	Y	Y	N	U
Red Springs/ Rock Butte	00177	2011		Y	Y	Y	Y	U	U
Reed Creek	02554	2009		Y	N/A	Y	Y	U	Y
Richmond	00553	1999		Y	Y	Y	Y	U	Y
Rim	00186	2011	U	Y	Y	Y	Y	U	U
Robson Mountain	00219	2001		Y	N/A	Y	Y	U	Y
Rock Springs Draw	00602	2009		Y	N/A	Y	Y	U	Y
Rooster Creek	00627	1999	Y	N	N	N	Y	U	Y
Rose Mountain	02003	1998		Y	N/A	Y	Y	U	Y
S V	00070	1998		Y	Y	Y	Y	Y	Y
Sand Draw	00656	2000	U	Y	N/A	N	Y	U	Y
Schoolhouse Gulch	00099	2001	Y	N	N/A	N	N	U	Y
Scorpion	00118	1999	U	Y	Y	N	Y	U	Y
Sheep Springs	00065	1999		Y	Y	Y	Y	U	Y
Slab Creek	00575	1999	U	Y	N	N	Y	U	Y
Slick Water	00162	1999	U	Y	N/A	N	Y	U	Y
Small Pasture	00188	2011	Y	Y	N/A	Y	Y	U	U
Snyder	00640	2013		N4	N/A	N4	N4	Y	U
South Butte	00157	1999		Y	N/A	Y	Y	U	Y
South Gooseberry	00507	2010		Y	N	Y	Y	Y	U
South Highway	00622	1998	U	Y	N/A	Y	Y	U	Y
South Individual	00200	2001		Y	N/A	Y	Y	U	Y
South Shell	01519	2000		Y	Y	Y	Y	U	Y
South Sleeper	00683	2011		Y	Y	Y	Y	U	U
South Tatman	00612	1999		Y	N/A	Y	Y	U	Y
Spanish Point	00064	1999		Y	Y	Y	Y	U	Y
Spring Gulch	00531	2012		Y	Y	Y	Y	U	U
Stump	02542	2009	U	Y	N/A	Y	Y	U	Y
Swallow	02543	2012		Y	N/A	Y	Y	U	U
Tatman Mt Common	00639	2013		N4	N/A	N4	N4	U	U
Ten Mile	00671	1998		Y	Y	Y	Y	U	U
Ten Sleep	00173	2010		Y	N/A	Y	Y	U	U
Tharp Individual	00179	2000	Y	N	Y	N	N	U	Y
Timber Creek	00626	1999	Y	N	N	N	Y	U	Y
Tobes Pasture	00203	1998		Y	Y	Y	Y	U	Y
Torchlight	00181	2000		Y	Y	Y	Y	U	Y
Tower	00085	2001		Y	N/A	Y	Y	U	Y
Turner Pasture	00190	1998	Y	Y	Y	N	N	U	Y

Allotment Name	Allotment Number	Year Completed	Progress[1]	Standard[2,3]					
				#1	#2	#3	#4	#5	#6
Twin Buttes	02552	2001		Y	Y	Y	Y	U	Y
Upper Arnold	00082	1998		Y	N/A	Y	Y	U	Y
Upper Brokenback	00175	2010		Y	Y	Y	Y	U	U
Upper Gooseberry	00515	1999	U	Y	U	Y	Y	U	Y
Upper Nowater	00018	2000		Y	N/A	Y	Y	U	Y
Upper Sand Creek	00184	2000		Y	N/A	Y	Y	U	Y
Upper White Creek	01536	2000		Y	Y	Y	Y	U	Y
Urwin Homestead	00721	1999		Y	N/A	Y	Y	U	Y
V Pasture	02547	2008		Y	N/A	Y	Y	U	Y
Vass	00608	1999		Y	Y	Y	Y	U	Y
Wagonhound Bench	00573	1999		Y	Y	Y	Y	U	Y
Wales Homestead	00722	1999		Y	N/A	Y	Y	U	Y
Waugh Dome	00554	1999		Y	Y	Y	Y	U	Y
West	00660	2009		Y	N/A	Y	Y	U	Y
West Alkali	00218	1999		Y	N/A	Y	Y	U	Y
West Allotment	00147	2010		Y	N/A	Y	Y	U	U
West Black Mountain	00205	2000		Y	N/A	Y	N	N/A	Y
Wild Horse Butte	00592	2011	U	Y	N	Y	Y	U	U
Willow Creek	00210	1999	U	Y	U	U	Y	U	Y
Willow Springs	02001	2001		Y	N/A	Y	Y	U	Y
Winter Camp	00563	2009		Y	Y	Y	Y	U	Y
Worland Cattle Group	00007	1999		Y	Y	Y	Y	U	Y
Zimmerman Buttes	00571	2009		Y	N/A	N[4]	Y	U	U
Zimmerman Springs	00591	2012		Y	Y	N[4]	Y	U	U

[1]Codes in Progress and Standard columns are as follows: Y = Yes, meets standard, N = No, does not meet standard, U = Unknown.
[2]Codes in Progress and Standard columns are as follows: Y = Yes, meets standard, N = No, does not meet standard, U = Unknown.
[3]Standards 5 and 6 are dependent upon determinations made by the Wyoming Department of Environmental Quality (DEQ). Standard 5 is Unknown if allotment specific data is not available. Wyoming DEQ is researching whether any "impaired" waters have data showing impairment on BLM lands.
[4]Some acres within the allotment met standards, while others did not.

Note: Data in table derived from Bureau of Land Management Worland Field Office internal databases accessed from 2010 to 2013.

Table O.3. Current Livestock Grazing Allotments or Portions of Allotments in Greater Sage-Grouse Priority Habitat Management Areas

Allotment Number	Allotment Name	Management Category
01513	BLACK MOUNTAIN	I
01510	FOX MOUNTAIN	I
01535	SOUTH SHELL GROUP	I
01507	BUSH BUTTE	I

Allotment Number	Allotment Name	Management Category
01525	POTATO	I
01519	SOUTH SHELL	I
00065	SHEEP SPRINGS	M
01526	SABIN	I
00189	JOLLY PASTURE	I
00002	WEBER LOWER	I
00143	MEDICINE LODGE	I
00674	NORTH TATMAN	C
00066	MEYERS SPRING	I
00188	SMALL PASTURE	I
00639	TATMAN MT COMMON	I
00094	RED HILLS	I
00218	WEST ALKALI	I
00217	EAST ALKALI	I
00640	SNYDER	I
00003	COLD SPRINGS	I
00095	FORKS	I
02527	UNALLOTTED	_[1]
00221	PARKER	I
00092	PAINTROCK CANYON	I
00669	ALLEN BASIN	I
00527	BLACKSTONE	C
00618	NORTH BLACKSTONE	C
00059	NORTH HOUSE	C
00652	BADGER GULCH	I
00136	BLACK HILLS	C
00005	SOUTHSIDE GROUP	I
00213	EAST HYATTVILLE	C
00047	HYATTVILLE INDIVIDUAL	I
00004	GAPEN HYATT	I
00526	RIMROCK BASIN	I
00004	GAPEN HYATT	I
00200	SOUTH INDIVIDUAL	_[1]
00148	RENNER INDIVIDUAL	I
02562	MEETEETSE-EAST	M
00682	HUNT OIL 15 MILE	I
00676	PITCHFORK	I
00025	NOWOOD INDIVIDUAL	I
00663	COW PASTURE	C
02701	STATE	_[1]
00508	NO. GOOSEBERRY	I
00670	UPPER 15 MILE	C
00662	ENRIGHT	I
00604	LU	I
00579	HILLBERRY RIM	I
00031	BROKENBACK	I
00171	EAST NOWOOD	C
00623	NORTH HIGHWAY	C
00579	HILLBERRY RIM	I
00545	GRASS POINT	I
00021	LITTLE COTTONWOOD	I
00132	BIG COTTONWOOD CREEK	I
SDW	W-T STOCK DRIVE	_[1]
00008	CASTLE GARDENS	I

Allotment Number	Allotment Name	Management Category
00523	HIGHWAY JUNCTION	I
00009	KIMBALL	I
00215	DEEDED	I
00164	COTTONWOOD-N.BUTTE	I
00507	SO. GOOSEBERRY GROUP	I
00185	HEALY	C
00616	HOME	M
00622	SOUTH HIGHWAY	I
00007	WORLAND CATTLE GROUP	I
00107	HONEY COMBS	I
00168	LOWER SPRING CREEK	I
00122	HARVARD INDIVIDUAL	M
00153	DENVER JAKE DRAW	C
00042	EAST FORK	I
00110	BUD KIMBALL	I
00160	SPRING CREEK COMMON	I
00637	ADAM WEISS PEAK	I
00522	GRASS CREEK	I
00037	NORTH BUTTE	I
00580	COAL MINE	I
00678	SOUTH GRASS CREEK	I
00109	COYOTE SPRINGS	C
00048	NEIBER	I
02003	ROSE MOUNTAIN	M
00216	MUD GULCH	M
00129	MAZET	M
00127	OTTER CREEK PASTURES	I
00028	UPPER NOWOOD	C
00074	ANTELOPE DRAW	I
00531	SPRING GULCH	I
00163	DEMER NOWATER	I
00145	CEDAR RIDGE	M
00521	LOWER COTTONWOOD	I
00159	TIE DOWN	C
00011	JOE HENRY	I
00133	POTTER BUTTE	I
02008	BOX CANYON	I
00024	BECKLEY	I
00127	OTTER CREEK PASTURES	I
00535	WEST COTTONWOOD	C
00111	OTTER CREEK	I
00529	PROSPECT COMMON	I
00620	PROSPECT	I
00665	NELSON	M
00130	LOWER V'S	I
00014	MILESKI BADLANDS	I
00112	FAURE NOWATER	I
00019	DOUBLE H	I
02007	OTTER CREEK MOUNTAIN	I
00105	NOWATER	I
00633	UPPER PASTURES	I
00041	FATTY ALLEN	I
00590	LITTLE SAND DRAW	I
00060	MESA	M

Allotment Number	Allotment Name	Management Category
00641	SWING INDIVIDUAL	C
00199	BIG CEDAR	I
00573	WAGONHOUND BENCH	I
00010	GORDON	M
00015	LOWER NOWATER	I
00120	BUFFALO CREEK	I
00061	AINSWORTH INDIVIDUAL	M
00603	PISTOL DRAW	C
00012	BIG TRAILS GROUP	I
00721	URWIN HOMESTEAD	C
00062	AINSWORTH	I
00141	GREET INDIVIDUAL	M
00076	LOWER WALKER	I
00557	RAMUL INDIVIDUAL	M
00722	WALES HOMESTEAD	C
00018	UPPER NOWATER	I
00634	LOWER PASTURES	I
00504	HAMILTON DOME	I
00596	WAGONHOUND	I
00656	SAND DRAW	I
00591	ZIMMERMAN SPRINGS	I
UNALL	UNALLOTTED (2009)	_[1]
00636	HAYNES	C
00157	SOUTH BUTTE	M
00193	LITTLE MUD CREEK	I
00571	ZIMMERMAN BUTTES	I
00119	BLUEBANK	M
00680	LAKE CREEK PASTURE	C
00553	RICHMOND	I
00524	COTTONWOOD CREEK	I
00556	21 CREEK	I
00080	NORTH MURPHY DOME	I
00097	DEADLINE DRAW	M
00558	BUCK CREEK	I
00118	SCORPION	I
00098	SLOPE	_[1]
00089	BIG BEND	I
00607	LAKE	I
00562	GARDNER BADLANDS	I
00720	PUTNEY PLACE	C
00661	THREE PEAKS ANCHOR	I
00685	BRAMAH	I
00589	KIRBY CREEK	I
00570	RED SPRINGS DRAW	I
00681	SPRING CREEK	I
00501	BLUE SPRINGS	I
00537	PADLOCK	I
00123	BUFFALO SAND POINT	I
00593	HAMILTON RIM	M
00071	CHALK BUTTE	M
00613	PUTNEY FLAT	M
00077	MIDDLE WALKER	I
00551	COULEE-MILL IRON	M
00582	MILL IRON-EAST	M

Allotment Number	Allotment Name	Management Category
00147	WEST ALLOTMENT	I
00146	EAST ALLOTMENT	I
00540	BRIDGES	C
00191	LOWER BLACK MOUNTAIN DRAW	I
00608	VASS	C
00585	NORTH HART	I
00654	AYERS INDIVIDUAL	I
00614	RATTLESNAKE	I
00533	HOME RANCH	I
00210	WILLOW CREEK	I
00569	CURTIS	I
00205	WEST BLACK MOUNTAIN	I
00049	MURPHY DOME	I
00568	BASIN	I
00158	SEAMAN	I
00661	THREE PEAKS ANCHOR	I
00078	UPPER WALKER	I
00569	CURTIS	I
00587	TYPER PASTURE	C
00081	LOWER ARNOLD	I
00192	UPPER BLACK MOUNTAIN DRAW	I
00035	BUFFALO CANYON	I
00586	SOUTH HART	C
00182	BUTTES	I
00070	S V	I
00610	SOUTH OWL CREEK	I
00563	WINTER CAMP	I
00051	FARLEY	I
00583	MUD CREEK PASTURE	C
00082	UPPER ARNOLD	I
02547	V PASTURE	I
00067	DEETER	M
00572	EAGLE DRAW	M
02539	RED CANYON	I
00592	WILD HORSE BUTTE	I
00050	MUD CREEK	I
00069	MAHOGANY BUTTE	I
02546	MAJOR BASIN	I
00124	WEST SIDE SUMMER	I
00195	LOWER BLACK MOUNTAIN	I
02543	SWALLOW	I
00572	EAGLE DRAW	M
00088	PATRAS	I
00083	K I S	I
02512	BILLYS FLATS	M
02514	V-H DRAW	I
02509	PEAK	I
00648	SHUMWAY INDIVIDUAL	I
02506	DYE	I
02536	BLUE HILL	I
02549	HAWKS BUTTE	I
02542	STUMP	I

Allotment Number	Allotment Name	Management Category
02507	BRIDGER CREEK	I
02505	LOWER RED CANYON	I
02559	SLOPE PASTURE	I
00206	BEAR CREEK COMMON	I
00223	WOOD'S SPLIT ROCK	I
00087	MOUNTAIN INDIVIDUAL	M
02020	TANNER-MOUNTAIN	I
02560	LYSITE CREEK	I
02531	JENKS CREEK	I
00655	COPPER MOUNTAIN	I
02503	GRIDER BASIN	I
00125	EAST SIDE SUMMER	I
00086	DAUGHERTY DEWITT	M
02554	REED CREEK	I
00053	RANCH	C
02017	HALL BUTTE	M
02012	NATRONA	M
02559	SLOPE PASTURE	I
00090	SPLIT ROCK - V'S	I
00204	NORTH OF DITCH	I
01068	BOUNDARY WELL 1068	M
01084	THREE M	C
00683	SOUTH SLEEPER	_[1]
00510	FERNANDEZ BLU-JAY	_[1]

[1]Information not available for allotment.

Note: The determination of retirement of grazing privileges of allotments or portions of allotments in Greater Sage-Grouse Priority Habitat Management Areas would be made upon site specific National Environmental Policy Act analysis.

C Custodial
I Improve
M Maintain

Appendix P. Final Environmental Impact Statement and Record of Decision Crosswalk Tables

Management actions from the Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement (EIS) correspond generally to decisions listed in this Approved RMP, as shown in Table P.1, "Management Actions and Decisions Crosswalk" (p. 583). In many cases, the language and stated actions have changed from those listed in the Proposed RMP and Final EIS, and some management actions have not been carried forward as decisions in the Approved RMP (denoted by "N/A" in the second column of the table). Please note that in some cases, corresponding management actions in the Approved RMP may be located in a different resource section than they originally appeared in the Proposed RMP and Final EIS. Table P.1, "Management Actions and Decisions Crosswalk" (p. 583), is ordered sequentially by management action in the Proposed RMP and Final EIS. Table P.2, "Maps Crosswalk" (p. 602) and Table P.3, "Appendices Crosswalk" (p. 606), provide a crosswalk for maps and appendices.

Table P.1. Management Actions and Decisions Crosswalk

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
0000 COMMON TO ALL	
0001	0001
0002	0002
0003	0003
1000 PHYSICAL RESOURCES	
1001	1001
1002	1002
1003	1003
1004	1004
1005	1005
1006	1006
1007	1007
1008	1008
1009	1009
1010	1010
1011	1011
1012	1012
1013	1013
1014	1014
1015	1015
1016	1016
1017	1017
1018	1018
1019	1019
1020	1020
1021	1021
1022	1022
1023	1023
1024	1024
1025	1025

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
1026	1026
1027	1027
1028	1028
1029	1029
1030	1030
1031	1031
1032	1032
1033	1033
1034	1034
1035	1035
1036	1036
1037	1037
1038	1038
1039	1039
1040	1040
1041	1041
1042	1042
1043	1043
1044	1044
1045	1045
1046	1046
1047	1047
1048	1048
1049	N/A
1050	1049
1051	1050
1052	1051
2000 MINERAL RESOURCES (MR)	
2001	2001
2002	2002
2003	2004
2004	2005
2005	2007
2006	2008
2007	2011
2008	2012
2009	2013
2010	2014
2011	2015
2012	2016
2013	2017
2014	2024
2015	2025
2016	2027
2017	2028
2018	2029
2019	2003
2020	N/A
2021	2006
2022	2009
2023	2010
2024	2018
2025	2019

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
2026	2020
2027	2021
2028	2022
2029	2023
2030	N/A
2031	2026
2032	2030
2033	N/A
2034	2031
2035	2032
2036	2033
2037	N/A
2038	N/A
2039	N/A
2040	N/A
2041	2034
2042	2035
2043	2036
2044	2037
2045	2038
2046	2039
2047	2040
2048	2041
2049	2042
2050	2043
2051	2044
3000 FIRE AND FUELS MANAGEMENT (FM)	
3001	3001
3002	3002
3003	3003
3004	3004
3005	3005
3006	3006
3007	3007
3008	3008
3009	3009
3010	3010
3011	3011
3012	3012
3013	3013
3014	3014
3015	3015
3016	3016
4000 BIOLOGICAL RESOURCES (BR)	
4001	4001
4002	4002
4003	4003
4004	4004
4005	4005
4006	4006
4007	4007
4008	4008
4009	4009

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
4010	N/A
4011	4010
4012	4011
4013	4012
4014	4013
4015	4014
4016	4015
4017	4016
4018	4017
4019	4018
4020	4019
4021	4020
4022	4021
4023	4022
4024	4023
4025	4024
4026	4025
4027	4026
4028	4027
4029	4028
4030	4029
4031	4030
4032	4031
4033	4032
4034	4033
4035	4034
4036	4035
4037	4036
4038	4037
4039	4038
4040	4039
4041	4040
4042	4041
4043	4042
4044	4043
4045	4044
4046	4045
4047	4046
4048	4047
4049	4048
4050	4049
4051	4050
4052	N/A
4053	4051
4054	4052
4055	4053
4056	4054
4057	4055
4058	4056
4059	4057
4060	4058
4061	4059
4062	4060

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
4063	4061
4064	4062
4065	4063
4066	4064
4067	4065
4068	4066
4069	4067
4070	4068
4071	4069
4072	4070
4073	4071
4074	4072
4075	4073
4076	4074
4077	4075
4078	4076
4079	4077
4080	4078
4081	4079
4082	4080
4083	4081
4084	4082
4085	4083
4086	4084
4087	4085
4088	4086
4089	4087
4090	4088
4091	4089
4092	4090
4093	4091
4094	4092
4095	4093
4096	4094
4097	4095
4098	4096
4099	4097
4100	4098
4101	4099
4102	4100
4103	4101
4104	4102
4105	4103
4106	4104
4107	4105
4108	6198
4109	4116
4110	4117
4111	4119
4112	4121
4113	N/A
4114	4122
4115	4125

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
4116	4133
4117	4106
4118	4107
4119	4108
4120	4109
4121	4110
4122	4111
7179	4112
7180	4113
7230	4114
7287	4115
4123	4118
4124	4120
4125	4123
4126	4124
4127	N/A
4128	N/A
4129	4131
4130	4132
4131	4126
4132	4127
4133	4128
4134	4129
4135	4130
4136	4134
4137	4135
4138	4136
4139	4137
4140	4138
4141	4139
4142	4140
4143	4141
4144	N/A
4145	4142
4146	4143
4147	4144
4148	4145
4149	4146
4150	N/A
4151	4147
4152	4148
4153	4149
4154	N/A
4155	4150
4156	N/A
5000 HERITAGE AND VISUAL RESOURCES (HR)	
5001	5001
5002	5002
5003	5003
5004	5004
5005	5005
5006	5006
5007	5007

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
5008	5008
5009	5009
5010	5010
5011	5011
5012	5012
5013	5013
5014	5014
5015	5015
5016	5016
5017	5017
5018	5018
5019	N/A
5020	5019
5021	5020
5022	5021
5023	5022
5024	5023
5025	5024
5026	5025
5027	5026
5028	5027
5029	5028
5030	5029
5031	5030
5032	5031
5033	5032
5034	5033
5035	5034
5036	5035
5037	5036
5038	5037
5039	5038
5040	5039
5041	5040
5042	5041
5043	5042
5044	5043
5045	5044
5046	5045
5047	5046
5048	5047
5049	5048
5050	5049
5051	5050
5052	5051
5053	5052
5054	5053
5055	5054
6000 LAND RESOURCES (LR)	
6001	6001
6002	6002
6003	6003
6004	N/A

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
6005	6004
6006	N/A
6007	N/A
6008	6005
6009	6006
6010	6007
6011	6008
6012	6009
6013	6010
6014	6011
6015	6012
6016	6013
6017	6014
6018	N/A
6019	6015
6020	6016
6021	N/A
6022	6017
6023	6018
6024	6019
6025	6020
6026	6021
6027	6022
6028	6023
6029	6024
6030	6025
6031	6026
6032	6027
6033	6028
6034	6029
6035	6030
6036	N/A
6037	6031
6038	6032
6039	N/A
6040	6033
6041	6034
6042	6035
6043	6036
6044	6037
6045	6038
6046	6039
6047	6040
6048	6041
6049	6042
6050	6043
6051	6044
6052	6045
6053	6046
6054	6047
6055	6048
6056	6049
6057	6050

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
6058	6051
6059	6052
6060	6053
6061	6054
6062	6055
6063	6056
6064	6057
6065	N/A
6066	6058
6067	6059
6068	6060
6069	6061
6070	6062
6071	6063
6072	6064
6073	6065
6074	6066
6075	6067
6076	6068
6077	6069
6078	6070
6079	6071
6080	6072
6081	6073
6082	6074
6083	6075
6084	6075
6085	6076
6086	N/A
6087	6077
6088	6078
6089	6079
6090	6080
6091	6081
6092	N/A
6093	6082
6094	6083
6095	6084
6096	6085
6097	6086
6098	6087
6099	6088
6100	6089
6101	6090
6102	6091
6103	6092
6104	6093
6105	6094
6106	6095
6107	6096
6108	6097
6109	6098
6110	6099

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
6111	6100
6112	6101
6113	6102
6114	6103
6115	N/A
6116	N/A
6117	N/A
6118	N/A
6119	N/A
6120	N/A
6121	N/A
6122	N/A
6123	6104
6124	6105
6125	6106
6126	6107
6127	6108
6128	6109
6129	6110
6130	6111
6131	6112
6132	6113
6133	6114
6134	6115
6135	6116
6136	6117
6137	6118
6138	6119
6139	6120
6140	6121
6141	6122
6142	6123
6143	6124
6144	6125
6145	6126
6146	6127
6147	6128
6148	6129
6149	6130
6150	6131
6151	6132
6152	6133
6153	6134
6154	6135
6155	6136
6156	6137
6157	6138
6158	6139
6159	6140
6160	6141
6161	6142
6162	6143
6163	6144

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
6164	6145
6165	6146
6166	6147
6167	6148
6168	6149
6169	6150
6170	6151
6171	6152
6172	6153
6173	6154
6174	6155
6175	6156
6176	6157
6177	6158
6178	6159
6179	6160
6180	6161
6181	6162
6182	6163
6183	6164
6184	6165
6185	N/A
6186	N/A
6187	N/A
6188	N/A
6189	N/A
6190	N/A
6191	N/A
6192	N/A
6193	N/A
6194	N/A
6195	N/A
6196	N/A
6197	N/A
6198	N/A
6199	N/A
6200	N/A
6201	N/A
6202	N/A
6203	N/A
6204	N/A
6205	N/A
6206	6166
6207	6167
6208	6168
6209	6169
6210	6170
6211	6171
6212	6172
6213	6173
6214	6174
6215	N/A
6216	6175

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
6217	6176
6218	6177
6219	6178
6220	6179
6221	6180
6222	6181
6223	6182
6224	6183
6225	6184
6226	6185
6227	6186
6228	6187
6229	6188
6230	6189
6231	6190
6232	6191
6233	6192
6234	6193
6235	N/A
6236	N/A
6237	N/A
6238	N/A
6239	N/A
6240	N/A
6241	N/A
6242	N/A
6243	N/A
6244	N/A
6245	N/A
6246	N/A
6247	N/A
6248	N/A
6249	N/A
6250	N/A
6251	6194
6252	6195
6253	6196
6254	6197
6255	N/A
6256	N/A
6257	N/A
6258	N/A
6259	N/A
6260	N/A
6261	N/A
6262	N/A
6263	N/A
6264	N/A
6265	N/A
6266	N/A
6267	6198
6268	6199

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
6269	6200
6270	6201
6271	6202
6272	3203
6273	6204
6274	6205
6275	6206
6276	6207
6277	6208
6278	6209
6279	6210
6280	6211
6281	6212
6282	6213
6283	6214
7000 SPECIAL DESIGNATIONS (SD)	
7001	7001
7002	7002
7003	7003
7004	7004
7005	7005
7006	7006
7007	7007
7008	7008
7009	7009
7010	7010
7011	7011
7012	7012
7013	7013
7014	7014
7015	7015
7016	7016
7017	7017
7018	7018
7019	7019
7020	7020
7021	7021
7022	7022
7023	N/A
7024	N/A
7025	N/A
7026	N/A
7027	N/A
7028	N/A
7029	N/A
7030	7023
7031	7024
7032	7025
7033	7026
7034	7027
7035	7028
7036	7029
7037	N/A

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
7038	N/A
7039	N/A
7040	N/A
7041	N/A
7042	N/A
7043	N/A
7044	N/A
7045	N/A
7046	N/A
7047	N/A
7048	N/A
7049	N/A
7050	N/A
7051	N/A
7052	N/A
7053	N/A
7054	N/A
7055	N/A
7056	N/A
7057	N/A
7058	N/A
7059	N/A
7060	N/A
7061	N/A
7062	N/A
7063	N/A
7064	N/A
7065	N/A
7066	N/A
7067	N/A
7068	N/A
7069	N/A
7070	N/A
7071	N/A
7072	N/A
7073	N/A
7074	N/A
7075	N/A
7076	7030
7077	7031
7078	7032
7079	7033
7080	7034
7081	7035
7082	7036
7083	7037
7084	N/A
7085	N/A
7086	N/A
7087	N/A
7088	N/A
7089	N/A

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
7090	N/A
7091	N/A
7092	N/A
7093	N/A
7094	N/A
7095	N/A
7096	N/A
7097	N/A
7098	N/A
7099	N/A
7100	N/A
7101	N/A
7102	N/A
7103	N/A
7104	N/A
7105	N/A
7106	N/A
7107	N/A
7108	N/A
7109	N/A
7110	N/A
7111	N/A
7112	N/A
7113	N/A
7114	N/A
7115	N/A
7116	N/A
7117	N/A
7118	N/A
7119	N/A
7120	N/A
7121	N/A
7122	N/A
7123	N/A
7124	N/A
7125	N/A
7126	N/A
7127	N/A
7128	N/A
7129	N/A
7130	N/A
7131	N/A
7132	N/A
7133	N/A
7134	N/A
7135	N/A
7136	N/A
7137	N/A
7138	N/A
7139	N/A
7140	N/A
7141	N/A

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
7142	N/A
7143	N/A
7144	N/A
7145	N/A
7146	N/A
7147	N/A
7148	N/A
7149	N/A
7150	N/A
7151	N/A
7152	N/A
7153	N/A
7154	N/A
7155	N/A
7156	N/A
7157	N/A
7158	N/A
7159	N/A
7160	N/A
7161	N/A
7162	N/A
7163	N/A
7164	N/A
7165	N/A
7166	N/A
7167	N/A
7168	N/A
7169	N/A
7170	N/A
7171	N/A
7172	N/A
7173	N/A
7174	N/A
7175	N/A
7176	N/A
7177	N/A
7178	N/A
7179	4112
7180	4113
7181	N/A
7182	N/A
7183	N/A
7184	N/A
7185	N/A
7186	N/A
7187	N/A
7188	N/A
7189	N/A
7190	N/A
7191	N/A
7192	N/A
7193	N/A

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
7194	N/A
7195	N/A
7196	N/A
7197	N/A
7198	N/A
7199	N/A
7200	N/A
7201	N/A
7202	N/A
7203	N/A
7204	N/A
7205	N/A
7206	N/A
7207	N/A
7208	N/A
7209	N/A
7210	N/A
7211	N/A
7212	N/A
7213	N/A
7214	N/A
7215	N/A
7216	N/A
7217	N/A
7218	N/A
7219	N/A
7220	N/A
7221	N/A
7222	N/A
7223	N/A
7224	N/A
7225	N/A
7226	N/A
7227	N/A
7228	N/A
7229	N/A
7230	4114
7231	N/A
7232	N/A
7233	N/A
7234	N/A
7235	N/A
7236	N/A
7237	N/A
7238	N/A
7239	N/A
7240	N/A
7241	N/A
7242	N/A
7243	N/A
7244	N/A
7245	N/A

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
7246	N/A
7247	N/A
7248	N/A
7249	N/A
7250	N/A
7251	N/A
7252	N/A
7253	N/A
7254	N/A
7255	N/A
7256	N/A
7257	N/A
7258	N/A
7259	N/A
7260	N/A
7261	N/A
7262	N/A
7263	N/A
7264	N/A
7265	N/A
7266	N/A
7267	N/A
7268	N/A
7269	N/A
7270	N/A
7271	N/A
7272	N/A
7273	N/A
7274	N/A
7275	N/A
7276	N/A
7277	N/A
7278	N/A
7279	N/A
7280	N/A
7281	N/A
7282	N/A
7283	N/A
7284	N/A
7285	N/A
7286	N/A
7287	4115
7288	7038
7289	7039
7290	7040
7291	7041
7292	N/A
7293	N/A
7294	N/A
7295	N/A
7296	N/A
7297	N/A

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
7298	N/A
7299	N/A
7300	N/A
7301	N/A
7302	7042
7303	7043
7304	7044
7305	7045
7306	7046
7307	N/A
7308	N/A
7309	N/A
7310	N/A
7311	N/A
7312	N/A
7313	N/A
7314	N/A
7315	N/A
7316	N/A
7317	N/A
7318	N/A
7319	N/A
7320	N/A
7321	N/A
7322	N/A
7323	N/A
7324	N/A
7325	N/A
7326	7047
7327	7048
7328	7049
7329	7050
7330	7051
7331	7052
7332	7053
7333	7054
7334	7055
7335	7056
7336	7057
7337	N/A
7338	7058
7339	7059
8000 SOCIOECONOMIC RESOURCES (SR)	
8001	8001
8002	8002
8003	8003
8004	8004
8005	8005
8006	8006
8007	8007
8008	8008
8009	8009

Proposed RMP and Final EIS Management Action Numbers	Approved RMP Decision Record Numbers
8010	8010
8011	8011
8012	8012
8013	8013
8014	8014
8015	8015
8016	8016
8017	8017
EIS Environmental Impact Statement N/A Not applicable RMP Resource Management Plan	

Table P.2. Maps Crosswalk

Proposed RMP and Final EIS	Approved RMP
N/A	Map 1-1. Worland Planning Area, Surface Management and Sub-Surface Estate
N/A	Map 1-2. Worland Planning Area, Greater Sage-Grouse Habitat Management Areas across All Jurisdictions
N/A	Map 1-3. Worland Decision Area, Greater Sage-Grouse Habitat Management Areas for BLM Administered Lands
N/A	Map 2-1. Worland Habitat Management Areas
N/A	Map 2-2. Worland Livestock Grazing
N/A	Map 2-3. Worland Fluid Minerals (Oil and Gas)
N/A	Map 2-4. Worland Locatable Minerals
N/A	Map 2-5. Worland Salable Minerals (Mineral Materials)
N/A	Map 2-6. Worland Wind Energy
N/A	Map 2-7. Worland Designated Utility Corridors
N/A	Map 2-8. Worland Rights-of-Way
N/A	Map 2-9. Worland Land Tenure
N/A	Map 2-10. Worland Trails & Travel Management (OHV)
Map 1. Surface Ownership within the Bighorn Basin Planning Area	Map 1-4. Surface Ownership within the Worland Field Office
Map 2. Mineral Ownership within the Bighorn Basin Planning Area	Map 1-5. Mineral Ownership within the Worland Field Office
Map 3. Physical Resources – Water – All Alternatives	Map 3-1. Physical Resources – Water
Map 4. Mineral Resources – Locatable – Bentonite-Bearing Strata – All Alternatives	Map 3-2. Mineral Resources – Locatable – Bentonite-Bearing Strata
Map 5. Mineral Resources – Locatable – Gypsum-Bearing Strata – All Alternatives	Map 3-3. Mineral Resources – Locatable – Gypsum-Bearing Strata
Map 6. Mineral Resources – Leasable – Coal-Bearing Strata – All Alternatives	Map 3-5. Mineral Resources – Leasable – Coal-Bearing Strata
Map 7. Mineral Resources – Leasable – Existing Oil and Gas Leases – All Alternatives	Map 3-7. Mineral Resources – Leasable Existing Oil and Gas Leases
Map 8. Mineral Resources – Salable-Mineral Materials Sites – All Alternatives	Map 3-1. Mineral Resources – Salable-Mineral Materials Sites
Map 9. Mineral Resources Locatable – Alternative A	N/A
Map 10. Mineral Resources Locatable – Alternative B	N/A
Map 11. Mineral Resources Locatable – Alternative C	N/A
Map 12. Mineral Resources Locatable – Alternative D (Proposed RMP) and F	Map 3-4. Mineral Resources Locatable
Map 13. Mineral Resources Locatable – Alternative E	N/A

Proposed RMP and Final EIS	Approved RMP
Map 14. Mineral Resources Leasable – Geothermal – Alternative A	N/A
Map 15. Mineral Resources Leasable – Geothermal – Alternatives B and E	N/A
Map 16. Mineral Resources Leasable – Geothermal – Alternative C	N/A
Map 17. Mineral Resources Leasable – Geothermal – Alternatives D (Proposed RMP) and F	Map 3-6. Mineral Resources Leasable – Geothermal
Map 18. Mineral Resources Leasable – Oil and Gas – Alternative A	N/A
Map 19. Mineral Resources Leasable – Oil and Gas – Alternative B	N/A
Map 20. Mineral Resources Leasable – Oil and Gas – Alternative C	N/A
Map 21. Mineral Resources Leasable – Oil and Gas – Alternative D (Proposed RMP)	Map 3-8. Mineral Resources Leasable – Oil and Gas
Map 22. Mineral Resources Leasable – Oil and Gas – Alternative E	N/A
Map 23. Mineral Resources Leasable – Oil and Gas – Alternative F	N/A
Map 24. Mineral Resources Leasable – Oil and Gas Management Areas – Alternative C	N/A
Map 25. Mineral Resources Leasable – Oil and Gas Management Areas – Alternatives D (Proposed RMP) and F	Map 3-9. Mineral Resources Leasable – Oil and Gas Management Areas
Map 26. Mineral Resources – Leasable – Producing Oil and Gas Fields – All Alternatives	Map 3-10. Mineral Resources – Leasable – Producing Oil and Gas Fields
Map 27. Mineral Resources Leasable – Oil and Gas-Existing Leases – Alternative E	N/A
Map 28. Mineral Resources Leasable – Oil and Gas-Existing Leases – Alternative F	N/A
Map 29. Mineral Resources – Salable – Sand and Gravel Deposits – All Alternatives	N/A
Map 30. Mineral Resources Salable – Alternative A	N/A
Map 31. Mineral Resources Salable – Alternative B	N/A
Map 32. Mineral Resources Salable – Alternative C	N/A
Map 33. Mineral Resources Salable – Alternatives D (Proposed RMP) and F	Map 3-12. Mineral Resources – Salable
Map 34. Mineral Resources Salable – Alternative E	N/A
Map 35. Mineral Resources – Master Leasing Plan – Alternatives D (Proposed RMP) and F	Map 3-13. Mineral Resources – Master Leasing Plan
Map 36. Biological Resources – Vegetation – All Alternatives	Map 3-15. Biological Resources – Vegetation
Map 37. Biological Resources – Wildlife-Management Areas – Alternative D (Proposed RMP)	Map 3-14. Biological Resources – Wildlife-Management Areas
Map 38. Biological Resources – Wildlife-Management Areas – Alternative F	N/A
Map 39. Biological Resources – Special Status Species-Wildlife – Alternative A	N/A
Map 40. Biological Resources – Special Status Species-Wildlife – Alternatives B and E	N/A
Map 41. Biological Resources – Special Status Species-Wildlife – Alternative C	N/A
Map 42. Biological Resources – Special Status Species-Wildlife – Alternative D (Proposed RMP)	Map 3-17. Biological Resources – Special Status Species – Wildlife

Proposed RMP and Final EIS	Approved RMP
Map 42a. Biological Resources – Special Status Species – Greater Sage-Grouse	N/A
Map 43. Biological Resources – Special Status Species-Wildlife – Alternative F	N/A
Map 44. Biological Resources – Fish and Wildlife Resources – All Alternatives	Map 3-16. Biological Resources – Fish and Wildlife Resources
Map 45. Biological Resources – Wild Horses – All Alternatives	Map 3-18. Biological Resources – Wild Horses
Map 46. Heritage and Visual Resources – Paleontological Resources – All Alternatives	Map 3-19. Heritage and Visual Resources – Paleontological Resources
Map 47. Heritage and Visual Resources – Visual Resource Management – Alternative A	N/A
Map 48. Heritage and Visual Resources – Visual Resource Management – Alternatives B and E	N/A
Map 49. Heritage and Visual Resources – Visual Resource Management – Alternative C	N/A
Map 50. Heritage and Visual Resources – Visual Resource Management – Alternative D (Proposed RMP)	Map 3-20. Heritage and Visual Resources – Visual Resource Management
Map 51. Land Resources – Lands and Realty Retention, Disposal, and Acquisition – Alternative A	N/A
Map 52. Land Resources – Lands and Realty Retention, Disposal, and Acquisition – Alternative B	N/A
Map 53. Land Resources – Lands and Realty Retention, Disposal, and Acquisition – Alternative C	N/A
Map 54. Land Resources – Lands and Realty Retention, Disposal, and Acquisition – Alternatives D (Proposed RMP) and F	Map 3-21. Land Resources – Lands and Realty Retention, Disposal, and Acquisition
Map 55. Land Resources – Lands and Realty Retention, Disposal, and Acquisition – Alternative E	N/A
Map 56. Land Resources – Renewable Energy Potential – All Alternatives	Map 3-22. Land Resources – Renewable Energy Potential
Map 57. Land Resources – Renewable Energy – Alternative B	N/A
Map 58. Land Resources – Renewable Energy – Alternative C	N/A
Map 59. Land Resources – Renewable Energy – Alternative D (Proposed RMP)	Map 3-23. Land Resources – Renewable Energy
Map 60. Land Resources – Renewable Energy – Alternative E	N/A
Map 61. Land Resources – Renewable Energy – Alternative F	N/A
Map 62. Physical Resources – Soil Slope and Erosion Hazard – All Alternatives	Map 3-25. Physical Resources – Soil Slope and Erosion Hazard
Map 63. Land Resources – Rights-of-Way and Corridors – Alternative A	N/A
Map 64. Land Resources – Rights-of-Way and Corridors – Alternative B	N/A
Map 65. Land Resources – Rights-of-Way and Corridors – Alternative C	N/A
Map 66. Land Resources – Rights-of-Way and Corridors – Alternative D (Proposed RMP)	Map 3-24. Land Resources – Rights-of-Way and Corridors
Map 67. Land Resources – Rights-of-Way and Corridors – Alternative E	N/A
Map 68. Land Resources – Rights-of-Way and Corridors – Alternative F	N/A

Proposed RMP and Final EIS	Approved RMP
Map 69. Land Resources – Travel Management Designations – Alternative A	N/A
Map 70. Land Resources – Travel Management Designations – Alternative B	N/A
Map 71. Land Resources – Travel Management Designations – Alternative C	N/A
Map 72. Land Resources – Travel Management Designations – Alternative D (Proposed RMP)	Map 3-26. Land Resources – Travel Management Designations
Map 73. Land Resources – Travel Management Designations – Alternative E	N/A
Map 74. Land Resources – Travel Management Designations – Alternative F	N/A
Map 75. Land Resources – Recreation – Alternative A	N/A
Map 76. Land Resources – Recreation – Alternatives B and E	N/A
Map 77. Land Resources – Recreation – Alternative C	N/A
Map 78. Land Resources – Recreation – Alternatives D (Proposed RMP) and F	Map 3-27. Land Resources – Recreation
Map 79. Land Resources – Inventoried Lands with Wilderness Characteristics – All Alternatives	N/A
Map 80. Land Resources – Livestock Grazing Allotment Categories – All Alternatives	Map 3-28. Land Resources — Livestock Grazing – Allotment Categories
Map 81. Land Resources – Livestock Grazing-Closures – Alternatives A, C, D (Proposed RMP), and F	Map 3-29. Land Resources – Livestock Grazing – Closures
Map 82. Land Resources – Livestock Grazing-Closures – Alternative B	N/A
Map 83. Land Resources – Livestock Grazing-Closures – Alternative E	N/A
Map 84. Special Designations – Areas of Critical Environmental Concern and other Management Areas – Alternative A	N/A
Map 85. Special Designations – Areas of Critical Environmental Concern and other Management Areas – Alternative B	N/A
Map 86. Special Designations – Areas of Critical Environmental Concern and other Management Areas – Alternative C	N/A
Map 87. Special Designations – Areas of Critical Environmental Concern and other Management Areas – Alternative D (Proposed RMP)	Map 3-30. Special Designations – Areas of Critical Environmental Concern and other Management Areas
Map 88. Special Designations – Areas of Critical Environmental Concern and other Management Areas – Alternative E	N/A
Map 89. Special Designations – Areas of Critical Environmental Concern and other Management Areas – Alternative F	N/A
Map 90. Special Designations – National Back Country Byways – All Alternatives	N/A
Map 91. Special Designations – National Historic Trail and Other Trails – Alternatives A, B, C, and E	Map 3-32. Special Designations – Historic Trails
Map 92. Special Designations – National Historic Trail and Other Trails – Alternatives D (Proposed RMP) and F	N/A
Map 93. Special Designations – Wilderness Study Areas and National Historic Landmark – All Alternatives	Map 3-31. Special Designations – Wilderness Study Areas

Proposed RMP and Final EIS	Approved RMP
Map 94. Special Designations – Wild and Scenic Rivers – Alternatives A, B, and E	N/A
Map 95. Socioeconomic Resources – Health and Safety – All Alternatives	Map 3-33. Socioeconomic Resources – Health and Safety
Map 96. Physical Resources – Geology – All Alternatives	N/A
Map 96. Physical Resources – Geology – All Alternatives - Legend	N/A
EIS Environmental Impact Statement N/A Not applicable RMP Resource Management Plan	

Table P.3. Appendices Crosswalk

Proposed RMP and Final EIS	Approved RMP
N/A	Appendix A Maps
Appendix A Comment Analysis	N/A
Appendix B Laws, Regulations, Policies, and Guidance	Appendix E Laws, Regulations, Policies, and Guidance
Appendix C Monitoring and Evaluation	Appendix H Monitoring and Evaluation
Appendix D Implementation	Appendix L Implementation
Appendix E Consultation Letters and Cooperating Agency Position Statements	N/A
Appendix F Special Designations: Wild and Scenic Rivers and Areas of Critical Environmental Concern	N/A
Appendix G Lease Stipulations, including Exception, Modification, and Waiver Criteria	Appendix B Oil and Gas Lease Notices and Lease Stipulations, including Exception, Modification, and Waiver Criteria
Appendix H Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities	Appendix F Wyoming Bureau of Land Management Mitigation Guidelines for Surface-Disturbing and Disruptive Activities
Appendix I Standard Oil and Gas Stipulations	Appendix B Standard Oil and Gas Stipulations and Lease Stipulations, including Exception, Modification, and Waiver Criteria
Appendix J Bighorn Basin Air Resource Management Plan	Appendix M Bighorn Basin Air Resource Management Plan
Appendix K Biological Resources	Appendix N Seasonal Raptor Stipulations for All Surface-Disturbing and Disruptive Activities
Appendix L Required Design Features and Best Management Practices	Appendix C Required Design Features and Best Management Practices
Appendix M Land Disposal and Acquisition	Appendix I Land Disposal and Acquisition
Appendix N Wyoming Standards for Healthy Rangelands	N/A
Appendix O Recreation Management	Appendix J Recreation Management
Appendix P Livestock Grazing	Appendix O Livestock Grazing
Appendix Q Economic Impact Analysis Methodology	N/A
Appendix R Comprehensive Travel and Transportation Management	N/A
Appendix S Lands with Wilderness Characteristics	N/A
Appendix T Surface Disturbance and Reasonable Foreseeable Actions	N/A
Appendix U Technical Support Document for Air Quality	N/A
Appendix V Water Erosion Prediction Project Technical Support Document	N/A
Appendix W Utilization Levels in the Planning Area	N/A
Appendix X Visual Resource Inventory	N/A
Appendix Y Greater Sage-Grouse Implementation Strategy	Appendix D Greater Sage-Grouse Habitat Management Strategy

Proposed RMP and Final EIS	Approved RMP
Appendix Z Federal Oil and Gas Operations on Split-Estate Lands	Appendix G Federal Oil and Gas Operations on Split-Estate Lands
N/A	Appendix K Biological Opinion
N/A	Appendix P Final Environmental Impact Statement and Record of Decision Crosswalk
EIS Environmental Impact Statement N/A Not applicable RMP Resource Management Plan	