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Bureau of Land Management

Utah

Grand Staircase-Escalante National Monument and Kanab-Escalante Planning Area Draft Resource Management Plans and Environmental Impact Statement

Volume I (Chapters 1–4)



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BLM Mission

**It is the mission of the Bureau of Land Management to sustain health,
diversity, and productivity of the public lands for use and enjoyment of
present and future generations.**

Volume 1 of 2

Grand Staircase-Escalante National Monument and Kanab-Escalante Planning Area Draft Resource Management Plans and Environmental Impact Statement

**Volume 1 of 2
Chapters 1–4**

**U.S. Department of the Interior
Bureau of Land Management
Grand Staircase Escalante National Monument, Utah**

August 2018



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

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In Reply Refer To:

1610
(UT-935)

Dear Reader:

Enclosed for your review and comment is the modified Draft Resource Management Plans/Environmental Impact Statement (RMPs/EIS) for the three units of Grand Staircase-Escalante National Monument (GSENM)—Grand Staircase, Kaiparowits, and Escalante Canyons Units—and the lands excluded from the monument by Presidential Proclamation 9682.

The Draft RMPs/EIS was prepared by the Bureau of Land Management (BLM) pursuant to the National Environmental Policy Act of 1969. The BLM is proposing to adopt RMPs to replace the existing Grand Staircase-Escalante National Monument Management Plan.

On August 17, 2018, the Bureau of Land Management noticed in the Federal Register (FR Doc. 2018-17751) the availability of the Draft RMPs/EIS. Soon after publishing the document, the BLM identified an error related to potential disposal of Federal lands under the Federal Land Policy and Management Act, as amended (FLPMA). The BLM has modified the Draft RMPs/EIS so that it does not include any Federal lands identified as available for potential disposal. These modifications do not substantially change the alternatives or the analysis of effects on the human environment. In conjunction with this modified Draft RMPs/EIS, the BLM has prepared an errata, which includes information about specific changes made to the document since the August 17, 2018 publication.

President Clinton established GSENM by Presidential Proclamation 6920 on September 18, 1996. On December 4, 2017, President Trump issued Proclamation 9682, which modified the boundaries of GSENM and modified and clarified the management direction for the monument. The modified boundaries of GSENM exclude from designation and reservation approximately 861,974 acres of land and release the lands for multiple-use management. These lands, now excluded from the monument, are referred to in the Draft EIS as the Kanab-Escalante Planning Area. Lands that remain part of GSENM are included in three units, known as the Grand Staircase (209,993 acres), Kaiparowits (551,034 acres), and Escalante Canyons (242,836 acres) Units.

In developing the Draft RMPs/EIS, the BLM has developed a range of options to resolve resource conflicts. The BLM has done this by considering (1) issues raised through public scoping and consultation and coordination with cooperating agencies, (2) issues raised by agency resource specialists, and (3) applicable planning criteria. This process has resulted in the development of three alternatives, along with the No Action Alternative, which represents a continuation of current management to the extent it is consistent with Presidential Proclamation 9682. These alternatives are described in their entirety in Chapter 2 of the Draft RMPs/EIS. Alternative D has been identified by the BLM as the preferred alternative. For livestock grazing decisions within the Glen Canyon National Recreation Area, the National Park Service identified Alternative C as its preferred alternative. Chapter 3 presents the affected environment and analyzes the potential impacts on resources or resource uses from implementation of the alternatives. Chapter 4 describes the BLM's consultation and coordination efforts throughout the process.

The BLM encourages the public to review and provide comments on the modified Draft RMPs/EIS. Of particular importance is feedback concerning the adequacy of the alternatives, the analysis of their respective management strategies, and any new information that would help the agency produce the Proposed RMPs/Final EIS. In developing the Proposed RMPs/Final EIS, which is the next phase of the planning process, the decisionmaker may select various management decisions from each of the alternatives analyzed in the Draft RMPs/EIS for the purpose of creating a management strategy that best meets the need of protecting the monument objects and values identified in Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, while providing for multiple uses.

The modified Draft RMPs/EIS is available on the project website at: <https://goo.gl/EHvhbc>. Hard copies are also available for public review at BLM offices within the Planning Area.

To provide sufficient opportunity for public input on the modified Draft RMPs/EIS, the public comment period has been extended by 15 days. Public comments will be accepted until November 30, 2018. Any comments received by the BLM following publication of the Draft RMPs/EIS in the *Federal Register* on August 17, 2018, but prior to publication of the Notice of Error in the *Federal Register* on August 31, 2018, will be included in the project record and considered by the BLM in developing the Proposed RMPs/Final EIS. Written comments may be submitted as follows (submittal of electronic comments is encouraged):

Website: <https://goo.gl/EHvhbc>
Mail: GSENM/KEPA Draft RMPs/EIS
669 S Hwy 89A
Kanab, UT 84741

To facilitate analysis of comments and information submitted, we encourage you to submit comments in an electronic format. Before including your address, telephone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment, including your personal identifying information, may be made publicly available at any time. Although you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Public meetings will be held at various locations around the Planning Area to provide the public with opportunities to submit comments and seek additional information. The locations, dates, and times of these meetings will be announced at least 15 days prior to the first meeting via a press release and on the project website: <https://goo.gl/EHvhbc>.

Thank you for your continued interest in the GSENM RMPs/EIS. We appreciate the information and suggestions you contribute to the process.

Sincerely,



Edwin L. Roberson

State Director

Abstract

Lead Agency: U.S. Department of the Interior, Bureau of Land Management

Type of Action: Administrative Draft

Jurisdiction: Portions of Kane and Garfield Counties, Utah

Abstract: This Draft Environmental Impact Statement (EIS) analyzes the environmental impacts for four distinct Resource Management Plans (RMPs): an RMP for each of the Grand Staircase-Escalante National Monument (GSENM) units—Grand Staircase, Kaiparowits, and Escalante Canyons—and an RMP for Federal lands previously included in the monument that were excluded from the boundaries by Presidential Proclamation 9682 (i.e., Kanab-Escalante Planning Area [KEPA] lands).

The Planning Area encompasses approximately 1.86 million acres of Federal land, including lands originally designated under Presidential Proclamation 6920 on September 18, 1996, and lands added to the monument through subsequent boundary adjustments and land exchanges. On December 4, 2017, President Trump issued Presidential Proclamation 9682 modifying GSENM and excluding from designation and reservation approximately 861,974 acres of Bureau of Land Management (BLM)-administered surface land. Lands that remain part of GSENM (1,003,863 acres) are included in three units, known as the Grand Staircase (209,993 acres), Kaiparowits (551,034 acres), and Escalante Canyons (242,836 acres) Units. KEPA includes lands that are now excluded from the national monument (861,974 acres).

The preparation of RMPs for each of the three units in GSENM is required by Presidential Proclamation 9682, which modified the boundaries of GSENM and modified and clarified the management direction for the monument. The BLM has determined in light of the modifications included in Presidential Proclamation 9682 and other changed conditions since the preparation of the existing GSENM Approved Monument Management Plan and Record of Decision (2000), a new RMP is also needed to determine appropriate management actions for lands that are no longer part of the national monument (i.e., KEPA).

To assist the agency decisionmaker, cooperating agencies, and the public in focusing on appropriate solutions to planning issues, the Draft EIS considers four alternatives for each RMP. Alternative A is the no action alternative and is the continuation of existing management under the GSENM RMP. Alternative B emphasizes conservation of physical, biological, heritage, and visual resources, and lands with wilderness characteristics, with constraints on resource uses. Alternative C emphasizes reasonable constraints on resource uses to reduce impacts on resource values. Constraints under Alternative C balance the need to maintain areas as open and available for multiple uses with the need to protect resources on public lands. Alternative D, the BLM's preferred alternative, emphasizes resource uses and reduces constraints while ensuring the proper care and management of monument objects and maintaining compliance with existing laws and regulations designed to protect physical, biological, heritage, and visual resources.

When completed, the Records of Decision for the RMPs will provide comprehensive, long-range decisions for managing resources in the Planning Area and identify allowable uses on BLM-administered surface land and mineral estate. Comments are accepted for 90 days following the publication date of the Notice of Availability for these Draft RMPs and Draft EIS in the *Federal Register*. Comments should be submitted via website: Grand Staircase-Escalante National Monument: <https://goo.gl/EHvhbc>. Alternatively, comments can be mailed to: Matt Betenson, Bureau of Land Management, 669 South Highway 89A, Kanab, UT 84741.

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Acronyms-Abbreviations

Term	Definition
° C	Degrees Celsius
° F	Degrees Fahrenheit
ACEC	Area of Critical Environmental Concern
AIM	Assessment, Inventory, and Monitoring
AirTAG	Air Resources Technical Advisory Group
AMS	Analysis of the Management Situation
ASFO	Arizona Strip Field Office
AUM	Animal unit month
bhp-hr	Brake horsepower-hour
BLM	Bureau of Land Management
BMP	Best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO ₂	Carbon dioxide
CSU	Controlled surface use
dBA	A-weighted decibel
DWFC	Desired Wildland Fire Condition
EC	Escalante Canyons Monument Unit
EIS	Environmental Impact Statement
EJ	Environmental justice
EPA	U.S. Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act of 1976
FMP	Fire Management Plan
FR	Federal Register
FRCC	Fire Regime Condition Class
GHG	Greenhouse gas
GIS	Geographic information system
GS	Grand Staircase Monument Unit
GSENM	Grand Staircase-Escalante National Monument
HA	Herd area
HAP	Hazardous air pollutant
HITRR	Hole-in-the-Rock Road
HMA	Herd Management Area
HUC-8	Hydrologic unit code-8
IM	Instruction Memorandum
ISA	Instant Study Area

Term	Definition
KE	Kanab-Escalante Planning Area
KEPA	Kanab-Escalante Planning Area
KFO	Kanab Field Office
KP	Kaiparowits Monument Unit
MFP	Management Framework Plan
MMP	Monument Management Plan
MSO	Mexican spotted owl
MZ	Management zone
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NOI	Notice of intent
NO _x	Nitrogen oxides
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
NSO	No surface occupancy
NTMC	National Trail Management Corridor
OBJ	Objective
OHV	Off-highway vehicle
ORV	Outstandingly remarkable value
OSNHT	Old Spanish National Historic Trail
PAC	Protected activity center
PEIS	Programmatic Environmental Impact Statement
PFC	proper functioning condition
PFYC	Potential Fossil Yield Classification
PM _{2.5}	Particulate matter 2.5 microns or less in diameter
PM ₁₀	Particulate matter 10 microns or less in diameter
R&I	Relevance and importance
R.S.	Revised Statute
RFD	Reasonably foreseeable development
RMP	Resource Management Plan
RMZ	Recreation Management Zone
ROD	Record of Decision
ROW	Right-of-way
SGMA	Sage-grouse Management Area
SITLA	School and Institutional Trust Lands Administration
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit

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Term	Definition
TLS	Timing limitation stipulation
TMA	Travel management area
TMP	Travel Management Plan
U.S.C.	United States Code
UDWR	Utah Division of Wildlife Resources
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile organic compound
VRI	Visual resource inventory
VRM	Visual Resource Management
WSA	Wilderness Study Area
WSR	Wild and Scenic River
WUI	Wildland-Urban Interface

1 Purpose and Need

1.1 Introduction

This Draft Environmental Impact Statement (EIS) analyzes the environmental effects for four distinct Draft Resource Management Plans (RMPs): an RMP for each of the Grand Staircase-Escalante National Monument (GSENM) units—Grand Staircase, Kaiparowits, and Escalante Canyons—and an RMP for federal lands previously included in the monument that were excluded from the boundaries by Presidential Proclamation 9682 (i.e., Kanab-Escalante Planning Area [KEPA] lands).

1.2 Planning Area Description

The Bureau of Land Management (BLM) Land Use Planning Handbook (H-1601-1) differentiates between geographic areas associated with planning. The *Planning Area* includes all lands within the boundaries of the GSENM units and KEPA, regardless of jurisdiction. The *Decision Area* includes the lands within the Planning Area for which the BLM has authority to make management decisions. The *analysis area* includes any lands, regardless of jurisdiction, that the BLM uses to analyze impacts on a particular resource. This area can extend beyond the Planning Area boundary. These areas will vary by resource and are important for a realistic analysis of potential impacts. The livestock grazing analysis includes allotments that the BLM administers in the Glen Canyon National Recreation Area (NRA) adjacent to the Planning Area. The BLM will not be making a decision on these areas, but the National Park Service may use the analysis in this EIS for subsequent decisions.

The Planning Area encompasses approximately 1.86 million acres¹ of Federal land, including lands originally designated under Presidential Proclamation 6920 on September 18, 1996, and lands added to the monument through subsequent boundary adjustments and land exchanges. On December 4, 2017, President Trump issued Presidential Proclamation 9682 modifying GSENM and excluding from designation and reservation approximately 861,974 acres of BLM-administered surface land. Lands that remain part of GSENM (1,003,863 acres) are included in three units, known as the Grand Staircase (209,993 acres), Kaiparowits (551,034 acres), and Escalante Canyons (242,836 acres) units. KEPA includes lands that are now excluded from the national monument (861,974 acres) (Map 1). The three GSENM units and KEPA are described in the following sections.

1.2.1 Grand Staircase Unit

The Grand Staircase Unit lies within the western portion of GSENM and is close to Kanab, Utah. The unit is bordered on the south by State Highway 89, on the west by Johnson Canyon Road, on the north by Skutumpah Road, and on the east by the Paria River. The Grand Staircase Unit is named for one of the iconic landscapes in the American West: an unbroken sequence of cliffs and plateaus, considered to be the most colorful exposed geologic section in the world.

¹ The Planning Area for livestock grazing includes an additional acreage in the BLM Kanab Field Office, Arizona Strip Field Office, and National Park Service Glen Canyon NRA. These areas are included because the BLM administers livestock grazing allotments or permits within these areas. Refer to Section 3.12, *Livestock Grazing*, for more information.

The White Cliffs and Vermilion Cliffs within the Grand Staircase Unit contain world-class paleontological sites. This area also contains a number of relict vegetative communities occurring on isolated mesa tops. The archaeology of the Grand Staircase Unit is dominated by sites constructed by the Virgin Branch of the Ancestral Puebloans who occupied the area from nearly 2000 B.C.E. to about 1250 C.E. The landscape was also the home of some of the earliest corn-related agriculture in the Southwest, and it continues to hold remnants of these early farmsteads and small pueblos. The higher cliffs, benches, and plateaus hold evidence of occupation by Archaic and Late Prehistoric people, including Clovis and other projectile points and residential pit structures that indicate occupation by hunter-gatherers starting about 13,000 years ago. Following the abandonment of the area by Ancestral Puebloans, the area was re-occupied by the people known today as the Southern Paiute Indians. The Southern Paiute Indians identify this area as part of their ancestral homeland.

1.2.2 Kaiparowits Unit

The Kaiparowits Unit lies within the center of GSENM and is the most remote and least visited of the GSENM units. The unit lies between the Escalante Desert to the east, the Big Water region to the south, the Paria River to the west, and Canaan Peak and Little Valley Wash to the north. The Kaiparowits Unit is dominated by a dissected mesa that rises thousands of feet above the surrounding terrain. These vast, rugged badlands are characterized by towering cliffs and escarpments that expose tiers of fossil-rich formations. This unit is also world renowned for rich fossil resources, including 16 species that have been found nowhere else. The plateau is considered one of the best, most continuous records of Late Cretaceous life in the world.

The rugged canyons and natural arches of the Upper Paria River expose the Carmel and Entrada formations that draw visitors to the unit. The western side of the Kaiparowits Unit includes the majority of the East Kaibab Monocline, which features an erosional “hogback” known as the “Cockscomb,” as well as broad exposures of multicolored rocks and intricate canyons. It is considered one of the true scenic and geologic wonders of the area. On the east side of the plateau, the Burning Hills is a geologic curiosity: a vast underground coal seam that some researchers believe has been burning for eons, sending acrid smoke up through vents in the ground and turning the hillsides brick red. Finally, along the eastern edge of the Kaiparowits Plateau is a series of oddly shaped arches and other rock formations known as the Devil’s Garden.

The Kaiparowits area also contains a unique record of human history. The overall archaeology of the Kaiparowits Plateau is dominated by Archaic and Late Prehistoric era sites. Prehistoric cliff structures in parts of the Kaiparowits Plateau are well preserved and provide researchers and visitors an opportunity to better understand the apparently peaceful mixture of three cultures starting in the early 1100s. In particular, the Fiftymile Mountain area contains hundreds of cultural resource sites, including Ancestral Puebloan habitations, granaries, and masonry structures. Historical use of the Kaiparowits area plays a very important part in the rich ranching history of southern Utah, which is evidenced by a complex pattern of roads, stock trails, line shacks, attempted farmsteads, and small mining operations. While the Hole-in-the-Rock Trail was under construction in 1879, Mormon pioneers camped in this area and held meetings and dances here. The old Paria Townsite is an important ghost town within the Kaiparowits area, as it served as the only town and post office site within the area at the turn of the 20th century.

1.2.3 Escalante Canyons Unit

The Escalante Canyons Unit lies on the northeast corner of GSENM and is the most visited of the three GSENM units. The unit lies between the Circle Cliffs and Glen Canyon NRA to the east, Hole-in-the-Rock Road to the south and west, and Dixie National Forest to the north.

The Canyonlands of the Escalante Canyons Unit display geologic activities and erosional forces that, over millions of years, created a network of deep, narrow canyons, high plateaus, sheer cliffs, and beautiful sandstone arches and natural bridges, including the 130-foot-tall Escalante Natural Bridge. Additionally, this unit contains Calf Creek Canyon, a canyon of red alcoved walls with expanses of white slickrock that is named for its use as a natural cattle pen at the end of the 19th century. To the east of the Canyonlands, Circle Cliffs is a breached anticline with spectacular painted-desert scenery, the result of exposed sedimentary rocks of the Triassic Chinle and Moenkopi formations. The Circle Cliffs area also contains large, unbroken petrified logs up to 30 feet in length.

The Escalante Canyons Unit also contains a high density of Fremont prehistoric sites, including pithouses, villages, storage cysts, and rock art. The canyon of the Escalante River and its tributary canyons contain one of the highest densities of rock art sites in southwestern Utah outside of Capitol Reef National Park, with sites dating from the Archaic to the Historic periods. The Hundred Hands rock art panel is located in the river canyon, and is spiritually significant to all tribes that claim ancestry in the area. There are also significant historical sites in this unit related to grazing and ranching, along with the Boulder Mail Trail, which was used to ferry mail between the small desert outpost towns of Escalante and Boulder beginning in 1902.

1.2.4 Kanab-Escalante Planning Area

The remaining 862,431 acres of land that were previously in GSENM and are now managed by the Kanab Field Office make up KEPA. KEPA lands are scattered across the Planning Area between and adjacent to the GSENM units described above. In general, the features, resources, and history of KEPA are similar to those described above for each of the GSENM units. Portions of KEPA are adjacent to various National Park Service and Forest Service lands including Capital Reef National Park, Dixie National Forest, Bryce Canyon National Park, and Glen Canyon NRA. KEPA includes the Hole-in-the-Rock-Road, which is one of the most highly traveled routes in the Planning Area and provides access to the Glen Canyon NRA.

1.3 Purpose of and Need for the Plan

The BLM has determined it is necessary to prepare new RMPs for the Planning Area based on the modified boundaries of GSENM in Presidential Proclamation 9682 and other changed conditions since the preparation of the existing GSENM Approved Monument Management Plan and Record of Decision (BLM 2000). The preparation of RMPs for each of the three units in GSENM is specifically required by Presidential Proclamation 9682. A new plan is also needed to determine appropriate management actions for lands that are no longer part of GSENM (i.e., KEPA).

The purpose of a land use plan is to ensure BLM-administered surface lands are managed in accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), which requires that the BLM “develop, maintain, and when appropriate, revise land-use plans” (43 United States Code [U.S.C.] 1712(a)). The purpose of these Draft RMPs is to provide the

allocation of resources and a comprehensive framework for the BLM's management of the public lands within the separate planning areas pursuant to the multiple-use and sustained yield mandates of FLPMA and specific direction in Presidential Proclamation 6920, as modified by Presidential Proclamation 9682. For the lands that remain within GSENM, the new RMPs will implement the modifications included in Presidential Proclamation 9682 and provide protection for and the proper care and management of the "object[s] of antiquity" and "objects of historic or scientific interest" (16 U.S.C. 431–433) of GSENM that were identified in Presidential Proclamation 6920, as modified by Proclamation 9682. These objects are also identified in Appendix E (*Grand Staircase-Escalante National Monument Objects and Resource Values*) of this Draft EIS. For lands excluded from GSENM by Proclamation 9682, the new RMPs will implement the President's vision that the lands are managed for multiple use as appropriate under FLPMA consistent with other applicable legal requirements.

1.4 Planning Criteria

Planning criteria are the constraints or ground rules that guide and direct the development of the RMP, and they determine how the planning team approaches development of alternatives and ultimately selects the Preferred Alternative. Preliminary planning criteria used in this RMP were listed in the January 2018 *Federal Register* notice of intent (NOI) to initiate the GSENM and KEPA RMPs/EIS, and additional planning criteria have been developed in response to the public scoping process and information following the NOI. The planning criteria for the GSENM and KEPA RMPs/EIS include the following:

- The planning process for the RMPs will be guided by Presidential Proclamation 6920 as modified by Presidential Proclamation 9682 in addition to FLPMA and the National Environmental Policy Act (NEPA).
- In accordance with Section 302 of FLPMA, BLM-administered surface lands in the Planning Area will be managed under the principles of multiple use and sustained yield "except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law." Therefore, if management of the Federal lands pursuant to the BLM's multiple-use and sustained yield mission conflicts with the direction in Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, the language provided within the proclamations overrides the management direction in the RMP.
- Federal lands excluded from GSENM will remain in Federal ownership and will be managed by the BLM under applicable laws.
- The BLM will ensure protection, conservation, and proper care and management of all identified GSENM objects as indicated in Appendix E (*Grand Staircase-Escalante National Monument Objects and Resource Values*) and Appendix I (*Monitoring Strategy*).
- The BLM will use current scientific information and results of inventory, monitoring, and coordination to determine appropriate management. The BLM will strive to incorporate the most current and readily available information to describe resources and to analyze potential impacts.
- The BLM will strive for consistency of management decisions with other adjoining planning jurisdictions, both Federal and non-Federal.

- The BLM will not repeat/duplicate direction from law, regulation, policy or agency guidance (e.g., instruction memoranda, manuals, handbooks) in the RMPs/EIS.
- Decisions made in the planning process will only apply to Federal lands and, where appropriate, to split-estate lands where the subsurface mineral estate is managed by the BLM.
- The BLM will honor valid existing rights (e.g., mineral rights, rights-of-way).
- Existing Wilderness Study Areas will continue to be managed to prevent impairment and ensure continued suitability for designation as wilderness. Should Congress release all or part of a Wilderness Study Area from wilderness study, resource management will be determined by preparing an amendment to the RMPs.
- A baseline reasonably foreseeable development scenario will be developed for oil, gas, and other mineral resources for KEPA lands. The reasonably foreseeable development scenario will be used to inform an appropriate range of management alternatives.
- Previously conducted wild and scenic river suitability determinations will be applied to this planning effort.
- The BLM will consider changes to off-highway vehicle area designations.
- The BLM will consider new special management areas including but not limited to Areas of Critical Environmental Concern in KEPA lands that are now excluded from the modified monument boundaries of GSENM.
- The BLM may allow motorized and non-mechanized vehicle use on roads and trails existing immediately before the issuance of Presidential Proclamation 6920 and maintain roads and trails for such use.
- Presidential Proclamation 9682 did not affect authorizations for livestock grazing, or administration thereof, on Federal lands within the monument. Livestock grazing within the monument continues to be governed by laws and regulations other than Presidential Proclamation 9682.
- The BLM may authorize ecological restoration and active vegetation management activities in the monument.

1.5 Relationship to Regulations, Laws, Policies, Plans, and Guidance

Land use plan decisions are made according to the procedures in BLM planning regulations (43 Code of Federal Regulations 1600), FLPMA, the BLM Land Use Planning Handbook (H-1601-1), and other resource-specific guidance. The development of the RMPs, which requires preparation of an EIS, constitutes a major federal action and is subject to NEPA, as amended. Additional Federal, State, and local regulations, laws, policies, plans, and guidance apply to the development of RMPs and EISs. Refer to Appendix F (*Laws, Regulations, Policies, and Guidance*) for more information.

1.6 Issues Identified during Scoping

The formal scoping period began on January 16, 2018, with the publication of the NOI in the *Federal Register*. The scoping period ran through March 19, 2018, and the BLM held two public scoping meetings during this time. The BLM received 120,061 comment submissions from the public during and after the official public scoping period. Of the 120,061 submissions, 2,256 were individual comments, 117,713 were form letters, and 92 were duplicate submissions.

Refer to the scoping report for more information about the results of the scoping process (BLM 2018a). The BLM also hosted a socioeconomic workshop on May 31, 2018, and accepted socioeconomic comments through June 8, 2018. During the workshop, five attendees provided oral comments and an additional 11 people submitted written comments during the comment period.

1.6.1 Planning Issues Addressed and Issues not Considered Further

During the scoping period, the BLM solicited comments from the public, organizations, tribal governments, and Federal, State, and local agencies to identify potential issues to be considered during the planning process. BLM resource specialists and cooperating agency input also identified management issues and concerns. During scoping, the BLM identified 38 issues to be considered during the planning process. The identified issues reflect a broad range of concerns and questions across various resource categories. Resource categories with the most identified issues include cultural, paleontological, livestock grazing, recreation, off-highway vehicle/transportation routes and access, and biological resources. Refer to the Scoping Report (BLM 2018a), pages 6 through 19, for additional information on issues identified during scoping.

Some issues raised during scoping are not within the scope of the RMPs/EIS and would not meet the purpose and need. The primary scoping issues raised that were not within the scope of the RMPs/EIS and will not be addressed included general support, opposition, and legal concerns associated with GSENM and boundary adjustments; management recommendations for locations outside the Decision Area (e.g., State parks); and recommendations for changing legislation and policies. Refer to the Scoping Report (BLM 2018a), page 5, for additional information on issues that were raised during scoping that are not addressed in this planning process.

1.7 Collaboration

The BLM implemented a collaborative planning process for the development of the RMPs/EIS. The BLM invited a variety of Federal, State, and local agencies and American Indian Tribes to participate as cooperating agencies. The BLM signed Memoranda of Understanding with five cooperating agencies including the State of Utah Public Lands Policy Coordinating Office, Garfield County, Kane County, the National Park Service, and the Kaibab Band of Paiute Indians. Cooperating agencies provided data, participated in alternatives development, conducted reviews of draft documents, and were involved in other aspects of the RMPs/EIS. The BLM also collaborated with the Utah State Historic Preservation Office, the U.S. Fish and Wildlife Service, and potentially affected tribes. Refer to Chapter 4 (*Consultation and Coordination*) for additional information on BLM collaboration with cooperating agencies, tribes, the public, and other stakeholders.

2 Alternatives

2.1 Introduction

This chapter describes the range of alternatives analyzed in the Grand Staircase-Escalante National Monument (GSENM) and Kanab-Escalante Planning Area (KEPA) Resource Management Plans (RMPs), and Environmental Impact Statement (EIS). The four alternatives include:

- **Alternative A (Current Management/No Action):** The continuation of existing management in the Planning Area. In general, current management is based on the GSENM Approved Monument Management Plan (MMP) and Record of Decision (ROD) (BLM 2000), to the extent that the plan is consistent with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682.
- **Alternative B:** Alternative B management generally focuses on protection of resources (e.g., wildlife, vegetation, cultural resources) while providing for targeted resource use (e.g., rights-of-way, travel, mineral development, livestock grazing).
- **Alternative C:** Alternative C management generally represents a balance of resource protection and resource use.
- **Alternative D (Preferred Alternative):** Alternative D management generally focuses on maximizing multiple use (e.g., rights-of-way, minerals development, livestock grazing) and management flexibility while still providing for resource protection as required by applicable regulations, laws, policies, plans, and guidance, including the proper care and management of monument objects within GSENM.

The GSENM MMP (BLM 2000) delineated Management Zones and management specific to the Management Zones. Under the action alternatives, the existing Management Zones are not carried forward. Since the MMP, guidance has been released on special designations and management areas that are incorporated into these RMPs instead of the Management Zones.

2.2 Alternatives Development Overview

To develop the alternatives for the RMPs and EIS, the Bureau of Land Management (BLM) considered public input, cooperating agency input, and the need to analyze a range of practical and reasonable alternatives. The BLM developed the range of alternatives described in this chapter using the following process:

- **Step 1.** Collect and consider input from the public through scoping.
- **Step 2.** Identify current management (Alternative A, No Action).
- **Step 3.** Develop alternatives in coordination with cooperating agencies that represent a wide range of reasonable management actions.
- **Step 4.** Analyze the potential effects of implementing the alternatives.
- **Step 5.** Identify the Preferred Alternative.

2.3 Detailed Alternatives

This section describes the range of alternatives that are carried forward for analysis including the goals and objectives for each resource program, management actions common to all

alternatives, and management actions that vary by alternative. In addition to the management actions included in the alternatives, the BLM would apply best management practices (BMPs), stipulations, and monitoring, as described in Appendix G (*Best Management Practices*), Appendix H (*Stipulations and Exceptions, Modification, and Waivers*), and Appendix I (*Monitoring Strategy*).

The range of alternatives is presented in tables and organized as described in Table 2-1. The goal(s) and objectives for each program/resource are provided at the top of each table followed by management common to all alternatives and then management by alternative.

Table 2-1 Alternatives Tables Organization

Record Number	Category	Specific Program/Resource Topic
1000	Resource	Air Resources; Cultural Resources; Fish and Wildlife and Special Status Species; Lands with Wilderness Characteristics; Paleontological Resources and Geology; Soil and Water Resources; Vegetation and Fire and Fuels Management; Visual Resources, Night Skies, and Natural Soundscapes; Wild Horses; and Forestry and Woodland Products
2000	Resource Use	Lands and Realty and Renewable Energy; Livestock Grazing; Minerals; Recreation; and Transportation and Access
3000	Special Designations	Areas of Critical Environmental Concern; National Historic Trails; Scenic Routes; Wild and Scenic Rivers; and Wilderness Study Areas
4000	Socioeconomic and Science	Social and Economic Considerations; and Science and Monument Advisory Committee

The tables include five additional columns to the left of the range of alternatives. The “OBJ” column identifies which goal and/or objective the management supports. The remaining four columns identify which RMP the management applies to using the following acronyms: EC – Escalante Canyons Monument Unit (GSENM), KP – Kaiparowits Monument Unit (GSENM), GS – Grand Staircase Monument Unit (GSENM), KE – Kanab-Escalante Planning Area (KEPA).

Management is generally only listed once in the tables to avoid repetition. In general, acreages reported in the alternatives are for the total Decision Area. Refer to Chapter 3, Table 3-1, for acreages separated by monument unit and KEPA.

This document includes both land use planning and implementation level decisions. Following completion of the Proposed MMPs, pursuant to BLM’s planning regulations (43 Code of Federal Regulations [CFR] 1610.5-2), any person who participated in the planning process and has an interest that is or may be adversely affected by the planning decisions may protest approval of the planning decisions. Unlike land use planning decisions, implementation decisions are not subject to protest under BLM planning regulations, but are subject to an administrative review process, through appeals to the Office of Hearing and Appeals, Interior Board of Land Appeals pursuant to 43 CFR Part 4 Subpart E. Implementation decisions are marked with an asterisk (*). Of specific note, several management actions identified in the GSENM MMP (BLM 2000) and carried over into Alternative A (No Action) are no longer considered land use planning decisions, per the Recreation and Visitor Services Manual update in 2012. If carried forward in other alternatives, they are identified as implementation decisions.

The BLM administers grazing allotments/permits in the National Park Service (NPS) Glen Canyon National Recreation Area (NRA) adjacent to the Planning Area (Map 1). The alternatives include management for the allotments and permits in Glen Canyon NRA to inform subsequent NPS decisionmaking.

2.3.1 Air Resources

Air Resources (AR)												
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)			
						Goal AR:1 Minimize the impact of management actions on air quality in the Planning Area by complying with all applicable State and local air quality laws, rules, and regulations. Objectives: AR:1.1 Maintain concentrations of criteria pollutants in compliance with applicable State and Federal ambient air quality standards within the scope of BLM authority. AR:1.2 Reduce visibility-impairing pollutants in accordance with the reasonable progress goals and time frames established in the State of Utah's Regional Haze State Implementation Plan. AR:1.3 Manage atmospheric deposition pollutants to below generally accepted levels of concern and levels of acceptable change. AR:1.4 Manage public land activities consistently with Class I area standards and visibility (regional haze) criteria.						
						MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES						
1001	AR:1.1 AR:1.2 AR:1.3 AR:1.4	X	X	X	X	Mitigate actions that are projected to exceed ambient air quality standards or adversely affect visibility (regional haze) in the Class I air areas (Map 2).						
1002	AR:1.1 AR:1.2 AR:1.3 AR:1.4	X	X	X	X	Manage activities within air quality standards established by the Environmental Protection Agency and Utah Department of Air Quality.						
1003	AR:1.1 AR:1.2 AR:1.3 AR:1.4	X	X	X	X	Mitigate potential impacts of mineral development emissions on regional ozone formation by requiring the following BMPs for any development projects: <ul style="list-style-type: none"> • Tier II or better drilling rig engines, natural gas-fired drill rig engines, or electrification of drill rig engines. • Stationary internal combustion engine standard of 2 grams NO_x/bhp-hr for engines 300 horsepower and 1 gram NO_x/bhp-hr for engines more than 300 horsepower. • Low-bleed or no-bleed pneumatic pump valves. • Dehydrator volatile organic compound emission controls to +95 percent efficiency. • Tank volatile organic compound emission controls to +95 percent efficiency equivalent to New Source Performance Standards subpart 0000. • All new and replacement internal combustion gas field engines of less than or equal to 300 design rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. All new and replacement internal combustion gas field engines of greater than 300 design-rated horsepower must not emit more than 1 gram of NO_x per horsepower-hour. • A Fugitive Dust Control Plan would be required for mineral activities that would disturb a surface area larger than 0.25 acre or that would involve truck traffic on unpaved or untreated surfaces. 						

2.3.2 Cultural and Heritage Resources

Cultural and Heritage Resources (CR)											
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)		
						Goal CR:1 Provide for the proper care and maintenance of cultural resources [as objects of GSENM]. Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations on BLM-administered surface lands. Objectives: CR:1.1 Provide opportunities for public education and interpretation of cultural resources. CR:1.2 Support programs and partnerships that provide opportunities for stewardship, conservation, and educational use of cultural resources. CR:1.3 Allow for and seek opportunities that provide for scientific research related to cultural resources. CR:1.4 Recognize opportunities for the experimental use of appropriate cultural resources that may lead to better management and care of cultural resources.					
						Goal CR:2 Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration, or potential conflict with other resource uses. Objectives: CR:2.1 Seek to restore and stabilize important and at-risk cultural resources.					
						Goal CR:3 Recognize tribal interests and work with tribes to support tribal uses of public lands, as appropriate. Objectives: CR:3.1 Develop and maintain working relationships with tribes having an interest in the area. CR:3.2 Consult with tribal governments regarding proposed land uses with the potential to affect resources identified as having tribal interests or concerns.					

Cultural and Heritage Resources (CR)												
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)			
						CR:3.3 Determine the types of resources of concern to various tribes, and consider tribal views when making land use allocations or decisions. CR:3.4 Provide opportunities for traditional (Native American) uses of cultural resources, sacred sites, landscapes, and native plants.						
						MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES						
1004	CR:1.1 CR:1.2 CR:1.3 CR:2.1	X	X	X	X	Improve visitor understanding of archaeological resources and prevent damage through education and interpretation. Make archaeological site etiquette information readily available to visitors.						
1005	CR:1.1 CR:1.2 CR:1.3	X	X	X	X	Establish continuing collaborative programs with local communities, organizations, local and State agencies, Native American communities, outfitters and guides, volunteers, and other interested parties to identify, inventory, document, monitor, and develop and implement plans for the restoration, stabilization, protection, and/or interpretation of appropriate sites and resources. Continue the current Oral History Program in cooperation with local communities.						
1006	CR:1.1 CR:1.2 CR:1.3	X	X	X		Facilitate appropriate research to improve understanding of cultural resource by allowing for study, collection, or recordation of scientific information that is most at risk of being damaged or lost through disturbance or the passage of time, including oral histories and ethnologies related to the monument area. Continue to gather baseline data on the biological, physical, cultural, and social sciences within the monument. Conduct applied research regarding the management of natural systems, including disturbance and recovery strategies.						
1007	CR:1.1 CR:1.2 CR:1.3 CR:3.1 CR:3.2	X	X	X	X	Establish and maintain agreements with all Native American tribes interested in specific projects or areas on which they wish to consult.						
1008	CR:1.1 CR:1.2 CR:1.3		X		X	Support local stakeholders in the development of Hole-in-the-Rock Trail Traditional Cultural Property.						
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES												
1009	CR:1 CR:2.1	X	X	X	X	No similar action.	Develop a Cultural RMP, including assigning cultural sites to use categories (e.g., public use, scientific, traditional use), and management for the protection and interpretation of these sites. The criteria in Appendix J (<i>Cultural Resources</i>) will be used to assign cultural sites to appropriate classifications. Dance Hall Rock and Old Paria movie set will be assigned to the public use category.					
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVES												
1010	CR:1.1 CR:1.2 CR:3.1 CR:3.2 CR:3.3 CR:3.4	X	X	X	X	No similar action.	Allow Native American non-commercial traditional use of vegetation and forest and woodland products for the collection of herbs, medicines, traditional use items, or items necessary for traditional, religious or ceremonial purposes without a permit. Allow Native American non-commercial personal use collection of vegetation and forest and woodland products through free permits.	Allow Native American non-commercial traditional use of vegetation and forest and woodland products for the collection of herbs, medicines, traditional use items, or items necessary for traditional, religious, or ceremonial purposes, through free permits.	Allow Native American non-commercial traditional use of vegetation and forest and woodland products for the collection of herbs, medicines, traditional use items, or items necessary for traditional, religious, or ceremonial purposes without a permit.			

2.3.3 Fish and Wildlife and Special Status Species

2.3.3.1 Fish and Wildlife

Fish and Wildlife (FW)											
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)		
						Goal FW:1 Manage the biological integrity of terrestrial and aquatic ecosystems to maintain and/or improve habitat and fish and wildlife populations, with emphasis on ecosystem health and overall biodiversity. Objectives: FW:1.1 Maintain and/or improve habitat quantity and quality (forage, water, cover, space, security, trophic level integrity, and biogeochemical processes) sufficient to sustain diverse wildlife populations, meeting objectives identified in coordination with the UDWR. FW:1.2 Maintain and/or improve aquatic stream habitat to support productive and diverse fisheries and other aquatic populations. FW:1.3 Maintain and/or improve habitat connectivity and unrestricted wildlife movement between ecological zones to the maximum extent possible.					

Fish and Wildlife (FW)												
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)			
						FW:1.4 Maintain and/or improve and enhance aquatic and wildlife resources and provide for biological diversity to support healthy ecosystems. FW:1.5 Conserve habitat for migratory birds and emphasize management of migratory birds listed on the USFWS's current list of Birds of Conservation Concern and the Partners-in-Flight priority species. FW:1.6 Facilitate appropriate research to improve understanding of fish and wildlife species and habitat. FW:1.7 Increase public education and appreciation of fish and wildlife species through interpretation.						
						MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES						
1011	FW:1.6	X	X	X	X	No similar action.	Protect and conserve migratory birds and raptors and their habitats in accordance with current policy and applicable BMPs (Appendix G [Best Management Practices]).					
1012	FW:1.1				X	No similar action.	Apply timing limitation stipulations for leasable minerals within crucial seasonal habitat (Map 3).					
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE												
1013	FW:1.3 FW:1.4 FW:1.5	X	X	X	X	Manage habitats for the recovery or reestablishment of native populations.	Same as Alternative A.	Manage habitats for the recovery or reestablishment of native and naturalized fish and wildlife species. In coordination with the NPS, reduce occurrences of nonnative species affecting NPS lands by removing introduced or nonnative species in the Planning Area that are directly adjacent to or in close proximity to NPS lands (per NPS Management Policies 4.4.1).	Manage habitats for the recovery or reestablishment of native, naturalized, or introduced fish and wildlife species in accordance with UDWR species management plans with goals and objectives set forth by UDWR.			
1014	FW:1.1	X	X	X	X	No similar action.	Allow limited maintenance of existing and development of new habitat treatments.	Allow maintenance of existing habitat treatments that benefit native wildlife. Allow new habitat improvement treatments for native wildlife in accordance with current species-specific guidelines and local working group prescriptions.	Same as Alternative C, except allow maintenance of existing and development of new habitat treatments to benefit native, naturalized, or introduced fish and wildlife, as well as other resources and uses of BLM-administered land.			
1015	FW:1.1 FW:1.3 FW:1.4 FW:1.5	X	X	X	X	Preserve the integrity of wildlife corridors, migration routes, and access to key forage, nesting, and spawning areas by limiting adverse impacts from development in the monument.	Manage big-game crucial seasonal ranges; birthing, fawning, and lambing habitats; and migration corridors as follows: <ul style="list-style-type: none">● Allow vegetation treatments to achieve or maintain habitat objectives and improve the quality and value of these areas for big game and other wildlife.● Allow modifying (via smooth wire), removing (if no longer necessary), or seasonally adapting (seasonal laydown) fencing if proven to impede movement of big game through migration corridors.● Prohibit surface-disturbing activities during sensitive seasons.● Co-locate or consolidate placement of permanent facilities in big game habitat so as to limit surface disturbance and habitat fragmentation.● Close big game crucial winter range to OHV use during sensitive seasons (Appendix H [Stipulations and Exceptions, Modifications, and Waivers]).● Prohibit surface-disturbing activities in crucial desert bighorn sheep habitat.	Manage big-game crucial seasonal ranges; birthing, fawning and lambing habitats; and migration corridors as follows: <ul style="list-style-type: none">● Prioritize habitat restoration in these areas to achieve or maintain habitat objectives and improve the quality and value of these areas for big game and other wildlife.● Manage for a mosaic of mid-, early-, and late-seral vegetation.● Allow modifying (via smooth wire), removing (if no longer necessary), or seasonally adapting (seasonal laydown) fencing if proven to impede movement of big game through migration corridors.● Allow permanent facilities and surface-disturbing activities during sensitive seasons after coordination with appropriate State agencies and utilizing BMPs (Appendix G [Best Management Practices]) unless (1) the activity is consistent and compatible with protection, maintenance, or enhancement of the habitat and populations, or (2) the activity is relocated or redesigned to eliminate or reduce detrimental impacts.● Prohibit surface-disturbing activities in crucial desert bighorn sheep habitat during lambing season (Appendix H [Stipulations and Exceptions, Modifications, and Waivers]).	Allow surface-disturbing activities, fence modification and maintenance, travel, and vegetation treatment in big-game crucial seasonal ranges, birthing habitats, and migration corridors on a basis consistent with other resource use restrictions. Allow surface-disturbing activities in crucial desert bighorn sheep habitat during lambing season subject to BMPs and mitigation (Appendix G [Best Management Practices] and Appendix I [Monitoring Strategy]).			
1016	FW:1.1	X	X	X	X	No similar action.	Prohibit goats or domestic sheep from entering BLM lands for grazing or for pack-animal use within 9 miles of desert bighorn sheep habitat.	Prohibit goats or domestic sheep from entering BLM lands for grazing or for pack-animal use within 9 miles of desert bighorn sheep habitat except where topographic features or other barriers prevent physical contact. Allow use of goats as pack animals. Pack goats must be closely supervised to ensure no contact with wild sheep.	Prohibit goats or domestic sheep from entering BLM lands for grazing or for pack-animal use within 9 miles of desert bighorn sheep habitat except where topographic features or other barriers prevent physical contact. Allow use of goats as pack animals. Pack goats must be closely supervised to ensure no contact with wild sheep.			
1017	FW:1.1	X	X	X	X	No similar action.	To prevent disease spread, do not authorize changes in kind of livestock to sheep or goats within 9 miles of desert	To prevent disease spread, do not authorize changes in kind of livestock to sheep or goats within 9 miles of desert	Allow change in livestock kind to sheep or goats subject to BMPs and mitigation.			

Fish and Wildlife (FW)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						bighorn sheep habitat.	bighorn sheep habitat except where topographic features or other barriers prevent physical contact.			
1018	FW:1.2	X	X	X	X	No similar action.	Design road crossings of waterbodies that support fish to accommodate natural stream processes (e.g., sediment and debris transport).	Design road crossings of waterbodies that support fish to provide for fish passage.	Same as Alternative C.	
1019	FW:1.4	X	X	X	X	No similar action.	Allow introduction, transplant, augmentation, and reestablishment of native fish and wildlife species in cooperation and collaboration with UDWR, subject to current policy.	Allow introduction, transplant, augmentation, and reestablishment of native and naturalized fish and wildlife species in cooperation and collaboration with UDWR, subject to current policy. Allow removal of unwanted nonnative wildlife species.	Same as Alternative C.	
1020	FW:1.1 FW:1.3 FW:1.5				X	No similar action.	Retain all crucial wildlife habitat in public ownership.	Same as Alternative B.	Same as Alternative B.	

2.3.3.2 Special Status Species (Threatened, Endangered, and Sensitive)

Special Status Species Animals – Threatened, Endangered, and Sensitive (SS)															
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)						
						Goal SS:1 Maintain, protect, and recover habitats and populations of federally listed threatened, endangered, or candidate plant, animal, or fish species, and actively promote recovery to the point that provisions of the ESA are no longer required. Maintain, protect, and enhance habitats of the latest Utah BLM State Director's sensitive plant and animal species list to ensure that BLM-authorized or approved actions are consistent with the conservation needs of the species and do not contribute to the need to list any species under the ESA. Objectives: SS:1.1 Cooperate with the USFWS and other agencies, such as the UDWR, in managing special status species and their habitat. SS:1.2 Allow, initiate, and/or participate in scientific research of listed and sensitive species and their habitats. SS:1.3 Develop and implement conservation measures to minimize long-term habitat fragmentation and maintain habitat connectivity through avoidance and site-specific reclamation in order to provide the habitat quality and quantity to meet ecological requirements and support a natural diversity of species. SS:1.4 Consult and coordinate with USFWS on an ongoing basis throughout implementation of this plan for activities potentially affecting threatened and endangered species and their habitats.									
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES															
1021	SS:1.1 SS:1.4	X	X	X	X	Manage greater sage-grouse populations and habitat in accordance with the Utah Greater Sage-Grouse Approved RMP Amendment (BLM 2015), or more current guidance as it is adopted. ¹									
1022	SS:1.3 SS:1.4	X	X	X	X	BMPs (Appendix G [Best Management Practices]) would be applied for special status species raptor management during activity and implementation level decisions.									
1023	SS:1.3	X	X	X	X	If recreation activities (e.g., hiking, camping, backpacking, rappelling, rock climbing, canyoneering) are determined to disrupt or result in abandonment of known roost or nest sites for special status bird species, reduce impacts through visitor allocations, group size restrictions, or other measures. Apply visitor allocations and group size restrictions in accordance with Recreation decisions.									
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE															
						Special Status Species Conservation and Habitat Enhancement									
1024	SS:1.3	X	X	X	X	No similar action.	Prohibit surface-disturbing activities within habitat for special status species (Map 4) using appropriate buffers and seasons (as specified in Appendix G [Best Management Practices], Appendix H, or current guidance).	Allow surface-disturbing activities within habitat for special status species using appropriate buffers and seasons (as specified in Appendix G [Best Management Practices], Appendix H, or current guidance) only if (1) the activity is consistent and compatible with protection, maintenance, or enhancement of the habitat and populations as outlined in recovery and conservation plans and when such actions would not lead to the need to list the species, or (2) the activity is relocated or redesigned to eliminate or reduce detrimental impacts to acceptable limits.	Allow surface-disturbing activities within habitat for special status species using appropriate buffers and seasons (as specified in Appendix G [Best Management Practices], Appendix H, or current guidance).						

¹ The BLM is currently undertaking a planning effort designed to amend the 2015 Utah Greater Sage-Grouse Approved Resource Management Plan Amendment. Development in sage-grouse habitat will be managed in accordance with the plan amendment, once adopted.

Special Status Species Animals – Threatened, Endangered, and Sensitive (SS)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
1025	SS:1.3	X	X	X	X	Prohibit permitting of communication sites, utility ROWs, and road ROWs in known special status species populations. As permits are granted for these sites and ROWs, surveys will be completed to determine the presence of special status species in the area. If they are found, these activities will be moved to another location.	Prohibit new ROWs and communication sites in special status species habitat and applicable buffers (as specified in Appendix G [Best Management Practices] or current guidance) when pre-development surveys confirm species' presence or when BLM staff determine that development could inhibit species' recovery.	Same as Alternative B.	Avoid new ROWs and communication sites in special status species habitat and applicable buffers (as specified in Appendix G [Best Management Practices] or current guidance) where suitable alternatives exist.	
1026	SS:1.3				X	No similar action.	Close special status species wildlife habitat and buffers to mineral material disposal.	No similar action.	No similar action.	
Special Status Birds and Raptors										
1027	SS:1.3	X	X	X	X	Establish criteria for designation of rock climbing areas. These criteria will not allow climbing areas to be designated in known peregrine falcon or Mexican spotted owl nest sites. If new sites are identified as occupied for nesting in areas designated for climbing, seasonal closures will be established in those areas to ensure that disturbance of nesting activities does not occur.	Establish seasonal closures for rock climbing in suitable nesting areas for California condor, golden eagle, Mexican spotted owl, and peregrine falcon regardless of current occupancy.	Establish seasonal closures for rock climbing in occupied nesting areas for California condor, golden eagle, Mexican spotted owl, and peregrine falcon during periods of occupancy.	Same as Alternative C.	
California Condor										
1028	SS:1.3	X	X	X	X	No similar action.	Prohibit surface use or disruptive activities within 0.5 mile of occupied roosts or 1 mile of occupied California condor nests.	Allow surface use or disruptive activities within 0.5 mile of occupied California condor roosts or 1 mile of occupied nests only if (1) the activity is consistent and compatible with protection, maintenance, or enhancement of the habitat and populations, or (2) the activity is relocated or redesigned to eliminate or reduce detrimental impacts.	Same as Alternative C.	
Mexican Spotted Owl										
1029	SS:1.3	X	X	X	X	No similar action.	Prohibit new recreation facilities or trails within Mexican spotted owl PACs. Continue maintenance restrictions and seasonal closure (March 1 to August 31) of existing facilities.	Prohibit development of recreation facilities or trails within PACs that could conflict with Mexican spotted owl management objectives. Continue maintenance restrictions and seasonal closure (March 1 to August 31) of existing facilities.	Allow development and maintenance of recreation and administrative facilities in Mexican spotted owl PACs outside of the breeding season only if (1) the activity is consistent and compatible with protection, maintenance, or enhancement of the habitat and populations, or (2) the activity is relocated or redesigned to eliminate or reduce detrimental impacts.	
Western Yellow-Billed Cuckoo and Southwestern Willow Flycatcher										
1030	SS:1.3 SS:1.4	X	X	X	X	No similar action.	Prohibit surface-disturbing activities within 0.25 mile of suitable habitat between June 1 and August 31 for western yellow-billed cuckoo and between April 15 and August 15 for southwestern willow flycatcher.	Prohibit surface-disturbing activities within 0.25 mile of occupied breeding habitat between June 1 and August 31 for western yellow-billed cuckoo and between April 15 and August 15 for southwestern willow flycatcher.	Allow surface-disturbing activities within occupied breeding habitat between June 1 and August 31 for western yellow-billed cuckoo and between April 15 and August 15 for southwestern willow flycatcher if after site-specific analysis and consultation with USFWS it is determined that the activity would not adversely affect either the birds or their habitat.	
Current and Future Special Status Plants (Federal, State and BLM listed plants)										
1031	SS:1.3	X	X	X	X	Prohibit designation of future fuelwood cutting areas in listed plant populations (see the Forestry Products section for related decisions).	Prohibit fuelwood cutting in all special status plant species habitat.	Prohibit fuelwood cutting in habitat for federally listed special status plant species. Allow fuelwood cutting in habitat for BLM sensitive plant species if the BLM determines that no habitat degradation would occur.	Prohibit fuelwood cutting in habitat for federally listed special status plant species. Allow fuelwood cutting in habitat for BLM sensitive plant species with appropriate conservation measures to mitigate impacts.	
1032	SS:1.3	X	X	X	X	Relocate existing trails in areas where federally listed plant species grow away from the plants and potential habitat when possible. These protection measures apply to current as well as future potential habitat areas for federally listed plant species.	Locate new trails and any other facilities outside federally listed plant species habitat.	Same as Alternative B.	Same as Alternative B.	

Special Status Species Animals – Threatened, Endangered, and Sensitive (SS)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
1033	SS:1.1 SS:1.2 SS:1.3 SS:1.4	X	X	X	X	Generally disallow surface-disturbing activities in threatened or endangered plant species habitat. Projects that provide new information and understanding of listed species, their populations, and/or their habitat may be allowed after approval by the BLM and the review and issuance of permits by USFWS. All projects will be evaluated on a case-by-case basis.	Prohibit surface-disturbing activities in federally listed plant species habitat unless (1) the activity enhances scientific understanding of the species and (2) appropriate approvals and permits are obtained from the BLM and USFWS.	Same as Alternative B.	Same as Alternative B.	
1034	SS:1.3	X	X	X	X	Target areas with threatened or endangered plants for noxious weed control activities as a first priority.	Target noxious weed control in areas with federally listed plant species habitat as a first priority.	Same as Alternative B.	Apply treatments to control outbreaks or establishment of noxious weed species in all areas (including special status species plants) in coordination with local cooperative weed management partnership.	
1035	SS:1.3 SS:1.4	X	X	X	X	Prohibit reseeding or surface-disturbing restoration activities after fires in areas with special status plant species. Natural diversity and vegetation structure will provide adequate regeneration.	Prohibit reseeding or surface-disturbing restoration activities after fires in known special status plant species habitat unless consultation with USFWS indicates these measures are necessary for the protection and/or recovery of listed species.	Allow reseeding or surface-disturbing restoration activities after fires in known special status plant species habitat if determined acceptable through consultation with USFWS.	Same as Alternative C.	
1036	SS:1.3 SS:1.4	X	X	X	X	Prohibit management-ignited fires in areas with special status plant species unless consultation with USFWS indicates that fire is necessary for the protection and/or recovery of listed species.	Prohibit prescribed fires in known special status plant species habitat unless consultation with USFWS indicates that fire is necessary for the protection and/or recovery of listed species.	Same as Alternative B.	Allow prescribed fires in known special status plant species habitat if determined acceptable through consultation with USFWS.	
1037	SS:1.3	X	X	X	X	Prohibit trails, parking areas, or other recreation facilities in any federally listed plant species population.	Prohibit expansion or development of new trails, parking areas, or other recreation facilities in habitat for federally listed plant species.	Avoid, when possible, expansion or development of new trails, parking areas, or other recreation facilities in habitat for federally listed plant species.	Allow expansion or development of new trails, parking areas, or other recreation facilities in habitat for federally listed plant species if determined acceptable through consultation with USFWS.	
1038	SS:1.1 SS:1.3 SS:1.4	X	X	X	X	No similar action.	Prohibit surfacing-disturbing or habitat-fragmenting activities within 0.25 mile of potential, suitable, and occupied special status plant habitat.	Avoid surface-disturbing activities within 330 feet or habitat-fragmenting activities within 660 feet of potential, suitable, and occupied special status plant habitat. Allow surface-disturbing activities within 330 feet or habitat-fragmenting activities within 660 feet of potential, suitable, and occupied special status plant habitat only if (1) the activity is consistent and compatible with protection, maintenance, or enhancement of the habitat and populations as outlined in recovery and conservation plans and when such actions would not lead to the need to list the plant, or (2) the activity is relocated or redesigned to eliminate or reduce detrimental impacts to acceptable limits.	Allow surface-disturbing activities in occupied special status plant habitat with appropriate mitigation or in occupied listed species habitat after consultation with USFWS.	
1039	SS:1.3				X	No similar action.	Manage mineral leasing as open subject to No Surface Occupancy in federally listed plant species occupied and suitable habitat.	Manage mineral leasing as open subject to Controlled Surface Use in federally listed plant species occupied and suitable habitat. In these areas, well placement would be located to not adversely affect the species or their habitats.	Same as Alternative C.	
Special Status Fish Species										
1040	SS:1.3 SS:1.4	X	X	X	X	No similar action.	Prohibit surface-disturbing activities within 0.5 mile of special status fish species habitat.	Avoid surface-disturbing activities within 330 feet of special status fish species habitat. Allow surface-disturbing activities within 330 feet of special status fish species habitat only if (1) impacts from the proposed action can be adequately mitigated, or (2) the action will benefit the species and/or habitat.	Allow surface-disturbing activities within special status fish species habitat only after a site-specific analysis and consultation with USFWS.	

2.3.4 Lands with Wilderness Characteristics

Lands with Wilderness Characteristics (WC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Goal WC:1 Protect, preserve, and maintain the appearance of naturalness and outstanding opportunities for solitude and/or primitive and unconfined recreation within lands with wilderness characteristics, as appropriate.									
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES									
1041	WC:1	X	X	X	X	Allow access to and maintenance of existing livestock grazing or authorized administrative facilities (e.g., corral, fencing, weather station, water developments) in lands with wilderness characteristics.			
1042	WC:1	X	X	X	X	Allow excavation of cultural and paleontological sites in lands with wilderness characteristics, as well as other similar scientific uses, conditional on whether the site can return to a natural appearance upon project's completion. Use of portable, handheld motorized tools such as jackhammers and demolition saws would be allowable on a case-by-case basis.			
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
1043	WC:1	X	X	X	X	No previous decisions. The 2000 MMP identified prescriptions for management zones. Lands with wilderness characteristics (Map 5) in the "Outback" and "Primitive" zones are generally subject to management actions that would also provide de facto protection of wilderness characteristics.	Protect all identified lands with wilderness characteristics (589,787 acres) as a priority over managing these lands for other uses (Map 6). Within these lands: i. Recommend withdrawal from mineral entry (KEPA only). ii. Close to mineral leasing (KEPA only). iii. Designate as ROW exclusion areas. iv. Designate as closed OHV area. v. Close to mineral material sales. vi. Exclude surface-disturbing commercial uses (e.g., commercial wood-cutting permits). Consider allowing SRPs and minimum impact film permits where wilderness characteristics will not be degraded. vii. Designate as VRM Class I. viii. Prohibit vegetation treatments. ix. Restrict construction of new structures and facilities unrelated to the preservation or enhancement of wilderness characteristics or necessary for the management of existing uses. x. Retain public lands in Federal ownership.	Allow multiple uses while applying management restrictions to reduce impacts on lands with wilderness characteristics (143,548 acres) (Map 7). Within these lands: i. Recommend withdrawal from mineral entry (KEPA only). ii. Allow mineral leasing subject to No Surface Occupancy (KEPA only). iii. Designate as ROW avoidance areas. iv. Limit motor vehicle use to designated OHV routes. v. Allow for expansion of existing mineral material sites. vi. Allow certain commercial activities or recreational activities (e.g., SRPs, commercial or personal-use wood-cutting permits) that would not degrade an area's wilderness characteristics. vii. Designate as VRM Class II. viii. Allow vegetation treatments for the purpose of maintaining or restoring ecological condition. ix. Allow new rangeland improvements and water developments. x. Consider opportunities for land tenure adjustments if they benefit the overall management of lands with wilderness characteristics.	Do not apply any provisions specifically to protect wilderness characteristics. Manage lands with wilderness characteristics for multiple uses, subject to management actions for other resources and resource uses within this plan.

2.3.5 Paleontological Resources and Geology

Paleontological Resources (PA) and Geology (GE)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						Goal PA:1 Manage paleontological resources in order to protect them and make them accessible to appropriate research and public enjoyment. Objectives: PA:1.1 Continue to inventory for paleontological resources and evaluate their significance for protection, conservation, research, or interpretation. PA:1.2 Protect known paleontological resources from destruction or degradation. This also applies to materials from public lands located in museum collections. PA:1.3 Manage uses to prevent unnecessary damage to paleontological resources. PA:1.4 Facilitate appropriate paleontological research to improve understanding of fossil resources. PA:1.5 Increase public education and appreciation of paleontological resources through interpretation and dissemination of research. Goal GE:1 Facilitate appropriate use and enjoyment of geological resources. Objectives: GE:1.1 Manage uses to prevent damage to unique geological features and geomorphologic features (small-scale expressions of geological processes) and to minimize activities in high-hazard areas. GE:1.2 Increase public education and appreciation of geologic resources through interpretation. GE:1.3 Facilitate appropriate geologic research to improve understanding of geologic processes. GE:1.4 Facilitate appropriate commercial and casual use of geologic resources.				

Paleontological Resources (PA) and Geology (GE)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES									
1044	PA:1.4 PA:1.5 GE:1.2 GE:1.3	X	X	X	X	Develop local onsite or community-based interpretation for significant sites/specimens or resources to foster an appreciation for the unique geology of the region and nature of the resource; to create opportunities for public viewing of the resources; and to promote the scientific, educational, and recreational use of fossils.			
1045*	PA:1.1 PA:1.2 PA:1.3 PA:1.4 PA:1.5	X	X	X	X	Develop a Paleontological RMP for GSENM and certain excluded lands with scientifically significant fossils. The Paleontological RMP would include the following components* <ul style="list-style-type: none">• Basic structure and organization of the paleontological resource program• Protocols for inventory, collection, and protection of paleontological resources• Protocols for managing paleontological sites by class, including the identification of scientific, educational, and recreational use opportunities• Protocols for volunteer/citizen scientist involvement in paleontological resource management/research• Development of a consistent PFYC system for use throughout the Planning Area (Map 8)• Coordination with counties or municipalities on appropriate exhibits• Opportunities for local interpretation of paleontological resources• Onsite (at designated sites) or community-based interpretation for significant sites/specimens to create opportunities for public access and appreciation• Protocol for monitoring trends and conditions of paleontological sites, including prioritization for scientifically important fossils and based on threats• Collections Management Strategy including offsite specimens in museums			
1046	PA:1.3				X	No similar action.	Open PFYC 4 and 5 areas to mineral leasing subject to controlled surface use stipulations (Maps 8 through 10).		
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
1047	PA:1.2 PA:1.3	X	X	X		Continue to inventory GSENM for paleontological resources and evaluate their potential for protection, conservation, research, or interpretation. High-use areas within GSENM will have high priority for inventory efforts. Beyond high-use areas, inventory and research efforts will be expanded to fill in the information gaps on formations and other information needs.	Conduct proactive (non-compliance-driven) inventory of GSENM for paleontological resources and evaluate their potential for protection, conservation, research, or interpretation. Areas with PFYC ratings of 4 or 5 or with potential conflicts with other resources or threats from other uses will be given priority over those areas with lower PFYC ratings or no known user conflicts/threats.	Same as Alternative B.	Same as Alternative B.
1048	PA:1.2 PA:1.3	X	X	X		Prohibit collection of monument resources, objects, rocks, petrified wood, fossils, plants, parts of plants, animals, fish, insects or other invertebrate animals, bones, waste, other products from animals, or other items from within the monument.	Prohibit casual collection of all paleontological resources (same as Alternative A).	Prohibit the casual collection of invertebrate and botanical fossils except in specially designated and posted areas including the following (Map 11): <ul style="list-style-type: none">• Cottonwood Canyon Road, between Grosvenor Arch turnoff and the Pumphouse Spring Turnoff• Straight Cliffs along Fiftymile Mountain	Same as Alternative C.
1049	GE:1.4	X	X	X		Prohibit collection of monument resources, objects, rocks, petrified wood, fossils, plants, parts of plants, animals, fish, insects, or other invertebrate animals, bones, waste, other products from animals, or other items from within the monument.	Prohibit casual collection of mineral resources and petrified wood (same as Alternative A).	Prohibit casual collection of mineral resources and petrified wood within GSENM except in specially designated and posted collection areas.	Same as Alternative C.
1050	PA:1.2 PA:1.3				X	Prohibit collection of monument resources, objects, rocks, petrified wood, fossils, plants, parts of plants, animals, fish, insects, or other invertebrate animals, bones, waste, other products from animals, or other items from within the monument.	Prohibit casual collection of all paleontological resources (same as Alternative A).	Allow casual collection of common invertebrate and botanical paleontological resources for personal (non-commercial) use except in those areas where prohibited or posted as no collection. Close the following areas to casual collection (Map 11): <ul style="list-style-type: none">• Bull Dog (420 acres)• Camp Flats (6,226 acres)• Henderson Canyon (771 acres)• Paria (18,676 acres)• The Blues (54 acres)• Tibbett Head (18,364 acres)	Allow casual surface collection of common invertebrate and botanical paleontological resources for personal (non-commercial) use without permits unless such resources are of critical scientific (including fossil-based ACECs) or recreational value and need to be protected, or where collection is incompatible with other resource protection. Close the following areas to casual collection (Map 12): <ul style="list-style-type: none">• Camp Flats (6,226 acres)• Tibbett Head (18,364 acres)

Paleontological Resources (PA) and Geology (GE)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
1051	GE:1.4				X	Prohibit collection of resources, objects, rocks, petrified wood, fossils, plants, parts of plants, animals, fish, insects, or other invertebrate animals, bones, waste, other products from animals, or other items.	Prohibit casual collection of rocks, minerals, and petrified wood.	Allow casual collection of rocks, minerals, and petrified wood except where prohibited and posted. Close the following areas to casual collection (Map 11): <ul style="list-style-type: none">• North Circle Cliffs Fossil Wood Area (3,364 acres)	Allow casual collection of rocks, minerals, and petrified wood except where prohibited and posted.	
1052	PA:1.2 PA:1.3	X			X	No similar action.	Manage the Wolverine Petrified Wood area as an OHV closed area.	Same as Alternative B.	Manage the Wolverine Petrified Wood area as an OHV limited area.	

2.3.6 Soil and Water Resources

2.3.6.1 Soil Resources

Soil Resources (SR)											
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)		
						Goal SR:1 Manage uses to prevent damage to and degradation of soil resources and to ensure that soil health is maintained or improved. Objectives: SR:1.1 Maintain and/or restore overall watershed health to reduce erosion, stream sedimentation, and salinization of water, with particular emphasis on the Colorado River System. SR:1.2 Ensure soils exhibit infiltration, permeability, and erosion rates appropriate for the soil type, climate, and landform. SR:1.3 Maintain or enhance soil stability, productivity, and infiltration to prevent accelerated erosion and to provide for optimal plant growth and the site's potential. SR:1.4 Maintain and restore areas of biological soil crust appropriate for the soil type, climate, and landform. Goal SR:2 Provide opportunities for education and research. Objectives: SR:2.1 Increase public education and appreciation of soils and biological soil crusts through interpretation. SR:2.2 Facilitate appropriate research to improve understanding and management of soil resources and biological soil crusts.					
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE											
1053	SR:1.4 SR:2.2 SR:2.1	X	X	X	X	No similar action.	Prohibit surface-disturbing activities in fragile or sensitive soil areas (Map 13).	Prior to allowing surface disturbance in fragile or sensitive soil areas (e.g., saline soils, highly erosive, late successional biological, expansive), operators would be required to submit a soil health and restoration plan that includes site-specific mitigation measures for activities proposed in fragile or sensitive soil areas. The BLM must approve the plan before surface-disturbing activities would be authorized. The BLM may allow surface disturbance in fragile or sensitive soil areas as long as impacts would be mitigated.	Same as Alternative C.		
1054	SR:1.3	X	X	X	X	No similar action.	Require measures to stabilize soils and minimize surface water runoff for slopes greater than 5%, both during project activities and following project completion. Prohibit surface-disturbing activities on slopes greater than 30% (Map 14). This includes a No Surface Occupancy stipulation with no exceptions. Manage as a ROW exclusion area.	Require measures to stabilize soils and minimize surface water runoff for slopes greater than 10%, both during project activities and following project completion. Prohibit surface-disturbing activities on slopes greater than 30% (Map 14). This includes a No Surface Occupancy stipulation, with exceptions considered. Manage as a ROW avoidance area.	Require measures to stabilize soils and minimize surface water runoff for slopes greater than 15%, both during project activities and following project completion. Prohibit surface-disturbing activities on slopes greater than 30% (Map 14). This includes a No Surface Occupancy stipulation, with exceptions considered. Manage as a ROW avoidance area.		
1055	SR:1.3	X	X	X	X	No similar action.	Require 80% of total vegetative cover as described in the ecological site description for reclamation projects within three growing seasons, as conditions allow.	Require 50% of total vegetative cover as described in the ecological site description on reclamation projects within three growing seasons, as conditions allow. The BLM may grant exceptions based on ecological site descriptions.	Require 30% of total vegetative cover as described in the ecological site description on reclamation projects within three growing seasons, as conditions allow. The BLM may grant exceptions based on ecological site descriptions.		

Soil Resources (SR)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
1056	SR:1.1 SR:1.2 SR:1.3 SR:1.4	X	X	X	X	No similar action.	Exclude new ROWs (including communication sites) on fragile, sensitive, or otherwise unstable soils such as areas with or prone to landslides and slumps.	Avoid new ROWs (including communication sites) on fragile, sensitive, or otherwise unstable soils such as areas with or prone to landslides and slumps.	No similar action.
1057	SR:1.1 SR:1.2 SR:1.3 SR:1.4	X	X	X		GSENM: The BLM will apply procedures to protect soils from accelerated or unnatural erosion in any ground-disturbing activity, including route maintenance and restoration. The effects of activities such as grazing developments, mineral exploration or development, or water developments will be analyzed through the preparation of project-specific NEPA documents. This process will include inventories for affected resources and the identification of mitigation measures. Prior to any ground-disturbing activity, the potential effects on biological soil crusts will be considered and steps will be taken to avoid impacts on their function, health, and distribution. Long-term research toward preservation and restoration of soils will be part of the adaptive management framework.	GSENM: Same as Alternative A. In addition, pastures with more than 50% of soils with moderate soil degradation susceptibility would be adaptively managed to minimize degradation. Reduce grazing impacts on crust and soils with moderate soil degradation susceptibility: <ul style="list-style-type: none">Change season of use for grazing as appropriate for biological soil crust and soil degradation susceptibility. In general, light to moderate stocking in early- to mid-wet season is recommended on biological soil crust and soils with moderate soil degradation susceptibility. Change season of use so that grazing does not occur during times when crusts are most susceptible to damage. Sandy soils are most susceptible when wet or moist. Clay is most susceptible when dry. When necessary, use exclosures and fencing to protect sites with biological soil crust or soils with moderate soil degradation susceptibility.	GSENM: Same as Alternative A. Glen Canyon: Same as Alternative B.	GSENM: Same as Alternative A.

2.3.6.2 Water Resources

Water Resources (WR)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						Goal WR:1 Ensure that appropriate quality and quantity of water resources are available for the proper care and management of objects of GSENM and resources of GSENM and KEPA. Objectives: WR:1.1 Increase public education and appreciation of water resources through interpretation. WR:1.2 Facilitate appropriate research to improve management of water resources. WR:1.3 Maintain and/or restore natural hydrologic functions of watersheds, including the capability to capture, store, and beneficially release water. WR:1.4 Improve watershed conditions on eroding sites and on other sensitive watershed areas, such as riparian areas. WR:1.5 Maintain and/or improve water quality to meet State water quality standards and the Utah Standards and Guidelines for Rangeland Health.				
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE										
Water Flows and Use										
1058	WR:1.3 WR:1.4 WR:1.5	X	X	X	X	Ensure that land management policies protect water resources. Because much of the water important to GSENM falls as precipitation within the monument, its continued availability can be ensured by appropriate land management policies within GSENM. The BLM will exercise its existing land management authorities to protect and maintain all available water and natural flows in GSENM. Major visitor centers and facilities will be located outside of GSENM in local communities where there will be access to municipal water systems. In general, diversions of water out of GSENM will not be permitted.	To protect and maintain all available water and natural flows, including water flowing into GSENM and KEPA from adjacent lands (Map 15), locate major visitor centers in local communities where there will be access to municipal water systems.	To protect and maintain all available water and natural flows, including water flowing into GSENM and KEPA from adjacent lands (Map 15), allow the location of major visitor centers and facilities within GSENM or KEPA as long as it does not conflict with other resource management.	Allow major visitor centers and facilities both inside and outside of GSENM and KEPA and in local communities where there will be access to municipal water systems.	

Water Resources (WR)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
1059	WR:1.3 WR:1.4 WR:1.5	X	X	X		No similar action.	Do not develop water sources for beneficial recreation and visitor-related uses in high-use remote areas, such as trailheads and recreational facilities.	Allow water sources to be developed for beneficial recreation and visitor-related uses in high-use remote areas, such as trailheads and recreational facilities.	Same as Alternative C.
1060	WR:1.4 WR:1.5	X	X	X		Use water development as a management tool throughout GSENM for the following purposes: better distribution of livestock when deemed to have an overall beneficial effect on monument resources, including water sources or riparian areas; or restoration or management of native species or populations. These can be done only when a NEPA analysis determines this tool to be the best means of achieving the above objectives and only when the water development would not dewater streams or springs. Developments will not be permitted to increase overall livestock numbers. Maintenance of existing developments can continue, but may require NEPA analysis and must be consistent with the objectives of this plan.	Allow maintenance of existing water developments. Prohibit new water developments for livestock and wildlife. Do not authorize water developments that will increase livestock numbers.	Allow new water developments and maintenance of existing water developments to improve livestock and wildlife distribution. Do not authorize water developments that will increase livestock numbers.	Same as Alternative C.
Management of Water Quality and Watershed Health									
1061	WR:1.5	X	X	X	X	No similar action.	Prohibit surface-disturbing actions in Drinking Water Source Protection Zones and culinary water sources. Develop strategies to mitigate any existing BLM-authorized activities that pose a threat to public water systems (Map 16).	Allow surface-disturbing activities within Drinking Water Source Protection Zones where the disturbance does not degrade the resource (Map 16). In these areas locate permanent facilities to eliminate potential contamination or pollution sources, and design facilities to prevent contaminated discharges to groundwater.	Same as Alternative C.

2.3.7 Vegetation and Fire and Fuels Management

2.3.7.1 Vegetation

Vegetation (VG)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						Goal VG:1 Ensure a mosaic of desired vegetation communities is present across the landscape with diversity of species, canopy, density, and age class in accordance with ecological site potential. Protect, enhance, and/or restore ecological processes and functions. Objectives: VG:1.1 Manage sagebrush communities to provide quality habitat necessary to maintain sustainable populations of sagebrush obligate species. VG:1.2 Prevent net loss of properly functioning sagebrush-steppe habitat. VG:1.3 Prevent establishment of new invasive species through early detection and rapid response actions. VG:1.4 Restore native species to meet desired plant community objectives. VG:1.5 Maintain healthy stands of ponderosa pine. VG:1.6 Maintain and/or restore riparian areas to proper functioning condition, or to making significant progress toward proper functioning condition, where BLM-managed or BLM-authorized activities have been identified as contributing to riparian impairment. VG:1.7 Ensure water quantity and quality for multiple-use management and functioning, healthy riparian and upland systems. VG:1.8 Manage relict plant communities and hanging gardens to maintain and enhance biological diversity. VG:1.9 Manage undesirable and desirable vegetation with the goal of improving overall watershed conditions.				
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES										
1062	VG:1.6	X	X	X	X	Prohibit new recreation facilities in riparian areas, except for small signs for resource protection.				
1063	VG:1.6	X	X	X	X	Prohibit trails in riparian areas wherever possible. Where this is not possible, designate trails to minimize impacts by placing trails away from streams, using soil stabilization structures to prevent erosion, and planting native plants in areas where vegetation has been removed.				

Vegetation (VG)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
1064	VG:1.3	X	X	X	X	Control noxious weed species and prevent the introduction of new invasive species in conjunction with Cooperative Weed Management Areas.				
1065	VG:1.8	X	X	X	X	Prohibit vegetation restoration methods in relict plant communities and hanging gardens, unless needed for removal of noxious weed species.				
1066	VG:1.8	X	X	X		Prohibit new water developments in relict plant communities and hanging gardens. Allow maintenance activities if these resources are not affected.				
1067	VG:1.8	X	X	X		Prohibit parking areas or other recreation facilities in relict plant communities and hanging gardens.				
1068	VG:1.8	X	X	X		Prohibit camping, overnight stays, and campfires in relict plant communities and hanging gardens. Make exceptions as applicable by the authorized officer.				
1069	VG:1.8	X	X	X		Prohibit communication sites and utility ROWs in relict plant communities and hanging gardens.				
1070	VG:1.3	X	X	X	X	Allow approved weed-control methods to all invasive species in an integrated weed management program (including but not limited to: preventive management; education; and mechanical, biological, wildland or prescribed fire, and chemical techniques).				
1071	VG:1.6				X	No similar action.	Retain riparian areas in the public ownership.			
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE										
General Vegetation										
1072	VG:1.4	X	X	X	X	Modify livestock grazing after native seedlings are established to ensure the survival of the native plants. The livestock exclusion period required to allow full establishment of seeded native species and recovery of surviving plants may be more than 2 years. Vegetation treatment monitoring data will be evaluated to determine when objectives for the seedlings are met and grazing can be resumed.	Modify livestock grazing after native seeding restoration to ensure the survival of the native plants. In post-disturbance areas, suspend livestock grazing for at least two growing seasons or until the majority of native plant species in the area have seeded, whichever is longer. Vegetation treatment monitoring data will be evaluated to determine when objectives for the seedlings are met and grazing can be resumed.	After disturbance, modify livestock grazing practices until seedlings are established in order to promote the survival of plants. Generally, areas will be rested from livestock grazing for two growing seasons or until site objectives are met. Vegetation treatment monitoring data will be evaluated to determine when objectives for the seedlings are met and grazing can be resumed.	Same as Alternative C.	
1073	VG:1.4	X	X	X	X	Do not use nonnative plants to increase forage for livestock and wildlife.	Same as Alternative A.	Prioritize the use of native seeds for restoration of nonstructural range improvements based on availability, adaptation (ecological site potential), and probability of success. Where probability of success or adapted seed availability is low, desirable nonnative seeds may be used as long as they support ecological objectives. Re-establishment of appropriate species, relative to site potential, should be the principle objective for restoration efforts.	Consistent with federal policy, prioritize the use of native species. Allow the use of nonnative species where necessary to optimize land health, forage, and productivity in nonstructural range improvements.	
1074	VG:1.4	X	X	X	X	Follow guidance for Vegetation Restoration Methods in the MMP. Mechanical methods, including manual pulling and the use of hand tools, such as chainsaws, machetes, and pruners, may be allowed throughout GSENM.	Same as Alternative A. Plus, in areas available for livestock grazing, utilize native species only for restoration (including maintenance) of sites formerly seeded to exotic species. This includes nonstructural range improvements within GSENM that were established prior to GSENM designation. Restore existing nonstructural range improvements (seedlings). Restoration (including maintenance) of sites formerly seeded to exotic species will utilize native species only. This includes nonstructural range improvements that were established prior to GSENM designation.	Same as Alternative A. Plus, in areas available for livestock grazing, restore existing nonstructural range improvements (seedlings) using a mix of native and nonnative seeds.	In areas available for livestock grazing, restore existing nonstructural range improvements (seedlings) using a mix of native and nonnative species.	
1075	VG:1.8	X	X	X	X	Prohibit surface-disturbing research in relict plant communities and hanging gardens.	Same as Alternative A.	Allow surface-disturbing research in relict plant communities if the research is designed to promote the overall health and understanding of these areas.	Allow surface-disturbing research in relict plant communities and hanging gardens with implementation of vegetation BMPs (Appendix G [Best Management Practices]).	
1076	VG:1.3 VG:1.4	X	X	X	X	No similar action.	The permittee(s), working with the BLM and per BLM weed management policies, will maintain areas free of noxious and nonnative invasive plant species around structural range improvements.	No similar action.	No similar action.	

Vegetation (VG)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Riparian and Wetland Areas									
1077	VG:1.6 VG:1.7	X	X	X	X	No similar action.	Prohibit surface-disturbing activities and permanent facilities within 0.5 mile (2,640 feet) of riparian/wetland areas (Map 17). Apply a No Surface Occupancy stipulation and ROWs avoidance.	Avoid new surface-disturbing activities within 330 feet of riparian/wetland areas unless it could be shown that (1) there are no practical alternatives, (2) all long-term impacts could be fully mitigated, or (3) the activity would benefit and enhance the riparian area (Map 18). Apply Controlled Surface Use on Federal mineral leasing and ROWs avoidance.	Same as Alternative C.
Plant and Seed Collection									
1078	VG:1.6	X	X	X	X	Preclude commercial seed collection.	Allow collection of commercial seed, except in WSAs and Lands with Wilderness Characteristics.	Allow commercial seed collection. Areas and species available for commercial collection would be determined as climatic conditions allow, in accordance with BLM guidance and policy.	Same as Alternative C.
1079	VG:1.6	X	X	X	X	Preclude commercial use of vegetative materials.	Allow commercial use of vegetative materials, except in WSAs and Lands with Wilderness Characteristics.	Allow commercial use of vegetation materials (excluding seed collection, which is addressed above; pine nut harvest) and collection in specified areas identified by permit as climatic conditions allow.	Same as Alternative C.
1080	VG:1.6	X	X	X	X	No similar action.	Close riparian areas to collection/harvesting of vegetative materials except for traditional Native American and administrative use.	Allow the collection/harvesting of vegetative materials in riparian areas if climatic conditions allow.	Same as Alternative C.
Vegetation Restoration Treatments									
1081	VG:1.4 VG:1.6	X	X	X	X	<p>Allow the use of machinery (e.g., roller chopping, chaining, plowing, discing) unless limited by management for other resources and allocations (e.g., Lands with Wilderness Characteristics Management). Chaining has been used in the past to remove pinyon and juniper prior to reseeding with perennial grasses. Due to the potential for irreversible impacts on resources, such as archaeological sites and artifacts and paleontological resources, this treatment method will not be used to remove pinyon and juniper. It may be allowed to cover rehabilitation seed mixes with soil after wildfires only where:</p> <ul style="list-style-type: none"> • Noxious weeds and invasive nonnative species are presenting a significant threat to GSENM resources or watershed damage could occur if the burned area is not reseeded. • It can be demonstrated that GSENM resources will not be detrimentally affected (i.e., completion of full archaeological, paleontological, threatened and endangered species, and other resource clearance and consultation). • It is determined that seed cover is necessary for the growth of the native species proposed for seeding, and other less-surface-disturbing measures of covering seed are not available or cannot be applied in a timely manner. <p>Visual impacts of chaining will also be minimized near routes and other points of concern by covering the native seed mix with harrows or light chains. The GSENM Advisory Committee will be consulted before the use of machinery for treatments is permitted.</p>	<p>Do not allow vegetation treatments unless necessary for the protection of life or property, or if a determination has been made that an area is not meeting rangeland health standards and livestock grazing is not a contributing or causal factor.</p> <p>In limited circumstances, where vegetation treatments are allowed:</p> <ul style="list-style-type: none"> • Only use non-intensive vegetation treatments (e.g., hand thinning, lop and scatter). • Focus treatments on removal of pinyon-juniper woodlands. Prohibit removal of sagebrush or other understory plant communities. • Only use native seeds and plants during restoration. • Mimic natural processes to the maximum degree possible. • Design treatments to address underlying or problematic causes identified in rangeland health assessments. <p>This decision would also apply to nonstructural range improvements.</p>	<p>Allow vegetation treatments using all methods and tools except chaining (e.g., prescribed fire, mechanical, chemical, biological, woodland product removal). Design treatments to promote land health; increase vegetation cover, soil productivity, and water infiltration; and reduce soil erosion.</p> <p>This decision would also apply to nonstructural range improvements.</p>	<p>Use the full range of vegetation treatment methods and tools (e.g., chaining, prescribed fire, mechanical, chemical, biological, woodland product removal). Prioritize treatments in areas where removal of woodland products would improve rangeland health, wildlife habitat, and forage.</p> <p>This decision would also apply to nonstructural range improvements.</p>

2.3.7.2 Fire and Fuels Management

Fire and Fuels Management (FF)											
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)		
						Goal FF:1 Protect life, property, and resource values by responding to wildland fires based on ecological, social, and legal consequences of the fire and the circumstances under which it occurs. Objectives: FF:1.1 Make firefighter and public safety the primary goal in all fire management decisions and actions. FF:1.2 Use wildland fire to protect, maintain, and enhance resources and, when possible, allow wildland fire to function in its natural ecological role. FF:1.3 Reduce hazardous fuels to restore ecosystems; protect human, natural, and cultural resources; and reduce the threat of wildfire to communities. FF:1.4 Suppress fires at minimum cost, taking into account firefighter and public safety and benefits and values to be protected, consistent with resource objectives. FF:1.5 Develop a Fire Management Plan, based on a foundation of sound science, for every area with burnable vegetation. FF:1.6 Undertake emergency stabilization, rehabilitation, and restoration efforts to protect and sustain resources, public health and safety, and community infrastructure. FF:1.7 Work together with BLM partners and other affected groups and individuals to reduce risks to communities and restore ecosystems. FF:1.8 Maintain the general DWFC by having ecosystems that are at a low risk of losing ecosystem components following wildfire and that function within their historical range. In terms of FRCC, the DWFC outside WUI is to trend to a lower FRCC using the least intrusive methods possible. In other words, the DWFC is to move lands in FRCC 3 to FRCC 2 and lands in FRCC 2 to FRCC 1 through fire and non-fire treatments where wildland fire use is the preferred method of treatment, when feasible. Inside the WUI, the general DWFC is to have less potential for values to be threatened by wildland fire, usually through some modification of fuels.					
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES											
1082	FF:1	X	X	X	X	Use the Fire Management Units identified on Map 19 to assist in organizing fire management information from the RMP.					
1083	FF:1	X	X	X	X	Consider all available tools when applying emergency stabilization and rehabilitation, as appropriate.					
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES											
1084*	FF:1	X	X	X	X	The Southern Utah Support Area FMP describes current management related to fire suppression, resource objectives, and natural Fire. Refer to BLM 2005c for a detailed description of current management.	Modify the existing FMP to be consistent with existing RMP decisions.*				
1085	FF:1	X	X	X	X	Prescribed fire was not allowable in areas within the monument per the 2005 Fire Management Amendment (UT-USO-04-01) that amended the 2000 GSENM Plan.	The area is available to use prescribed fire to meet resource objectives; management direction would be considered on an ignition-by-ignition basis, considering values at risk and benefits.				

2.3.8 Visual Resources, Night Skies, and Natural Soundscapes

Visual Resources, Night Skies, and Natural Soundscapes (VR)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						Goal VR:1 Manage uses to protect and maintain the quality of the scenic values. Goal VR:2 Manage uses to maintain the quality of night sky and natural soundscape resources. Goal VR:3 Increase public awareness and appreciation of and engagement with scenic, night sky, and natural soundscape resources. Goal VR:4 Assign one of the following VRM Objectives to all lands within the Planning Area to allow for a range of visual value protection and resource use: VR:4.1 VRM Class I – Preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. VR:4.2 VRM Class II – 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. VR:4.3 VRM Class III – Partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. VR:4.4 VRM Class IV – Provide for management activities that require major modification of 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 should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.				
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES										
1086	VR:1	X	X	X	X	To the extent practicable and as the opportunity arises, bring existing visual contrasts into VRM Class conformance.				
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES										
1087*	VR:2	X	X	X	X	No similar action.	Develop interpretive materials/programs to educate and engage the public about scenic, night sky, and natural soundscape resources.*			

Visual Resources, Night Skies, and Natural Soundscapes (VR)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
1088	VR:2	X	X	X	X	No similar action.	Develop a natural soundscape management plan.		
1089*	VR:2	X	X	X	X	No similar action.	Inventory and monitor night skies and natural soundscapes in partnership with local communities, universities, other agencies, and stakeholders.*		
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
<i>Visual Resources</i>									
1090	VR:1	X	X	X		Within GSENM, maintain existing VRM Class designations for BLM-administered surface lands in the Planning Area (Map 20): <ul style="list-style-type: none">• VRM Class I: 715,793 acres• VRM Class II: 209,741 acres• VRM Class III: 77,800 acres• VRM Class IV: 0 acres	Within GSENM, manage the following VRM classifications (Map 21): <ul style="list-style-type: none">• VRM Class I: 847,984 acres• VRM Class II: 123,369 acres• VRM Class III: 32,262 acres• VRM Class IV: 0 acres	Within GSENM, manage the following VRM classifications (Map 22): <ul style="list-style-type: none">• VRM Class I: 671,435 acres• VRM Class II: 236,097 acres• VRM Class III: 28,216 acres• VRM Class IV: 67,866 acres	Within GSENM, manage the following VRM classifications (Map 23): <ul style="list-style-type: none">• VRM Class I: 669,076 acres• VRM Class II: 214,134 acres• VRM Class III: 40,544 acres• VRM Class IV: 79,860 acres
1091	VR:1				X	Within KEPA, maintain existing VRM Class designations for BLM-administered surface lands in the Planning Area (Map 20): <ul style="list-style-type: none">• VRM Class I: 221,723 acres• VRM Class II: 359,676 acres• VRM Class III: 279,324 acres• VRM Class IV: 0 acres	Within KEPA, manage the following VRM classifications (Map 21): <ul style="list-style-type: none">• VRM Class I: 568,654 acres• VRM Class II: 209,713 acres• VRM Class III: 43,024 acres• VRM Class IV: 40,830 acres	Within KEPA, manage the following VRM classifications (Map 22): <ul style="list-style-type: none">• VRM Class I: 209,707 acres• VRM Class II: 415,211 acres• VRM Class III: 134,955 acres• VRM Class IV: 102,348 acres	Within KEPA, manage the following VRM classifications (Map 23): <ul style="list-style-type: none">• VRM Class I: 207,723 acres• VRM Class II: 222,531 acres• VRM Class III: 287,963 acres• VRM Class IV: 144,004 acres
1092	VR:1	X	X	X	X	Utilizing the results of the VRI and other resource allocation considerations, assign 68% of the lands within GSENM to VRM Class II and 32% of the lands within GSENM to VRM Class III.	Unless noted otherwise in other resource or use decisions: <ul style="list-style-type: none">• Manage lands within the GSENM units according to VRI classifications, with the exception of VRI Class IV areas, which will be managed as VRM Class III (Map 24).• Manage lands within KEPA according to VRI classifications.	Unless noted otherwise in other resource or use decisions: <ul style="list-style-type: none">• Manage lands within GSENM according to the VRI.• Manage lands within KEPA according to the VRI.• Manage designated utility corridors as VRM Class III or according to VRI, whichever is least restrictive.	Unless noted otherwise in other resource or use decisions: <ul style="list-style-type: none">• Manage GSENM lands consistent with the 2018 VRI.• In KEPA, manage lands extending 1 mile from NPS boundaries as VRM Class II except for lands west of Burning Hills WSA adjacent to the Glen Canyon NRA boundary, which will be managed to VRM Class III, and areas with suitable coal potential, which will be managed as VRM Class IV.• Edge match KEPA lands extending 1 mile from adjacent KFO lands so that VRM Classes are consistent except for lands adjacent to Paria Canyon-Vermilion Cliffs Wilderness Area, which will be managed as VRM Class II (Map 25).• Manage utility corridors as VRM Class III or according to VRI classifications, whichever is least restrictive.• In KEPA, manage historic state and Federal oil and gas, coal, and coal bed methane lease areas as VRM Class III or according to VRI, whichever is least restrictive.• In KEPA, manage combined hydrocarbon lease application areas as VRM Class III or according to VRI, whichever is least restrictive.
1093	VR:1				X	No similar action.	Manage sensitive visual areas (i.e., visible areas inventoried as high sensitivity within the foreground/middle ground and background distance zones) as excluded from utility-scale renewable energy development (Maps 26 and 27) (624,012 acres).	Manage sensitive visual areas (i.e., visible areas inventoried as high sensitivity within the foreground/middle ground and background distance zones) as variance areas for utility-scale renewable energy development (Maps 26 and 27) (624,012 acres).	Same as Alternative C.
1094	VR:1	X	X	X	X	The Monument Manager may allow temporary projects, such as research projects, to exceed VRM standards in Class II and III areas if the project terminates within 2 years of initiation. Rehabilitation will begin at the end of the 2-year period. During the temporary project, the Monument Manager may require phased mitigation to better conform with prescribed VRM standards.	No similar action.	Allow temporary projects to exceed VRM objectives, if the project terminates within 2 years of initiation. Rehabilitation will be ongoing throughout project implementation if possible or begin at the end of the 2-year period. During the temporary project, the authorized officer may require phased mitigation to better conform with VRM objectives.	Same as Alternative C, except allow temporary projects for up to 3 years.

Visual Resources, Night Skies, and Natural Soundscapes (VR)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
Night Skies										
1095	VR:2	X	X	X	X	Seek to prevent light pollution within GSENM. No actions will be proposed within GSENM that will contribute to light pollution. Work closely with the surrounding communities to minimize light pollution.	Do not permit/authorize actions that will contribute to an increase in light pollution.	Within GSENM, do not authorize projects that contribute to an increase in light pollution. Within KEPA, utilize BMPs to minimize light pollution.	Implement BMPs in coordination with stakeholders to eliminate or minimize light pollution.	
1096	VR:2	X	X	X	X	No similar action.	Develop an activity plan for designation as an International Dark-Sky Association Dark Sky Sanctuary. The activity plan will include development and adoption of a comprehensive Lightscape Management Plan, Lighting Inventory, and Dark Sky BMPs consistent with requirements set forth by the International Dark-Sky Association.	Protect night sky vistas through implementation of BMPs and coordination with local communities and stakeholders.	Within GSENM, same as Alternative B. Within KEPA, same as Alternative C.	

2.3.9 Wild Horses

						Wild Horses (WH)				
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						Goal WH:1 Manage wild horses in accordance with the Wild Free-Roaming Horse and Burro Act of 1971 Objectives: WH:1.1 Retain the Harvey's Fear and Moody's Herd Areas in accordance with the wild Free-Roaming Horse and Burro Act of 1971.				
1097	WH:1.1	X	X		X	Retain the Harvey's Fear and Moody's Herd Areas in accordance with the wild Free-Roaming Horse and Burro Act of 1971 (Map 28).				
1098*	WH:1.1	X	X		X	Conduct population surveys of wild horses within herd areas every 3 to 4 years.*				
1099	WH:1.1	X	X	X	X	Remove wild horses from public lands that are outside the herd areas.				

2.3.10 Forestry and Woodland Products

Forestry and Woodland Products (FP)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						Goal FP:1 Promote, sustain, and improve forest health. Objectives: FP:1.1 Maintain healthy forest/woodlands and populations of other plants. FP:1.2 Improve forest and woodland health to protect watershed values and support wildlife habitat requirements. FP:1.3 Manage areas with ponderosa pine and aspen to maintain and improve the stand health.				
1100	FP:1.1	X	X	X	X	No similar action.	Permit harvesting of woodland products in riparian areas for the maintenance and/or improvement of riparian ecosystems.			
1101	FP:1.1	X	X	X	X	No similar action.	Prohibit the removal of ponderosa pine for Christmas trees.			
1102	FP:1.1	X	X	X	X	No similar action.	Allow the sale of forest treatment residues as secondary wood products or biomass.			

Forestry and Woodland Products (FP)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
1103	FP:1.1	X	X	X	X	No commercial timber harvesting is authorized within the Planning Area.	GSENM: Same as Alternative A. KEPA: Allow commercial timber harvesting for the purposes of promoting or sustaining forest health across the entirety of the monument units.	GSENM: Allow commercial timber harvesting for the purposes of promoting or sustaining forest health across the entirety of the monument units. KEPA: Same as Alternative B.	GSENM: Same as Alternative C. KEPA: Same as Alternative B.
1104	FP:1.1	X	X	X	X	Allow by permit fuelwood harvesting, post cutting, and Christmas tree cutting only within designated areas (Map 29). Commercial fuelwood cutting will be limited and authorized in designated areas only. There are currently two forestry product areas located in GSENM: Rock Springs Bench area and Buckskin Mountain area.	Limit Commercial and non-commercial fuelwood harvesting, post cutting, and Christmas tree cutting to new or existing restoration areas prior and after treatments (KEPA). Close all areas to commercial fuelwood harvesting, post cutting, and Christmas tree cutting (GSENM).	Allow commercial and non-commercial fuelwood harvesting, post cutting, and Christmas tree cutting except in WSAs and areas posted or signed as closed in order to meet forestry goals and objectives otherwise designated or subject to a stipulation.	Same as Alternative C.

2.3.11 Lands and Realty and Renewable Energy

2.3.11.1 Lands and Realty

Lands and Realty (LR)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Goal LR:1 Manage ROWs, land tenure adjustments, withdrawals, and use of BLM-administered surface lands to meet the needs of internal and external customers and to preserve important resource values. Objectives: LR:1.1 Work with nearby communities and other land management agencies to pursue management activities that cooperatively accomplish the objectives of each agency within the constraints of Federal law. LR:1.2 Utilize energy and utility corridors to focus placement of new major ROWs for energy and transportation systems. LR:1.3 Retain in public ownership public lands that enhance multiple-use management, allow access to public lands, contain sensitive or rare resources, or have significant Native American concerns. LR:1.4 Acquire lands or interests in lands to complement existing resource values and uses. LR:1.5 Confirm areas that should be withdrawn from mineral entry to meet resource goals and objectives. LR:1.6 Make public lands available for ROWs, permits, and leases. The suitability for these land actions would be judged on a case-by-case basis.									
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES									
2001*	LR:1.1	X	X	X		Authorize only one access route to private land parcels unless public safety or local ordinances warrant additional routes. Private land owners must coordinate the development of access routes across public lands in order to prevent a proliferation of routes.*			
2002	LR:1.1	X	X	X		Recognize valid land authorizations that existed prior to establishment of GSENM and allow use of such authorizations subject to the terms and conditions of the authorizing document. Where these uses conflict with the protection of GSENM resources, and where legally possible, adjust leases, permits, or easements to eliminate or minimize adverse impacts.			
2003	LR:1.1	X	X	X		Consider land exchanges and acquisitions so long as the current owner is a willing participant and so long as the action is in the public interest, and is in accordance with other management goals and objectives of this plan. The action must also result in a net gain of objects and values within GSENM, such as wildlife habitat, cultural sites, riparian areas, live water, threatened or endangered species habitat, or areas key to the maintenance of productive ecosystems. Priority will be given to actions that meet one or more of the following criteria: <ul style="list-style-type: none"> • Ensures the accessibility of public lands in areas where access is needed and cannot otherwise be obtained. • Is essential to allow effective management of public lands. • Results in the acquisition of lands that serve a National priority as identified in National policy directives. All land exchanges and acquisitions will be subject to valid existing rights as determined by the BLM. 			
2004	LR:1.6				X	Maintain 11,012 acres as designated ROW corridors in the Planning Area (Map 30). This includes Section 368 corridor 68-116 and the congressionally designated utility corridor along Highway 89 in Kane County, which extends 240 feet north and 500 feet south of the highway centerline.			
2005	LR:1.4	X	X	X	X	Retain habitat for listed threatened, endangered, and candidate species in Federal ownership unless land tenure adjustments would result in a net increase of habitat. All actions involving listed species or their habitat require consultation with the USFWS.			
2006	LR:1.5	X	X	X		In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, all lands within GSENM will continue to be withdrawn from mineral location and entry.			
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES									
2007	LR:1.1				X	No similar action.	Manage land becoming unencumbered by withdrawals in a manner consistent with adjacent or comparable public land within the Planning Area.		

Lands and Realty (LR)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
2008	LR:1.6				X	<p>Consider land exchanges and acquisitions so long as the current owner is a willing participant and so long as the action is in the public interest, and is in accordance with other management goals and objectives of this plan. The action must also result in a net gain of objects and values within GSENM, such as wildlife habitat, cultural sites, riparian areas, live water, threatened or endangered species habitat, or areas key to the maintenance of productive ecosystems. The action may also meet one or more of the following criteria:</p> <ul style="list-style-type: none"> • Ensures the accessibility of public lands in areas where access is needed and cannot otherwise be obtained; • Is essential to allow effective management of public lands; and • Results in the acquisition of lands that serve a National priority as identified in National policy directives. <p>All land exchanges and acquisitions will be subject to valid existing rights as determined by the BLM.</p>	<p>To be considered for any form of land tenure adjustment (including but not limited to exchanges, in lieu selections, Recreation and Public Purposes leases, Desert-land Entry, acquisitions, etc. [except FLPMA 203 Sales]), public lands in the Planning Area must meet one or more of the following land tenure criteria. The adjustment:</p> <ol style="list-style-type: none"> 1. Is in the public interest and accommodates needs of state, local, or private entities, including needs for the economy, community growth, and expansion, and is in accordance with other land use goals, objectives, and RMP planning decisions; 2. Results in a net gain of important and manageable resource values on public lands, such as crucial wildlife habitat, significant cultural sites, high-value recreation areas, high-quality riparian areas, live water, threatened and endangered species habitat, or areas key to maintaining productive ecosystems; 3. Ensures accessibility of public lands in areas where access is needed and cannot otherwise be obtained; 4. Is essential to allow effective management of public lands in areas where consolidation of ownership is necessary to meet resource management objectives; and 5. Results in acquisition of lands that serve a national priority as identified in national policy directives. <p>All future land tenure adjustments will require a site-specific environmental analysis in accordance with NEPA when an actual land tenure adjustment action is proposed.</p> <p>All future land tenure adjustments must be in conformance with other goals and objectives in this plan, some of which could preclude land tenure adjustment.</p> <p>All land tenure adjustments will be subject to valid existing rights as determined by the authorized officer.</p> <p>Acquisitions will be managed in a manner consistent with adjacent or comparable public land within the Planning Area.</p>			
2009	LR:1.1				X	No similar action.	Manage Recreation and Public Purposes leases subject to No Surface Occupancy stipulations. If these sites are no longer required, they would be managed consistent with adjacent lands.			
2010	LR:1.6	X	X	X	X	Approve filming in all zones if the activity complies with the zone requirements and plan provisions. Permits for commercial filming will be required and the preparation of a project-level NEPA document (BLM Manual 2920) may be required.	Authorize filming throughout the decision area after site-specific NEPA analysis is completed.			
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE										
						Management of ROWs and ROW Corridors				
2011	LR:1.5	X	X	X	X	<p>Prohibit utility ROWs in the Primitive Zone. In cases of extreme need for local (not regional) needs and where other alternatives are not available, a plan amendment could be considered for these facilities in the Primitive Zone. Communication sites will only be allowed in the Primitive Zone for safety purposes and where no other alternative exists.</p> <p>Allow communication sites and utility ROWs in the Outback Zone within the constraints of the zone, where no other reasonable location exists, and will meet the visual objectives (see the Visual Resources, Night Skies, and Natural Soundscapes section for related decisions) (Map 31).</p>	<ul style="list-style-type: none"> • Manage 1,676,040 acres as ROW exclusion areas (including communication sites (Map 32). • Manage 190,205 acres as ROW avoidance areas (including communication sites (Map 32). <p>(Note: Any portions of GSENM not managed as ROW avoidance are ROW exclusion). No open lands.</p>	<ul style="list-style-type: none"> • Manage 892,221 acres as ROW exclusion areas (including communication sites (Map 33). • Manage 397,076 acres as ROW avoidance areas (including communication sites (Map 33). • Manage 579,949 acres as ROW open areas (including communication sites (Map 33). 	<ul style="list-style-type: none"> • Manage 883,808 acres as ROW exclusion areas (including communication sites (Map 34). • Manage 338,446 acres as ROW avoidance areas (including communication sites (Map 34). • Manage 643,992 acres as ROW open areas (including communication sites (Map 34). 	
2012	LR:1.1 LR:1.5	X	X	X	X	Follow existing BLM guidance on communication site placement.	Require all new communication facilities be located in existing communication sites. New ROWs at existing communication sites must be in compliance with an existing communication site plan.	Require new communication facilities be located in existing communication sites, unless it is demonstrated that the placement of new facilities in an existing site is not feasible.	Authorize communication site facilities in areas open to new ROWs.	
						Withdrawals				
2013	LR:1.5				X	In accordance with Presidential Proclamation 9682, lands within KEPA are no longer withdrawn from mineral location and entry (Map 36).	Recommend withdrawing approximately 485,422 acres of Federal mineral estate from mineral location and entry within KEPA (Map 37).	Recommend withdrawing approximately 210,676 acres of Federal mineral estate from mineral location and entry within KEPA (Map 38).	Recommend withdrawing 225 acres of Federal mineral estate from mineral location and entry within KEPA (Map 39).	

2.3.11.2 Renewable Energy

Renewable Energy (RE)											
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)		
						Goal RE:1 Manage and provide opportunities for solar, wind, geothermal, and other renewable energy uses in consideration of goals, objectives, and management of other resources. Objectives: RE:1.1 Identify renewable energy variance, avoidance, and exclusion areas. RE:1.2 Provide opportunities for renewable energy development where compatible with other resources.					
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES											
2016	RE:1.1	X	X	X	X	ROW avoidance and exclusion areas also apply to renewable energy development.					
2017	RE:1.1	X	X	X		Prohibit utility-scale renewable energy development in GSENM (per the Solar Programmatic ROD).					
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE											
2018	RE:1.1				X	No similar action (Map 40).	<ul style="list-style-type: none"> Manage 1,807,813 acres as utility-scale renewable energy exclusion areas (Map 41). Manage 58,433 acres as utility-scale renewable energy variance areas (Map 41). 	<ul style="list-style-type: none"> Manage 1,217,246 acres as utility-scale renewable energy exclusion areas (Map 42). Manage 237,938 acres as utility-scale renewable energy variance areas (Map 42). Manage 411,061 acres as utility-scale renewable energy open areas (Map 42). 	<ul style="list-style-type: none"> Manage 1,216,049 acres as utility-scale renewable energy exclusion areas (Map 43). Manage 199,293 acres as utility-scale renewable energy variance areas (Map 43). Manage 450,904 acres as utility-scale renewable energy open areas (Map 43). 		

2.3.12 Livestock Grazing

Livestock Grazing (LG)											
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)		
						Goal LG:1 Maintain, restore, or enhance rangeland health and provide for appropriate livestock grazing opportunities. Objectives: LG:1.1 Maintain, restore, or enhance sustainable rangeland ecosystems to meet BLM Utah's Standards for Rangeland Health and to produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, maximum sustainable economic benefits to local communities, and functional watersheds. LG:1.2 Integrate livestock use and associated management practices with other multiple-use needs and objectives to maintain, protect, and improve rangeland health while reducing conflicts. LG:1.3 Reduce or eliminate livestock-related rangeland resource problems on all allotments not meeting rangeland health standards while maintaining a production goal of livestock forage in the long term. LG:1.4 Design grazing systems and range improvements to achieve and maintain healthy rangelands. LG:1.5 Provide for livestock grazing on public lands, where appropriate.					
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES											
2019	LG:1	X	X	X		Grazing permits or leases convey no right, title, or interest in the land or resources used. Although Presidential Proclamation 6920 specifically mentions livestock grazing, it does not establish it as a "right" or convey it any new status. Presidential Proclamation 6920 states that "grazing shall continue to be governed by applicable laws and regulations other than this proclamation," and says that Presidential Proclamation 6920 is not to affect existing permits for, or levels of, livestock grazing within GSENM. Other applicable laws and regulations govern changes to existing grazing permits and levels of livestock grazing in GSENM, just as in other BLM livestock grazing administration programs.	The monument designation does not affect authorizations for livestock grazing or administration of those authorizations on lands in the monument. Livestock grazing within the monument is governed by laws and regulations other than the Presidential Proclamations.				

Livestock Grazing (LG)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)			
2020	LG:1.1 LG:1.2 LG:1.3				X	No similar action.			
						Suspend authorization of AUMs in areas of intensive surface disturbance (e.g., oil and gas, surface mining, civil works) unless or until rehabilitation is either ongoing or complete.			
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
Allocations									
2022	LG:1.5	X	X	X	X	<p>Allocate 2,039,014 acres as available for livestock grazing (see Figure 2-3, Alternative A) (Maps 44 and 45). Allocate AUMs as follows:</p> <ul style="list-style-type: none"> • Active—63,144 • Suspended—29,245 • Maximum permitted—106,202 <p>GSENM: 926,404 acres Glen Canyon: 228,505 acres KEPA: 831,566 acres KFO: 38,751 acres ASFO: 2,317 acres Of this total, 14,603 acres are allocated as reserve common allotments in GSENM.</p>	<p>Allocate 1,604,094 acres as available for livestock grazing (Maps 44 and 46). Allocate AUMs as follows:</p> <ul style="list-style-type: none"> • Active—76,957 • Suspended—29,245 • Maximum permitted—92,389 <p>GSENM: 714,408 acres Glen Canyon: 168,567 acres KEPA: 675,684 acres KFO: 34,192 acres ASFO: 2,317 acres Zero acres are allocated to reserve common allotments but are not available for grazing.</p>	<p>Allocate 2,045,796 acres as available for livestock grazing (Maps 44 and 47). Allocate AUMs as follows:</p> <ul style="list-style-type: none"> • Active—76,413 • Suspended—29,245 • Maximum permitted—105,765 <p>GSENM: 927,564 acres Glen Canyon: 218,596 acres KEPA: 847,090 acres KFO: 38,758 acres ASFO: 2,317 acres Of this total, 19,530 acres are reserve common allotments in GSENM.</p>	<p>Allocate 2,120,591 acres as available for livestock grazing (Maps 44 and 48). Allocate AUMs as follows:</p> <ul style="list-style-type: none"> • Active—107,995 • Suspended—0 • Maximum permitted—107,995 <p>GSENM: 977,056 acres Glen Canyon: 228,505 acres KEPA: 847,230 acres KFO: 54,012 acres ASFO: 2,317 acres Zero acres are allocated to reserve common allotments. When active AUMs reach 95% of permitted AUMs (i.e., when active AUMs reach 102,595), reevaluate whether the maximum permitted AUMs may be increased above 107,995 AUMs. Increasing permitted AUMs would require a plan amendment and associated NEPA analysis. Suspended AUMs would only become authorized if carrying capacity supports an AUM increase.</p>
2023	LG:1.1 LG:1.2 LG:1.3 LG:1.4 LG:1.5	X	X	X	X	<p>Allocate 137,339 acres as unavailable for livestock grazing (Maps 44 and 45) and cancel grazing permits, including the following areas:</p> <ul style="list-style-type: none"> • Big Bowns Bench (River pasture; Escalante MFP Amendment, p. 3) • Deer Creek (Cottonwood and River pastures; Escalante MFP Amendment, p. 3) • Dry Hollow (Escalante MFP, Table 1) • Escalante River (Escalante MFP Amendment, p. 4) • Harvey's Fear (Paria MFP RM-1.2) • Long Neck (Escalante MFP, Table 1) • McGath Point (Escalante MFP Amendment, p. 4) • Muley Twist (Escalante MFP, Table 1) • Navajo Bench (Paria MFP RM-1.2) • Phipps (River pastures; Escalante MFP Amendment, p. 3) • Rattlesnake Bench (Escalante MFP, Table 1) • Rock Creek-Mudholes (Dry Rock Creek and Middle Rock Creek pastures; Escalante MFP, Table 1) • Saltwater Creek (Escalante MFP Amendment, p. 4) • Spencer Bench (Paria MFP RM-1.2) • Steep Creek (Escalante MFP Amendment, p. 4) 	<p>Allocate 607,226 acres as unavailable for livestock grazing (Maps 44 and 46) and cancel grazing permits, including the following areas:</p> <ul style="list-style-type: none"> • Alvey Wash • Antone Flat • Big Bowns Bench • Big Horn (Big Flat North pasture) • Circle Cliffs (Gulch and Lampstand pastures) • Cottonwood (Gravelly Hills and Paria River pastures) • Deer Creek • Dry Hollow • Dry Valley (Hackberry Canyon) • Escalante River • Flag Point • Flood Canyon • Fortymile Ridge (East pasture) • Harvey's Fear • King Bench (King Bench pasture) • Lake (Navajo Point pasture) • Little Desert RMZ • Long Neck • McGath Point • Muley Twist • Navajo Bench • No Mans Mesa • Phipps (River pastures) • Rattlesnake Bench • Rock Creek-Mudholes (Dry Rock Creek and Middle Rock Creek pastures) • Spencer Bench • Unallotted areas in Glen Canyon • Willow Gulch (Lower Calf Creek Falls pasture) 	<p>Allocate 161,545 acres as unavailable for livestock grazing (Maps 44 and 47) and cancel grazing permits, including the following areas:</p> <ul style="list-style-type: none"> • Antone Flat • Big Bowns Bench (River pasture) • Deer Creek (Cottonwood and River pastures) • Escalante River • Harvey's Fear • Lake (Navajo Point pasture) • Little Desert RMZ • Long Neck • McGath Point • Muley Twist • Navajo Bench • No Mans Mesa • Phipps (River pastures) • Rattlesnake Bench • Rock Creek-Mudholes (Dry Rock Creek and Middle Rock Creek pastures) • Spencer Bench • Unallotted areas in Glen Canyon • Willow Gulch (Lower Calf Creek Falls pasture) 	<p>Allocate 106,927 acres as unavailable for livestock grazing (Maps 44 and 48) and maintain closures or cancel grazing permits, including the following areas:</p> <ul style="list-style-type: none"> • Escalante River • Harvey's Fear • Muley Twist • Navajo Bench • No Mans Mesa • Phipps (River Pastures) • Rattlesnake Bench • Rock Creek-Mudholes (Dry Rock Creek and Middle Rock Creek pastures) • Spencer Bench • Unallotted areas in Glen Canyon • Willow Gulch (Lower Calf Creek Falls pasture) <p>In areas that would be unavailable for livestock grazing, livestock could be used to achieve resource objectives such as fuel reductions and/or weed control.</p>

Livestock Grazing (LG)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
						<ul style="list-style-type: none"> • Willow Gulch (Lower Calf Creek Falls pasture) 	<ul style="list-style-type: none"> • Long Neck • Lower Hackberry • Lower Warm Creek • Main Canyon • McGath Point • Mollies Nipple (portion of Buckskin pasture; Blue Springs and Jenny Clay Hole pastures) • Muley Twist • Navajo Bench • No Mans Mesa • Phipps • Phipps (River Pastures) • Rattlesnake Bench • Rock Creek-Mudholes • Round Valley • Saltwater Creek • Spencer Bench • Steep Creek • Unallotted areas in Glen Canyon • Upper Cattle (Cedar Wash pasture) • Upper Hackberry (South Jody pasture and Upper Hackberry Canyon) • Upper Paria (Henderson Canyon, Lower Coal Bench, Upper Coal Bench, and Willis Creek pastures, and unallotted areas) • Vermilion (Seaman pasture) • Willow Gulch (Lower Cal Creek Falls pasture) 	<ul style="list-style-type: none"> • Steep Creek • Unallotted areas in Glen Canyon • Willow Gulch (Lower Calf Creek Falls pasture) <p>In areas that would be unavailable for livestock grazing, livestock could be used to achieve resource objectives such as fuel reductions and/or weed control.</p>	
2024	LG:1.1 LG:1.2 LG:1.3 LG:1.4 LG:1.5	X	X	X	X	<p>Continue the unallotted status on the following allotments by not allocating livestock forage in these areas:</p> <ul style="list-style-type: none"> • Antone Flat; continue to allow trailing (Escalante MFP RM-2.8) • Upper Paria (South pasture) • Flag Point (Vermilion MFP Table 1) • Unallotted areas in Glen Canyon • Varney Griffin 	No similar action; the allotments are unavailable for livestock grazing.	No similar action; the allotments are identified as either available or unavailable for livestock grazing. For allotments that are available for livestock grazing, during the permit renewal process, conduct additional assessments to determine whether AUMs are available.	Manage the previously unallotted Antone Flat, Upper Paria (South pasture), and Varney Griffin allotments as available for livestock grazing. Conduct assessments to determine available AUMs.
2025	LG:1.2 LG:1.5	X	X	X	X	<p>Manage a reserve common allotment with the remaining AUMs on Phipps allotment and all available forage on Little Bowns Bench allotment, and the Wolverine pasture (148 AUMs) of the Deer Creek allotment. This grass bank would only be used during emergencies or for research purposes. Emergencies would include, but would not be limited to, drought, insect outbreaks, fire, or floods. Any emergency use would not exceed current authorized use and could occur from October 1 to March 31 (Escalante MFP Amendment, p. 4).</p>	No similar action; the allotments or pastures are unavailable for livestock grazing, and no reserve common allotments would be established.	<p>Maintain reserve common allotments in the Little Bowns Bench, Deer Creek (Wolverine pasture), and Phipps (Phipps pasture) allotments.</p> <p>In Glen Canyon, manage Big Bowns Bench (Middle and Seep Side pastures) as reserve common allotments. Only permittees and lessees that hold permits in the planning area would be authorized to use reserve common allotments.</p>	No similar action; the allotments or pastures are available for livestock grazing. The allotments or pastures are available as individual allotments or could be combined with other allotments based on the needs of the permittee and management for that allotment.
2026	LG:1.2 LG:1.5	X	X	X	X	<p>No similar action; the southern portion of the Grand Bench pasture (Rock Creek-Mudholes allotment) is available for livestock grazing.</p>	No similar action; the southern portion of the Grand Bench pasture (Rock Creek-Mudholes allotment) is unavailable for livestock grazing.	No similar action; the southern portion of the Grand Bench pasture (Rock Creek-Mudholes allotment) is a reserve common allotment.	In Glen Canyon, use the southern portion of the Grand Bench pasture (Rock Creek-Mudholes allotment) as an experimental pasture.

Livestock Grazing (LG)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
2027	LG:1.1 LG:1.2 LG:1.3 LG:1.4 LG:1.5	X	X	X	X	Allow the use of reserve common allotments on a nonrenewable basis under 43 CFR 4130.6-2 for a variety of reasons including, but not limited to: <ul style="list-style-type: none"> • To facilitate research in grazing methods in GSENM • While pastures and allotments are rested, such as: <ul style="list-style-type: none"> – After an emergency – After vegetation treatments (including fuels reduction) – To make progress toward meeting BLM Utah Rangeland Health Standards – To remove decadent vegetation – Occasional use to help maintain range improvements 	No similar action; there are no reserve common allotments.	Use reserve common allotments on a nonrenewable basis under 43 CFR 4130.6-2 for a variety of reasons, including, but not limited to: <ul style="list-style-type: none"> • Facilitate research in grazing methods in GSENM/KEPA • Offset potential temporary reductions in existing allotments, such as: <ul style="list-style-type: none"> – After an emergency – After vegetation treatments – To make progress toward meeting BLM Utah Rangeland Health Standards. – To achieve resource objectives such as fuel reductions and/or weed control. 	Same as Alternative B.
2028	LG:1.1 LG:1.2 LG:1.3 LG:1.4 LG:1.5	X	X	X	X	Comply with BLM policy for voluntary relinquishment (currently Instruction Memorandum No. 2013-184; see Diagram 2-1, Voluntary Relinquishment Decision Tree). The authorized officer may take one or more of the following actions: <ul style="list-style-type: none"> • Issue a grazing permit to a different applicant. • Stock with livestock from another allotment with unmet resource objectives. • Combine with an adjacent allotment that has unmet resource objectives. • Consider use of the allotment as a reserve common allotment (i.e., continue livestock grazing but do not recognize an individual with preference to the forage). • Amend or revise the land use plan to allocate forage to uses other than livestock grazing. In other words, the land use plan would be amended or revised to allocate the allotment as unavailable for livestock grazing. 	In GSENM/KEPA and Glen Canyon, upon receiving any request for voluntary relinquishment of permitted livestock grazing, the authorized officer would re-evaluate whether livestock grazing is in the best interest of achieving management plan goals and consider amending the MMP to allocate forage for a different purpose pursuant to Instruction Memorandum No. 2013-184 (or most recent policy); see Figure 2-1, Voluntary Relinquishment Decision Tree. <p>When voluntarily relinquished or otherwise retired, consider and publicly analyze for classification as unavailable grazing preference in GSENM/KEPA or Glen Canyon allotments or pastures containing any of the following or combinations of the following:</p> <ul style="list-style-type: none"> • Areas that would serve as valuable reference areas • Vegetation types that are either not represented or are underrepresented in the Decision Area that are ungrazed • Monument objects or Glen Canyon Values and purposes that are not compatible with or are affected by livestock grazing (e.g., biological soil crust, riparian areas, and declining native plant or wildlife species) • Important cultural resources, such as districts, sites, buildings, structures, and objects • Important opportunities to conserve or restore historical, cultural, soil health, biological soil crust, fish, wildlife, riparian, vegetation, and/or water quality objectives of the MMP • Riparian areas, springs, and hanging gardens that have or are currently affected by livestock grazing • Recreation values that are compromised by livestock grazing • Populations or occupied habitat for threatened or endangered species; candidate or proposed threatened or endangered species; and special status species, or their habitat (e.g., Southwestern willow flycatcher, sage grouse, desert bighorn sheep, and Mexican spotted owl) 	Same as Alternative A.	Same as Alternative A, except preference would be for one of the following: <ul style="list-style-type: none"> • Issue a grazing permit to a different applicant. • Stock with livestock from another allotment with unmet resource objectives. • Combine with an adjacent allotment that has unmet resource objectives.

Livestock Grazing (LG)						
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)
Grazing Management Practices						
2029	LG:1.4	X	X	X	X	<p>As allotments are evaluated through monitoring studies, adjust the season of use to fit current conditions and operator needs consistent with other resource objectives.</p>
						<p>In GSENM/KEPA and Glen Canyon, adaptively manage season of use, duration, distribution, and stocking rate (AUMs) of livestock grazing to ensure that goals and objectives are met. Additional requirements, such as an indicator for biological soil crust, are also described in this alternative.</p> <p>To ensure that BLM Utah Rangeland Health Standards are met, use range improvements, salting, supplements, or other techniques, except where prohibited in Glen Canyon.</p> <p>In GSENM/KEPA and Glen Canyon, alter the season of use, duration, and recovery periods based on monitoring data.</p>
						<p>In GSENM/KEPA and Glen Canyon, adaptively manage season of use, duration, distribution, and stocking rate (AUMs) of livestock grazing to meet or move toward meeting BLM Utah Rangeland Health Standards.</p> <p>To ensure that land health standards are met, use range improvements, salting, supplements, or other techniques, except where prohibited in Glen Canyon.</p> <p>In GSENM/KEPA and Glen Canyon, alter the season of use, duration, and recovery periods based on monitoring data.</p>
						<p>In GSENM/KEPA and Glen Canyon, adaptively manage season of use, duration, and distribution of livestock grazing to meet or move toward meeting BLM Utah Rangeland Health Standards, before considering changes to stocking rate (AUMs). Actions to improve land health include, but are not limited to:</p> <ul style="list-style-type: none"> ● Maintain existing developments (structural and nonstructural improvements). ● Install new developments (e.g., water developments and fences). ● Implement nonstructural range improvements (e.g., restore shrub lands, control juniper, and control or eradicate invasive species). ● Improve livestock distribution through range improvements, salting, supplements, or other techniques. <p>In GSENM/KEPA and Glen Canyon, during the permit renewal NEPA process, analyze adjustment of the season of use, duration, and recovery periods based on monitoring data. Where appropriate, provide flexibility in grazing dates, managing for conditions rather than calendar year.</p>
2030	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	<p>No similar action.</p>
						<p>Use lands identified as unavailable for livestock grazing to compare grazed areas to ungrazed areas to measure progress toward meeting or achieving objectives for native plant communities, riparian and wetland areas, and soils. Grazed areas should be exceeding or moving toward 80% of desirable condition in comparable ungrazed areas.</p> <p>In GSENM/KEPA and Glen Canyon, reference areas exist or are established in order to demonstrate potential for objectives to be met, and/or potential rate of change toward meeting objectives. Reference areas are established across the Decision Area that represent the range of ecosystem and plant community types (both riparian and upland), including sites that have received exotic vegetation treatments. A reference area, with the exception of recovery reference areas (see below), consists of a site that has not been grazed or accessible to livestock for at least 10 years.</p> <ul style="list-style-type: none"> ● Where local reference areas are preferable but do not exist, designate local areas to attain future reference area status (i.e., at least 10 years of non-use by livestock). In the interim, use a more distant reference site that has not been grazed for at least 10 years. ● Prioritize establishment of larger, landscape-scale reference areas whenever feasible in order to allow for recovery and/or protection of ecosystem functions, a patchwork of habitats, species diversity, and other elements not easily documented within small reference areas. ● Establish and maintain at least two permanent range cages (at least 16 feet by 16 feet) in each grazed pasture, in representative areas frequently used by livestock.
						<p>In GSENM/KEPA and Glen Canyon where local reference areas are preferable but do not exist, designate reference areas. Depending on the purpose, reference areas can be of various sizes and would occur in a variety of ecosystem and plant community types (both upland and riparian).</p> <p>Use reference areas in the Colorado Plateau ecoregion in Capitol Reef National Park, Bryce Canyon National Park, etc. to compare grazed areas to ungrazed areas to measure progress toward meeting BLM Utah Rangeland Health Standards. All reference areas, even offsite reference areas, can be of various sizes in a variety of ecosystem and plant community types (both upland and riparian). The purpose of establishing ungrazed reference areas is to establish a control in order to confirm the factor(s) for not meeting land health standards and distinguish the impacts of climate change from livestock grazing impacts. They also serve to measure the degree to which an area is not meeting, moving toward, or meeting BLM Utah Rangeland Health Standards.</p>
						<p>If ungrazed reference areas are established, do not exceed 0.5% in any allotment or 0.5% within GSENM; size in Glen Canyon will be determined based on best available science. Allotments or pastures identified as unavailable for livestock grazing do not count toward the 0.5% cap within the monument.</p>

Livestock Grazing (LG)						
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)
						<p>• Recovery reference areas are areas where livestock grazing has ceased, but that have not been ungrazed for 10 years. Exclosures of various sizes can immediately begin to provide for comparison with sites on which livestock are being adaptively or experimentally managed for recovery toward particular objectives. Recovery on the grazed sites (particularly for such physical features as ground cover, sheet erosion, and stream bank protection; or for seed head production) can be compared with the recently ungrazed sites for comparative rates and types of recovery.</p> <p>In GSENM/KEPA and Glen Canyon, objectives generally will be considered to have been met when monitoring documents the indicators are at least 80% (e.g., soil cover, willow density, native plant species richness) of those in reference areas of the same ecological site (e.g., soil type, precipitation, elevation, slope). Such reference areas may consist of exclosures, ungrazed pastures/allotments, permanent range cages, or ungrazed recovery reference areas. Conditions below 80% of the reference site(s) are appropriate subjects for problem-solving among the BLM, NPS, permittees, and interested public.</p> <p>Monitor currently ungrazed reference areas for conditions and changes absent livestock grazing. Monitor newly established reference areas (i.e., recovery reference areas where grazing is discontinued) to see how they move toward a reference state. Monitor both grazed and ungrazed areas to differentiate climate impacts from livestock grazing impacts.</p>
2031	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action.
2032	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action.

Livestock Grazing (LG)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
2033	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action; the BLM follows direction provided at 43 CFR 4180.	Allotment Action Plans. In addition to requirements in 43 CFR 4180 to initiate change in order to meet or make progress toward meeting BLM Utah Rangeland Health Standards, when monitoring of indicators shows a GSENM/KEPA or Glen Canyon allotment or pasture is failing to meet or move toward objectives, action plans will be drawn up for meeting or moving toward objectives. Unless explicitly experimental, with appropriate controls and monitoring of outcomes assured, action plans must be based on evidence that the proposed activities or management have resulted in movement toward the particular objectives in other settings and must include methods for measuring whether conditions are improving under the action plan. If movement toward BLM Utah Rangeland Health Standards and objectives is not being observed/measured, adjustments to the action plan will be made.	Same as Alternative A.	Same as Alternative A.
2034	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action; the BLM follows direction provided at 43 CFR 4180.	If a land health determination finds that an allotment is not meeting objectives and BLM Utah Rangeland Health Standards and livestock grazing is a contributing or causal factor, livestock grazing would be temporarily suspended. Once conditions meet objectives and BLM Utah Rangeland Health Standards, livestock grazing may resume after an evaluation is made that the contributing factors that caused the allotment to not meet objectives and BLM Utah Rangeland Health Standards have been reduced, and measures are in place to prevent the allotment from moving away from meeting objectives and BLM Utah Rangeland Health Standards.	No similar action.	Same as Alternative A.
2035	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action.	Riders can be considered for permit terms and conditions as a tool for better livestock distribution.	Same as Alternative A.	No similar action.
2036	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action; the BLM follows the regulations at 43 CFR 4130.4.	In GSENM/KEPA and Glen Canyon, a permittee request for multi-year non-use or partial use will be granted for conservation or protection goals that can be objectively documented and measured. A monitoring plan, including relevant indicators, and schedule will be part of the request.	Same as Alternative A.	Same as Alternative A.
2037	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	GSENM: The need for and extent of range improvements is considered on a case-by-case basis and identified during permit renewal in conformance with the MMP.	GSENM/KEPA: The need for and extent of range improvements is considered on a case-by-case basis and identified during permit renewal in conformance with the MMP and with the objectives and actions in this alternative.	GSENM/KEPA: The need for and extent of range improvements is considered on a case-by-case basis and identified during permit renewal in conformance with the MMP and with the objectives and actions in this alternative.	GSENM/KEPA: The need for and extent of range improvements is considered on a case-by-case basis and identified during permit renewal in conformance with the MMP and with the objectives and actions in this alternative. Best practices include cutting of juniper posts or stays by permittees for the improvement or maintenance of structural range improvements (not in Glen Canyon).

Livestock Grazing (LG)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
2038	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	Follow BLM regulations at 43 CFR 4180, AIM, and other approved monitoring methods.	Monitoring. Within 1 year of the ROD, the BLM and NPS (when relevant based on the interagency agreement) will determine, with interested public/permittee input, the methods the BLM will use to monitor indicators that objectives are being met. BLM monitoring will measure: <ul style="list-style-type: none"> • Meeting or moving toward objectives • Effectiveness of treatments at reaching both project-desired outcomes and monument-wide or Glen Canyon-wide objectives Methods include: <ul style="list-style-type: none"> • Existing long-term trend transects within GSENM/KEPA and Glen Canyon • Interpreting Indicators of Rangeland Health points or transects • Proper Functioning Condition assessment points or stream reaches • AIM points • Long-term monitoring plots in Glen Canyon • Any other methods used systematically by the BLM within GSENM/KEPA or Glen Canyon 	GSENM/KEPA: Same as Alternative A. Glen Canyon: Same as Alternative B.	Continue to use existing monitoring techniques and implement others as new methods arise. Monitoring will focus on land health (Same as Alternative A).	
2039	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	Follow BLM regulations at 43 CFR Part 4100, CEQ guidance for monitoring, BLM guidance for monitoring, and NPS 2006 Management Policies.	Independent Monitoring. Upon objective documentation of on-ground indications that objectives are not being met, any member of the public can arrange for a meeting with BLM or NPS staff to discuss and propose solutions to the problem(s). A written record of evidence of the problem(s), solutions considered, and commitments by the BLM, interested public, and/or permittees will be retained in the file(s) of the relevant allotment(s). Objective, repeatable data gathered independently (e.g., use of BLM monitoring methods or methods in Appendix 9 of the 2012 Final Report and Consensus Recommendations of the Collaborative Group on Sustainable Grazing for National Forests in Southern Utah) are required in problem-solving meetings. All such meetings are open to the permittees and other interested publics.	Same as Alternative A.	Same as Alternative A.	
2040	LG:1.1 LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action.	In GSENM/KEPA and Glen Canyon, where grazing occurs during winter, use rest-rotation grazing so that areas are not grazed more than 2 out of 3 years.	No similar action.	No similar action.	
2041	LG:1.4	X	X	X		No similar action.	In GSENM/KEPA and Glen Canyon, institute light utilization (30%), for both riparian and upland areas. Implement one pasture a year for each allotment until all pastures in each allotment have a light utilization limit. In Glen Canyon, upland areas will have 25% maximum utilization in spring. For purposes of quantitatively measuring utilization, utilization cages must have been in place for 2 years (rather than 1) in order to depict expected production.	No similar action.	No similar action.	
2042	LG:1.4	X	X	X	X	Follow current policy (currently IM 2013-094, Resource Management During Drought).	In GSENM/KEPA and Glen Canyon, institute utilization limits of 25% within all pastures during a drought year using the Standardized Precipitation Index of the National Drought Mitigation Center.	Same as Alternative A.	Same as Alternative A.	

Livestock Grazing (LG)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
Mitigating Conflicts Between Livestock Grazing and Other Uses										
2043	LG:1.2 LG:1.3	X	X	X	X	No similar action.	No similar action.	Change grazing management practices (e.g., changing season of use and fencing) before reducing AUMs on allotments to resolve conflicts with other uses (see Appendix G [Best Management Practices]).	Same as Alternative C.	
Range Treatments and Improvements (Refer to Vegetation Alternatives for Vegetation Treatment Management)										
2044	LG:1.2 LG:1.3 LG:1.4	X	X	X	X	No similar action.	Do not implement range improvements for the primary purpose of increasing forage for livestock.	Complete land treatments to maintain or provide additional AUMs needed to meet the demand for livestock forage and divide the AUMs proportionally among all operators within the affected allotments.	Same as Alternative C.	
2045	LG:1.4	X	X	X	X	Give priority to rangeland improvement projects and land treatments that offer the best opportunity for achieving Rangeland Health Standards.	Same as Alternative A.	Allow creation of new nonstructural range improvements where not otherwise restricted by another designation.	Same as Alternative C.	

2.3.13 Minerals

Minerals (MR)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
GSENM Goal MR:1 Manage Federal mineral estate consistent with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, and applicable mining laws. Objectives: MR:1.1 Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, withdrew all Federal lands from mineral entry, location, leasing, or sale; therefore, no new Federal mineral leases or prospecting permits may be issued. MR:1.2 Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, recognizes valid existing rights as pertaining to mineral entry, location, leasing, or sale. KE Goal MR:2 Develop available Federal mineral estate in accordance with applicable mining laws. Objectives: MR:2.1 Provide opportunities for mineral exploration, development, and reclamation under the mining and mineral leasing laws, subject to legal requirements to protect other resource values. MR:2.2 Provide salable and free-use mineral material to meet local demand through the issuance of permits and sale contracts. MR:2.3 Identify lands available for mineral leasing and development.										
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES										
2046	MR:1.2 MR:2	X	X	X	X	Verify whether valid existing rights are present by periodically reviewing the files related to existing mining claims and leases. This will help ensure that required actions, filings, and fees are in full compliance with the law. This process, known as adjudication, will continue for the life of each valid existing right.				
2047	MR:1.1	X	X	X		The Materials Act of 1947 specifically excludes the disposal of mineral material from national monuments. Do not renew free use permits or contracts for mineral material authorized under this act.				
2048	MR:1.1	X	X	X		The existing Henrileville Creek Title 23 ROW within GSENM is inconsistent with the protection of monument resources. Request closure of this Title 23 ROW from the Federal Highway Administration and work with the Federal Highway Administration to find suitable replacement sources of mineral material.				
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES										
Mineral Leasing (Including Oil and Gas, Geothermal, etc.)										
2049	MR:2.1 MR:2.3				X	Closed to new mineral leasing (Map 49).	Open 0 acres of Federal mineral estate to mineral leasing subject to standard lease terms and conditions (Map 50).	Open 0 acres of Federal mineral estate to mineral leasing subject to standard lease terms and conditions (Map 51).	Open 0 acres of Federal mineral estate to mineral leasing subject to standard lease terms and conditions (Map 52).	
2050	MR:2.1 MR:2.3				X	Closed to new mineral leasing.	Open 25,145 acres of Federal mineral estate to mineral leasing subject to moderate constraints (Map 50).	Open 278,385 acres of Federal mineral estate to mineral leasing subject to moderate constraints (Map 51).	Open 551,582 acres of Federal mineral estate to mineral leasing subject to moderate constraints (Timing Limitation Stipulations and/or Controlled Surface Use) (Map 52).	
2051	MR:2.1 MR:2.3				X	Closed to new mineral leasing.	Open 272,506 acres of Federal mineral estate to mineral leasing subject to major constraints (Map 50).	Open 380,242 acres of Federal mineral estate to mineral leasing subject to major constraints (Map 51).	Open 108,230 acres of Federal mineral estate to mineral leasing subject to major constraints (Map 52).	

Minerals (MR)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
2052	MR:2.1 MR:2.3				X	Closed to new mineral leasing.	Close 571,878 acres of Federal mineral estate to mineral leasing (Map 50).	Close 210,902 acres of Federal mineral estate to mineral leasing (Map 51).	Close 209,717 acres of Federal mineral estate to mineral leasing (Map 52).
2053	MR:2.1 MR:2.3				X	No similar action.	Consider granting exceptions, waivers, or modifications to stipulations on oil and gas leases and other discretionary surface-disturbing activities in accordance with Appendix H (<i>Stipulations and Exceptions, Modifications, and Waivers</i>). No exception would be granted for No Surface Occupancy stipulations.	Consider granting exceptions, waivers, or modifications to stipulations on mineral leasing and other discretionary surface-disturbing activities in accordance with Appendix H (<i>Stipulations and Exceptions, Modifications, and Waivers</i>).	Same as Alternative C.
2054	MR:2.1 MR:2.3				X	No similar action.	Apply mineral leasing constraints to geophysical operations. Only casual use geophysical exploration is allowed on lands subject to No Surface Occupancy stipulations for mineral leasing, unless otherwise approved by the BLM.	Same as Alternative B.	Same as Alternative B.
<i>Leasable - Coal</i>									
2055	MR:2.1 MR:2.3				X	No similar action.	Approximately 75,076 acres (Map 53) are unsuitable for surface coal mining and surface operations incident to an underground coal mine as stated in 43 CFR 3400.0-5(mm) based on the 20 criteria identified in Appendix L (<i>Coal Unsuitability Report</i>).	Same as Alternative B.	Same as Alternative B.
2056	MR:2.1 MR:2.3				X	No similar action.	Additional areas could be found suitable (43 CFR 3461.2-1(c)) or unsuitable for surface coal mining operations based on site-specific analysis (see Appendix L [<i>Coal Unsuitability Report</i>]).	Same as Alternative B.	Same as Alternative B.
2057	MR:2.1				X	No similar action.	No similar action.	Manage areas found suitable for coal mining as VRM Class IV.	Same as Alternative C.
<i>Mineral Materials</i>									
2058	MR:2.2 MR:2.2				X	In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, the KEPA area is available for mineral material disposal.	Close mineral material disposal in 868,385 acres. However, manage 178,623 acres as open to community pits of 5 acres or fewer (Map 54).	Allow mineral material disposals subject to site-specific environmental analysis in 623,917 acres (Map 55). Close mineral material disposal in 244,347 acres. However, manage 255,335 acres as open to community pits of 5 acres or fewer (Map 55).	Allow mineral material disposals subject to site-specific environmental analysis in 642,991 acres (Map 56). Close mineral material disposal in 225,394 acres (Map 56).

2.3.14 Recreation and Visitor Services

Recreation and Visitor Services (REC)												
Record #	OBJ	EC	KP	GS	KE							
						Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)			
						Goal REC:1 Provide recreational activities in a variety of physical, social, and administrative settings, from primitive to rural (GSENM) and near-urban (KEPA), which allows visitors to have desired recreational experiences and enjoy the resulting benefits. Objectives: REC:1.1 Manage SRMAs and RMZs for the distinct, primary recreation-tourism market for which they were created as described in Appendix R (<i>Recreation Management Areas</i>). REC:1.2 Manage use through a range of tools, such as permits, allocations, designated recreation sites, etc. Goal REC:2 Provide opportunities for visitor use and enjoyment of the area, consistent with resource capabilities, and mandated resource requirements. Objectives: REC:2.1 Provide visitor education and interpretation of the recreational opportunities within the Decision Area. REC:2.2 Maintain important recreational values and sites in Federal ownership to ensure a continued diversity of recreation activities, experiences, and benefits. REC:2.3 Provide educational interpretation of cultural and paleontological resource sites. REC:2.4 Provide for public health and safety through mapping and information, facility development, and visitor management. REC:2.5 Manage user conflicts between recreation and other resources and uses (e.g., livestock grazing). REC:2.6 Manage recreational areas and project objects and resources containing significant scenic, natural, and cultural values as well as areas with scientific importance.						
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES												
2059	REC:2.5 REC:2.6	X	X	X		Do not allow horses or other pack animals in relict plant communities, areas with standing structural sites, rock shelters, or alcoves.						
2060	REC:2.5 REC:2.6	X	X	X	X	Do not allow campfires in the Escalante and Paria/Hackberry Canyons, No Mans Mesa, and other relict plant areas as they are identified. Also prohibit campfires in archaeological and historic sites, rock shelters, or alcoves.						
2061	REC:1.2	X	X	X		Approve, under permit, special events and commercial operations if the event is consistent with other plan management.						
2062	REC:2.5	X	X	X	X	Prohibit camping within 0.25 mile of range facilities and isolated water sources except for administrative use and unless approved through site-specific analysis.						
2063	REC:2.5	X	X	X	X	Create campgrounds or designated dispersed camping areas to support management goals and objectives for other resources.						
2064	REC:2.4	X	X	X	X	Develop new parking lots, restrooms, and other recreation facilities along open travel routes.						
2065	REC:2.5	X	X	X	X	Prohibit target shooting within 0.25 mile of residences, campgrounds, and developed recreation facilities.						
2066	REC:1 REC:2	X	X	X	X	Limit motorized events and activities to designated roads and trails.						
2067*	REC:2.4	X	X	X	X	Require the use of disposable, self-contained human waste bags within 300 feet of a water source.*						
2068	REC:2.5	X	X	X	X	Prohibit competitive events in WSAs.						
2069	REC:1.2	X	X	X	X	Prohibit off-route parking in WSAs.						
2070*	REC:1.2	X	X	X	X	Prohibit SRP holders from camping within 200 feet of riparian areas. Exceptions could be granted during permitting if the permit holder can demonstrate that there will be no impacts on riparian vegetation or proper functioning condition. Prohibit camping in alcoves, adjacent to rock art sites, and within historic or prehistoric sites listed or eligible for listing on the NRHP. Additional camping restrictions may be included on SRPs to reduce or eliminate impacts on archaeological sites.*						
2071	REC:2.5 REC:2.6	X	X	X	X	Where appropriate, group size limits are identified for individual SRMAs and RMZs. Group size limits are implementation-level decisions and, where necessary, the agency may modify these decisions. For example, more restrictive group size limits may be necessary to be consistent with management of NPS units or protect opportunities for solitude or primitive and unconfined recreation in certain WSAs. Group size limits may also be adjusted to protect other resource values like riparian or wildlife resources.						
2072	REC:2.5				X	Apply a No Surface Occupancy stipulation for leasable minerals to developed recreation sites and backcountry airstrips.						
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES												
2073	REC:2.5				X	No similar action.	Recommend developed recreation sites be withdrawn from mineral location and entry.					
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE												
2074*	REC:2.5 REC:2.6	X	X	X	X	Group size will be limited to 25 people in the Passage and Outback Zones. Permits for groups over 25 people will be considered in the Passage and Outback Zones, if the number of people and the activities proposed are consistent with the protection of monument resources. Appropriate NEPA analysis will be prepared on areas where permits could be authorized. These permits will require that adequate sanitation and trash collection are	Within WSAs, group size will be limited to eight people. Groups over eight would require a letter of agreement by the authorized officer or an SRP. Group size limits in WSAs supersede ERMA, SRMA, and RMZ group size limits.	Within WSAs, group size will be limited to 12 people. Groups over 12 would require a letter of agreement by the authorized officer or an SRP. Group size limits in WSAs supersede ERMA, SRMA, and RMZ group size limits.	Within WSAs, group size will be limited to 25 people. Groups over 25 would require a letter of agreement by the authorized officer or an SRP. Group size limits in WSAs supersede ERMA, SRMA, and RMZ group size limits.			

Recreation and Visitor Services (REC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
						provided, and that activities take place in areas where resources will not be damaged. In the Primitive Zone, group size will be limited to 12 people and 12 pack animals. Within the Paria River corridor in the Primitive Zone, permits could be approved for groups over 12 people up to a maximum of 25 people. In order to protect monument resources, it may become necessary to place limits on the overall numbers of people and/or pack animals allowed, or to further restrict group sizes in areas where resource damage is occurring.			
2075	REC:1.2	X	X	X	X	No similar action.	No similar action.	Prohibit non-motorized/non-mechanized cross-country competitive events. Allow non-motorized/mechanized competitive events only along designated routes.	Allow non-motorized/non-mechanized cross-country competitive events on a case-by-case basis.
2076	REC:1.2				X	No similar action.	No similar action.	Prohibit mechanized cross-country competitive events. Allow mechanized competitive events only along designated routes.	Allow mechanized cross-country competitive events on a case-by-case basis.
2077	REC:2.5 REC:2.6				X	No similar action.	Close developed recreation sites to mineral material disposal.	Same as Alternative B.	Same as Alternative B.
2078	REC:1.2	X	X	X	X	No similar action.	No similar action.	Delineate parking areas adjacent to major travel corridors (e.g., Hole-in-the-Rock, Skutumpah, and Cottonwood Roads) and other recreation locations to support authorized large group events in order to avoid congestion on the major travel corridor.	Same as Alternative C.
2079*	REC:2.4	X	X	X	X	No similar action.	Prohibit burning pallets and construction material.*	Same as Alternative B.	No similar action.
<i>Special and Extensive Recreation Management Areas</i>									
2080	REC:1 REC:2	X	X	X	X	Continue to manage the Escalante Canyons, Paria/Hackberry, and Paria Canyons and Plateaus as SRMAs (Maps 57 and 58). Fiftymile Mountain, the Highway 12 corridor, and the Highway 89 corridor will also be SRMAs. Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.	Designate the following SRMAs and RMZs (Map 59): <ul style="list-style-type: none">• Nephi Pasture SRMA (147,089 acres)• Paria-Hackberry SRMA (273,710 acres)<ul style="list-style-type: none">◦ Paria-River RMZ (181 acres)◦ Cottonwood Road RMZ (5,290 acres)• Fiftymile Mountain SRMA (157,605 acres)• Escalante Canyons SRMA (411,766 acres)<ul style="list-style-type: none">◦ Calf Creek RMZ (6,538 acres)◦ Burr Trail RMZ (2,833 acres)◦ Spencer Flat RMZ (2,053 acres)◦ Hole-in-the-Rock RMZ (15,227 acres)• Circle Cliffs SRMA (100,611 acres)• Highway 12 SRMA (24,645 acres)<ul style="list-style-type: none">◦ Little Desert RMZ (2,528 acres)• Highway 89 SRMA (41,302 acres)• Skutumpah Road SRMA (3,026 acres)• Paria Canyons Vermilion Cliffs SRMA (30,011 acres)	Designate the following SRMAs and RMZs (Map 60): <ul style="list-style-type: none">• Nephi Pasture SRMA (147,089 acres)• Paria-Hackberry SRMA (273,710 acres)<ul style="list-style-type: none">◦ Paria-River RMZ (181 acres)◦ Cottonwood Road RMZ (5,290 acres)• Fiftymile Mountain SRMA (157,605 acres)• Escalante Canyons SRMA (411,766 acres)<ul style="list-style-type: none">◦ Calf Creek RMZ (6,538 acres)◦ Burr Trail RMZ (5,839 acres)◦ Spencer Flat RMZ (2,053 acres)◦ Hole-in-the-Rock RMZ (80,140 acres)• Circle Cliffs SRMA (100,611 acres)• Highway 12 SRMA (24,645 acres)<ul style="list-style-type: none">◦ Little Desert RMZ (2,528 acres)• Highway 89 SRMA (41,302 acres)• Skutumpah Road SRMA (3,026 acres)• Paria Canyons Vermilion Cliffs SRMA (30,011 acres)	Do not designate any SRMAs. Manage the Planning Area as the Kanab-Escalante ERMA (Map 61). <ul style="list-style-type: none">• Little Desert RMZ (2,528 acres)• Calf Creek RMZ (6,538 acres)• Burr Trail RMZ (5,839 acres)• Hole-in-the Rock RMZ (15,227 acres)
2081*	REC:1 REC:2			X	X	No similar action. The area is not managed as an SRMA.	Nephi Pasture SRMA (147,089 acres) <ul style="list-style-type: none">• <u>Competitive use:</u> Prohibit motorized or non-motorized competitive events.• <u>Organized group events/activity use*:</u> Limit to 12 people or fewer. Groups over 12 require approval of the authorized officer.• <u>Motorized event/activity:</u> Limited to designated roads and trails.	Nephi Pasture SRMA (147,089 acres) <ul style="list-style-type: none">• <u>Competitive use:</u> Allow motorized events except high-speed events. Allow non-motorized competitive events.• <u>Organized group events/activity use*:</u> Limit to 25 people or fewer. Groups over 25 would require approval of the authorized officer.• <u>Motorized event/activity:</u> Limited to designated roads and trails.	Manage as the Kanab-Escalante ERMA.

Recreation and Visitor Services (REC)								
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)		
						Alternative B		
						<ul style="list-style-type: none"> <u>Mechanized event/activity:</u> Limited on designated trails, where appropriate. <u>Stock use event/activity:</u> Allow cross-country travel for equestrian use only. <u>Camping:</u> Allow dispersed camping. <u>Campfires*:</u> Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*:</u> Require self-registered permits. <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes one vehicle length for dispersed camping access. <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials:</u> Close to mineral material disposal. <u>ROWS:</u> Manage as ROW avoidance area. 		
2082*	REC:1 REC:2	X	X	X		<p>Activities in this SRMA include backpacking, canyoneering, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Emphasize equestrian opportunities in Paria Canyon, and backpacking opportunities in Hackberry Canyon. Potential permit systems could address general public use and commercial users.</p> <p>Allow camping in developed campgrounds or in designated primitive camping in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p> <p>Paria Hackberry SRMA (273,710 acres)</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Prohibit motorized or non-motorized competitive events in WSA portion of the SRMA. <u>Organized group events/activity use*:</u> Allow up to 12 people and 12 pack stock. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Allow on designated trails, where appropriate. Prohibit mechanized events in WSA portion of the SRMA. <u>Stock use event/activity:</u> Allow cross-country travel for equestrian use only. <u>Camping:</u> Allow dispersed camping. <u>Campfires*:</u> Prohibit fires in the Paria-Hackberry Canyons. In all other areas, encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*:</u> Require self-registered permits. <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes one vehicle length for dispersed camping access. <u>Waste*:</u> Require disposable, self-contained human waste bags within 300 feet of riparian areas. <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials:</u> Close to mineral material disposals. <u>ROW and renewable energy:</u> Manage as ROW avoidance area. 	<p>Paria Hackberry SRMA (273,710 acres)</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Prohibit. <u>Organized group events/activity use*:</u> Allow up to 12 people and 12 pack stock. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Allow on designated trails. <u>Stock use event/activity:</u> Allow cross-country travel for equestrian use only. <u>Camping:</u> Allow dispersed camping. <u>Campfires*:</u> Prohibit fires in the Paria-Hackberry Canyons. In all other areas, encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*:</u> Self-registered permits are not required. <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access. <u>Waste*:</u> Require disposable, self-contained human waste bags within 300 feet of riparian areas. <u>Leasable minerals:</u> Apply Controlled Surface Use and Timing Limitation Stipulations for mineral leasing (refer to Appendix H [Stipulations and Exceptions, Modifications, and Waivers] for a description). <u>Mineral materials:</u> Open to mineral material disposals. <u>ROW and renewable energy:</u> Open to ROWs. 	Manage as the Kanab-Escalante ERMA.
2083*	REC:1 REC:2	X	X	X		<p>Activities in this SRMA include backpacking, canyoneering, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Emphasize equestrian opportunities in Paria Canyon, and backpacking opportunities in Hackberry Canyon. Potential permit systems could address general public use and commercial users.</p> <p>Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry</p> <p>Paria Hackberry SRMA Paria River RMZ (181 acres) Apply management for the Paria Hackberry SRMA in the RMZ within the river bottom, unless noted below:</p> <ul style="list-style-type: none"> <u>Organized group events/activity use*:</u> Allow up to 12 people and 12 pack stock. Groups over 12 would require approval of the authorized officer. <u>Mechanized event/activity:</u> Prohibit mechanized events in WSA portion of the RMZ. <u>Camping:</u> Allow dispersed camping. 	<p>Paria Hackberry SRMA Paria River RMZ (181 acres) Apply management for the Paria Hackberry SRMA in the RMZ within the river bottom, unless noted below:</p> <ul style="list-style-type: none"> <u>Organized group events/activity use*:</u> Allow up to 25 people and 25 pack stock. Groups over 25 would require approval of the authorized officer. <u>Mechanized event/activity:</u> Allow horse-drawn wagon events. <u>Camping:</u> Allow dispersed camping. 	Manage as the Kanab-Escalante ERMA.

Recreation and Visitor Services (REC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)			
						and Passage Zones. Prohibit dispersed primitive camping in these zones. Within the Paria River corridor in the Primitive Zone, permits could be approved for groups over 12 people up to a maximum of 25 people.			
						<ul style="list-style-type: none"> <u>Campfires*</u>: Prohibit fires. <u>Leasable minerals</u>: Close to mineral leasing. <u>Mineral materials</u>: Close to mineral material disposals. <u>Locatable minerals</u>: Recommend withdrawal from mineral entry. <u>ROWs and renewable energy</u>: Manage as ROW exclusion area. 			
2084*	REC:1 REC:2		X		X	<p>Activities in this SRMA include backpacking, canyoneering, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Emphasize equestrian opportunities in Paria Canyon, and backpacking opportunities in Hackberry Canyon. Potential permit systems could address general public use and commercial users.</p> <p>Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p>	<p>Paria Hackberry SRMA Cottonwood Road RMZ (5,290 acres) Apply management for the Paria Hackberry SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> <u>Competitive use</u>: Prohibit competitive events. <u>Organized group event/activity use*</u>: Allow up to 12 along the roadway. Groups over 12 would require approval of the authorized officer. <u>Camping</u>: Allow in developed campgrounds or in designated camping areas. Prohibit dispersed camping once campgrounds are developed and camping areas are designated. <u>Campfires*</u>: Allow only in designated fire grates, designated fire pits, or mandatory fire pans, and prohibit wood collection for campfires. <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials</u>: Close to mineral material disposals. <u>Locatable minerals</u>: Recommend withdrawal from mineral entry. <u>ROWs and renewable energy</u>: Manage as ROW avoidance area. 	<p>Paria Hackberry SRMA Cottonwood Road RMZ (5,290 acres) Apply management for the Paria Hackberry SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> <u>Competitive use</u>: Prohibit motorized competitive events. <u>Organized group event/activity use*</u>: Allow up to 25 along the roadway. Groups over 25 would require approval of the authorized officer. <u>Camping</u>: Allow in developed campgrounds or in designated camping areas. <u>Campfires*</u>: Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials</u>: Close to exclusive pits. Open to community pits 5 acres or fewer. Allow expansion of existing pits. Apply visual mitigation to reduce visual impacts. <u>Locatable minerals</u>: Recommend withdrawal from mineral entry. <u>ROWs and renewable energy</u>: Open to ROWs. 	Manage as the Kanab-Escalante ERMA.
2085*	REC:1 REC:2		X		X	<p>Activities in this SRMA include equestrian use, backpacking, and hunting. The recreation experience will be primitive, uncrowded, and remote. Do not encourage visitors to go to this area and substantially limit commercial outfitting.</p> <p>Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p>	<p>Fiftymile Mountain SRMA (157,605 acres) GSENM/KEPA</p> <ul style="list-style-type: none"> <u>Organized group events/activity use*</u>: Limit to 12 people and 12 pack stock. Groups over 12 people would require approval of the authorized officer. <u>Motorized event/activity</u>: Limited to designated routes. <u>Mechanized event/activity</u>: Limited to designated routes. <u>Stock use event/activity</u>: Allow cross-country travel. <u>Camping</u>: Allow dispersed camping. <u>Campfires*</u>: Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*</u>: Require self-registered permits. <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes up to vehicle length. <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials</u>: Close to mineral material disposals. <u>Locatable minerals</u>: Recommend withdrawal from mineral entry. <u>ROWs and renewable energy</u>: Manage as ROW avoidance area. 	<p>Fiftymile Mountain SRMA (157,605 acres) GSENM/KEPA</p> <ul style="list-style-type: none"> <u>Organized group events/activity use*</u>: Limit to 12 people and 12 pack stock, and up to 25 people on the Fiftymile Bench. Groups over 25 people on the Fiftymile Bench would require approval of the authorized officer. <u>Motorized event/activity</u>: Limited to designated routes. <u>Mechanized event/activity</u>: Limited to designated routes. <u>Stock use event/activity</u>: Allow cross-country travel. <u>Camping</u>: Allow dispersed camping. <u>Campfires*</u>: Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*</u>: Encourage self-registered permits. <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access. <u>Leasable minerals</u>: Apply Controlled Surface Use and Timing Limitation Stipulation for mineral leasing (refer to Appendix H [Stipulations and Exceptions, Modifications, and Waivers] for a description). <u>Mineral materials</u>: Close to exclusive pits. Open to community pits 5 acres or fewer. Allow expansion of 	Manage as the Kanab-Escalante ERMA.

Recreation and Visitor Services (REC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
								existing pits. Apply visual mitigation to reduce visual impacts. • <u>ROWs and renewable energy:</u> Open to ROWs.	
2086*	REC:1 REC:2	X			X	Activities in this SRMA include backpacking, canyoneering, non-motorized boating, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Overall social encounters will remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters will be available. Potential permit systems could address general public, commercial, and administrative users. Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.	Escalante Canyons SRMA (411,766 acres) GSENM/KEPA <ul style="list-style-type: none">• <u>Competitive use:</u> Allow organized events and non-motorized competitive events on paved and primary dirt roads.• <u>Organized group event/activity use*:</u> Limit to 12 people and 12 pack stock. Prohibit motorized group events. Groups over 12 (outside the WSA) would require approval of the authorized officer.• <u>Motorized event/activity:</u> Limited to designated routes.• <u>Mechanized event/activity:</u> Limited to designated routes.• <u>Stock use event/activity:</u> Allow cross-country travel.• <u>Camping:</u> Allow dispersed primitive camping.• <u>Campfires:</u> Prohibit campfires in the Escalante Canyons.• <u>Overnight use*:</u> Require self-registered permits.• <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes up to one vehicle length.• <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing.• <u>Mineral materials:</u> Close to mineral material disposal.• <u>Locatable minerals:</u> Recommend withdrawal from mineral entry.• <u>ROWs and renewable energy:</u> Manage as ROW avoidance area.	Escalante Canyons SRMA (411,766 acres) GSENM/KEPA <ul style="list-style-type: none">• <u>Competitive use:</u> Allow organized events and non-motorized competitive events on paved and primary dirt roads.• <u>Organized group event/activity use*:</u> Limit to 12 people and 12 pack stock or OHVs. Groups over 12 (outside the WSA) would require approval of the authorized officer.• <u>Motorized event/activity:</u> Limited to designated routes.• <u>Mechanized event/activity:</u> Limited to designated routes.• <u>Stock use event/activity:</u> Allow cross-country travel.• <u>Camping:</u> Allow dispersed primitive camping.• <u>Campfires*:</u> Prohibit campfires in canyon bottoms.• <u>Overnight use*:</u> Encourage self-registered permits.• <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access.• <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing.• <u>Mineral materials:</u> Close to exclusive pits. Open to community pits 5 acres or fewer. Allow expansion of existing pits. Apply visual mitigation to reduce visual impacts.• <u>Locatable minerals:</u> Recommend withdrawal from mineral entry.• <u>ROWs and renewable energy:</u> Open to ROWs.	Manage as the Kanab-Escalante ERMA.
2087*	REC:1 REC:2	X				Activities in this SRMA include backpacking, canyoneering, non-motorized boating, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Overall social encounters will remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters will be available. Potential permit systems could address general public, commercial, and administrative users. Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.	Escalante Canyons SRMA Calf Creek RMZ (6,538 acres) Apply management for the Escalante Canyon SRMA in the RMZ, unless noted below: <ul style="list-style-type: none">• <u>Competitive use:</u> Prohibit competitive events.• <u>Vending*:</u> Allow in campgrounds.• <u>Organized group event/activity use*:</u> Allow up to 12 people; no group size limit on the lower or upper Calf Creek Falls Trail or campground. Prohibit motorized groups in the RMZ.• <u>Motorized event/activity:</u> Close to motorized activity.• <u>Mechanized event/activity:</u> Close to mechanized activity.• <u>Prohibit rappelling</u> from the lower and upper falls for public health and safety.• <u>Camping:</u> Allow in developed campgrounds or in designated camping areas. Prohibit dispersed camping.• <u>Campfires*:</u> Allow campfires only in designated fire grates in the RMZ.• <u>Overnight use*:</u> Require self-registered permits.• <u>Parking:</u> Allow parking only allowed in designated parking areas.	Escalante Canyons SRMA Calf Creek RMZ (6,538 acres) Apply management for the Escalante Canyon SRMA in the RMZ, unless noted below: <ul style="list-style-type: none">• <u>Competitive use:</u> Prohibit competitive events.• <u>Vending*:</u> Allow in campgrounds.• <u>Organized group event/activity use*:</u> Allow up to 12 people; no group size limit on the lower or upper Calf Creek Falls Trail or campground. Prohibit motorized groups in the RMZ.• <u>Motorized event/activity:</u> Limited to designated roads and trails.• <u>Mechanized event/activity:</u> Limited to designated roads and trails.• <u>Prohibit rappelling</u> from the lower and upper falls for public health and safety.• <u>Camping:</u> Prohibit dispersed camping along the upper and lower Calf Creek Falls Trails.• <u>Campfires*:</u> Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed.• <u>Overnight use*:</u> Encourage self-registered permits.• <u>Parking:</u> Allow parking only in designated parking areas.	Same as Alternative C but within the Kanab-Escalante lands ERMA, and: <ul style="list-style-type: none">• <u>ROWs and renewable energy:</u> Manage as ROW avoidance area.

Recreation and Visitor Services (REC)						
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)
						Alternative B
						<ul style="list-style-type: none"> ROWs and renewable energy: Manage as ROW exclusion area.
2088*	REC:1 REC:2	X			X	<p>Activities in this SRMA include backpacking, canyoneering, non-motorized boating, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Overall social encounters will remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters will be available. Potential permit systems could address general public, commercial, and administrative users. Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p> <p>Escalante Canyons SRMA Burr Trail RMZ (includes Deer Creek RA) (2,833 acres) Apply management for the Escalante Canyon SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> Competitive use: Allow organized events and non-motorized competitive events on paved roads in coordination with Garfield County. Organized group event/activity use*: Allow 25 people or fewer. Groups over 25 could be approved by the authorized officer. Motorized event/activity: Limited to designated roads and trails. Mechanized event/activity: Limited to designated roads and trails. Camping: Allow in developed campgrounds or in designated camping areas. Allow dispersed camping until designated camp sites are developed. Campfires*: Allow only in designated fire grates, designated fire pits, or mandatory fire pans and prohibit wood collection for campfires. Leasable minerals: Close in GSENM portions and apply No Surface Occupancy stipulation for mineral leasing in the KEPA portion. Mineral materials: Close to mineral material disposal. Locatable minerals: Recommend withdrawal from mineral entry. ROWs and renewable energy: Manage as ROW avoidance area.
2089*	REC:1 REC:2	X				<p>Activities in this SRMA include backpacking, canyoneering, non-motorized boating, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Overall social encounters will remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters will be available. Potential permit systems could address general public, commercial, and administrative users. Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p> <p>Escalante Canyons SRMA Spencer Flat RMZ (2,053 acres) Apply management for the Escalante Canyon SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> Competitive use: Allow non-motorized competitive use. Organized group event/activity use*: Allow up to 12 people. Consider permits for over 12 people in the SRMA, if the number of people and the activities proposed are consistent with resource protection. Motorized event/activity: Limited to designated roads and trails. Mechanized event/activity: Limited to designated roads and trails. Stock use event/activity: Allow cross-country travel. Camping: Allow in developed campgrounds or in designated camping areas. Prohibit dispersed camping once campgrounds are developed and camping areas are designated. Campfires*: Allow propane/non-wood fires only. Prohibit wood collection for campfires. Overnight use*: Require self-registered permits. Parking*: Allow OHVs or mechanized vehicles to pull off designated routes up to one vehicle length. ROWs and renewable energy: Manage as ROW exclusion area. <p>Escalante Canyons SRMA Spencer Flat RMZ (2,053 acres) Apply management for the Escalante Canyon SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> Competitive use: Allow non-motorized competitive use. Organized group event/activity use*: Allow up to 25 people. Consider permits for over 25 people in the SRMA, if the number of people and the activities proposed are consistent with resource protection Motorized event/activity: Limited to designated roads and trails. Mechanized event/activity: Limited to designated roads and trails. Stock use event/activity: Allow cross-country travel. Camping: Allow in developed campgrounds or in designated camping areas. Prohibit dispersed camping once campgrounds are developed and camping areas are designated. Campfires*: Allow only in designated fire grates, designated fire pits, or mandatory fire pans. Prohibit wood collection for campfires. Overnight use*: Encourage self-registered permits. Parking*: Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access.

Recreation and Visitor Services (REC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
								<ul style="list-style-type: none"> <u>ROWs and renewable energy:</u> Manage as ROW avoidance area. 	
2090*	REC:1 REC:2				X	<p>Activities in this SRMA include backpacking, canyoneering, non-motorized boating, and equestrian use. Continue the overall primitive, uncrowded, and remote recreation experience. Overall social encounters will remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters will be available. Potential permit systems could address general public, commercial, and administrative users. Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p>	<p>Escalante Canyons SRMA Hole In the Rock RMZ – KEPA (15,227 acres)</p> <p>Apply management for the Escalante Canyon SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Allow non-motorized competitive events on roads in coordination with counties. <u>Organized group event/activity use*:</u> Allow up to 25 people. Permits for over 25 people may be approved by the authorized officer. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Limited to designated roads and trails. <u>Stock use event/activity:</u> Allow cross-country travel. <u>Camping:</u> Allow dispersed camping. <u>Campfires*:</u> Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*:</u> Require self-registered permits. <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes up to one vehicle length; exceptions may be granted for permitted special events. <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing <u>Mineral materials:</u> Close to mineral material disposals. <u>Locatable minerals:</u> Recommend withdrawal from mineral entry. <u>ROWs and renewable energy:</u> Manage as ROW avoidance area. 	<p>Escalante Canyons SRMA Hole In the Rock RMZ – KEPA (80,140 acres)</p> <p>Apply management for the Escalante Canyon SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Allow non-motorized/non-mechanized competitive events. <u>Organized group event/activity use*:</u> Allow up to 50 people. Permits for over 50 people may be approved by the authorized officer. Encourage and promote traditional uses and trail reenactments for large groups. A larger group size will support the traditional uses and the Traditional Cultural Property Ethnographic study being developed by the NPS and BLM. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Limited to designated roads and trails. <u>Stock use event/activity:</u> Allow cross-country travel. <u>Camping:</u> Allow in developed campgrounds or in designated camping areas. Allow dispersed camping until designated camp sites are developed. <u>Campfires*:</u> Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*:</u> Encourage self-registered permits. <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access. <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials:</u> Close to exclusive pits. Open to community pits 5 acres or fewer. Allow expansion of existing pits. Apply visual mitigation to reduce visual impacts. <u>Locatable minerals:</u> Recommend withdrawal from mineral entry. <u>ROWs and renewable energy:</u> Open to ROWs. 	<p>Same as Alternative B, but within the Kanab-Escalante ERMA, and:</p> <ul style="list-style-type: none"> <u>Leasable minerals:</u> Apply Controlled Surface Use stipulation for mineral leasing. Prohibit oil and gas surface facilities within viewshed of Dance Hall Rock, Hole-in-the-Rock Trail, and trailheads providing access to Escalante Canyons. <u>Organized group event/activity use:</u> Allow up to 50 people. Permits for over 50 people may be approved by the authorized officer. Encourage and promote traditional uses and trail reenactments for large groups. A larger group size will support the traditional uses and the Traditional Cultural Property Ethnographic study being developed by the NPS and BLM. <u>Mineral materials:</u> Open to mineral material disposal. <u>Locatable minerals:</u> Open to mineral entry. <u>ROWs and renewable energy:</u> Open to ROWs.
2091*	REC:1 REC:2				X	No similar action. The area is not managed as an SRMA.	<p>Circle Cliffs SRMA (100,611 acres)</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Allow motorized or non-motorized competitive events on paved and primary dirt roads. <u>Organized group event/activity use*:</u> Allow 25 people or fewer. Groups over 25 would require approval of the authorized officer. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Limited to designated roads and trails. <u>Stock use event/activity:</u> Allow cross-country travel for equestrian use only. <u>Camping:</u> Allow dispersed camping. <u>Campfires*:</u> Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. 	<p>Circle Cliffs SRMA (100,611 acres)</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Allow motorized events except high-speed events. Allow non-motorized competitive events. <u>Organized group events/activity use*:</u> Allow 25 people or fewer. Groups over 25 would require approval of the authorized officer. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Limited on designated trails, where appropriate. <u>Stock use event/activity:</u> Allow cross-country travel for equestrian use. <u>Camping:</u> Allow dispersed camping. <u>Campfires*:</u> Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. 	Manage as the Kanab-Escalante ERMA.

Recreation and Visitor Services (REC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)			
						Alternative B			
						<p>• <u>Overnight use*</u>: Require self-registered permits.</p> <p>• <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes one vehicle length for dispersed camping access.</p> <p>• <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing.</p> <p>• <u>Mineral materials</u>: Closed to mineral material disposals</p> <p>• <u>ROWS</u>: Manage as ROW avoidance area</p>			
2092*	REC:1 REC:2	X	X	X		<p>Highway 12 SRMA (24,645 acres)</p> <p>• <u>Competitive use</u>: Allow non-motorized/non-mechanized competitive events.</p> <p>• <u>Organized group event/activity use*</u>: Do not enact group size requirements.</p> <p>• <u>Motorized event/activity</u>: Limited to designated routes.</p> <p>• <u>Mechanized event/activity</u>: Limited to designated roads and trails.</p> <p>• <u>Stock use event/activity</u>: Allow cross-country travel.</p> <p>• <u>Camping</u>: Allow in developed campgrounds or in designated camping areas. Prohibit dispersed camping.</p> <p>• <u>Campfires*</u>: Within GSENM, allow campfires only in designated fire grates, designated fire pits, or mandatory fire pans and prohibit wood collection for campfires.</p> <p>• <u>Overnight use*</u>: Require self-registered permits.</p> <p>• <u>Parking*</u>: Prohibit parking of OHVs or mechanized vehicles off designated routes.</p> <p>• <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing</p> <p>• <u>Mineral materials</u>: Close to mineral material disposals.</p> <p>• <u>ROWS and renewable energy</u>: Manage as ROW avoidance area.</p>	<p>Highway 12 SRMA (24,645 acres)</p> <p>• <u>Competitive use</u>: Allow non-motorized/non-mechanized competitive events.</p> <p>• <u>Organized group event/activity use*</u>: Do not apply group size requirements.</p> <p>• <u>Motorized event/activity</u>: Limited to designated roads and trails outside the Little Desert RMZ (22,985 acres).</p> <p>• <u>Mechanized event/activity</u>: Limited to designated roads and trails outside the Little Desert RMZ (22,985 acres).</p> <p>• <u>Stock use event/activity</u>: Allow cross-country travel.</p> <p>• <u>Camping*</u>: Allow in developed campgrounds or in designated primitive camping areas. Prohibit dispersed primitive camping once campgrounds are developed and primitive camping areas are designated.</p> <p>• <u>Campfires*</u>: Within GSENM, allow campfires only in designated fire grates, designated fire pits, or mandatory fire pans and prohibit wood collection for campfires. Within KEPA, encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed.</p> <p>• <u>Overnight use*</u>: Encourage self-registered permits.</p> <p>• <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access.</p> <p>• <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing.</p> <p>• <u>Mineral materials</u>: Close to exclusive pits. Open to community pits 5 acres or fewer. Allow expansion of existing pits. Apply visual mitigation to reduce visual impacts.</p> <p>• <u>ROWS and renewable energy</u>: Open to ROWs.</p>	Manage as the Kanab-Escalante ERMA.	
2093*	REC:1 REC:2				X	<p>Activities in this SRMA include scenic driving, day-use hiking, camping, equestrian use, road bicycling, and scenic and interpretive viewing. Focus the recreation experience on learning about geology, history, archaeology, biology, and paleontology, in addition to scenic viewing. Develop short interpretive trails and scenic overlooks to encourage visitors to learn more about these monument resources. Opportunities will accommodate all visitors. Disseminate educational materials at information stations located in Boulder, Escalante, and Cannonville to further information about these resources.</p> <p>Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p>	<p>Highway 12 SRMA</p> <p>Little Desert RMZ – KEPA (2,528 acres) – Manage the Little Desert RMZ as limited for OHV and mechanized use to designated roads and trails. Develop/designate new trails to accommodate implementation-level planning. Apply management for the Highway 12 SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> • <u>Competitive use</u>: Prohibit competitive events. • <u>Organized group event/activity use*</u>: Allow up to 100 people, additional with permit and no resource damage. • <u>Motorized event/activity</u>: Limited to designated roads and trails. 	<p>Highway 12 SRMA</p> <p>Little Desert RMZ – KEPA (2,528 acres) – Manage the Little Desert RMZ as limited for OHV and mechanized use to designated roads and trails except for the area designated open for mechanized and OHV use. Apply management for the Highway 12 SRMA in the RMZ, unless noted below:</p> <ul style="list-style-type: none"> • <u>Competitive use</u>: Allow competitive events. • <u>Organized group event/activity use*</u>: Do not enact group size requirements; address during implementation planning based on frequency and intensity of use. 	<p>Little Desert RMZ – KEPA (2,528 acres) – Manage the Little Desert RMZ area as open for mechanized and OHV use. Post discrete locations within the open area as closed to OHV use if necessary to resolve resource issues or concerns.</p> <p>Manage the Little Desert RMZ area as open for mechanized and OHV use with the following applied:</p> <ul style="list-style-type: none"> • <u>Grazing</u>: Make available for livestock grazing and trailing. • <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing. • <u>Mineral materials</u>: Close to mineral material disposals. • <u>Locatable minerals</u>: Open to mineral location and entry.

Recreation and Visitor Services (REC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)			
						Alternative B			
						<p>and Passage Zones. Prohibit dispersed primitive camping in these zones.</p> <ul style="list-style-type: none"> <u>Mechanized event/activity:</u> Limited to designated roads and trails. <u>Stock use event/activity:</u> Allow cross-country travel unless it creates resource damage. <u>Camping:</u> Allow in developed campgrounds or in designated primitive camping areas. Allow dispersed camping once campgrounds are developed and camping areas are designated. <u>Campfires*:</u> Allow campfires only in designated fire grates, designated fire pits, or mandatory fire pans and prohibit wood collection for campfires. <u>Overnight use*:</u> Require self-registered permits. <u>Parking*:</u> Allowed in designated parking areas. <u>Grazing:</u> Make available for livestock grazing and trailing. <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials:</u> Close to mineral material disposal. <u>Locatable minerals:</u> Recommend withdrawal from mineral entry. <u>ROWs and renewable energy:</u> Manage as ROW exclusion area. 			
2094*	REC:1 REC:2	X	X	X		<p>Activities in this SRMA include scenic driving, day-use hiking, camping, road and mountain bicycling, and scenic and interpretive viewing. Focus the recreation experience on learning about geology, history, archaeology, biology, and paleontology, in addition to scenic viewing. Develop short interpretive trails and scenic overlooks to encourage visitors to learn more about these monument resources. Opportunities will accommodate all visitors. Coordinate this corridor with the Vermilion Cliffs Highway Project.</p> <p>Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.</p>	<p>Highway 89 SRMA (41,302 acres)</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Allow non-motorized/non-mechanized competitive events. <u>Organized group event/activity use*:</u> Do not apply group size requirements. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Limited to designated roads and trails. <u>Stock use event/activity:</u> Cross-country travel allowed. <u>Camping:</u> Dispersed primitive camping is not allowed within 1,320 feet of the Highway 89 corridor. <u>Campfires*:</u> Allow propane/non-wood fires only. Prohibit wood collection for campfires. <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes one vehicle length for dispersed camping access. <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials:</u> Close to mineral material disposals. <u>ROWs and renewable energy:</u> Manage as ROW exclusion area. 	<p>Highway 89 SRMA (41,302 acres)</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Prohibit high-speed motorized competitive events. <u>Organized group event/activity use*:</u> Do not apply group size requirements. <u>Motorized event/activity:</u> Limited to designated roads and trails. <u>Mechanized event/activity:</u> Limited to designated roads and trails. <u>Stock use event/activity:</u> Allow cross-country travel. <u>Camping:</u> Prohibit dispersed primitive camping within 660 feet of the Highway 89 corridor. <u>Campfires*:</u> Encourage fire pans and dead and allow collection of down wood in areas where campfires are allowed. <u>Parking*:</u> Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access. <u>Leasable minerals:</u> Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials:</u> Open to mineral material disposals. <u>ROWs and renewable energy:</u> Open to ROWs. 	Manage as the Kanab-Escalante ERMA.
2095*	REC:1 REC:2		X	X	X	No similar action. This area is not managed as an SRMA.	<p>Skutumpah Road SRMA (3,026 acres)</p> <ul style="list-style-type: none"> <u>Competitive Use:</u> Prohibit motorized and non-motorized competitive events. 	<p>Skutumpah Road SRMA (3,026 acres)</p> <ul style="list-style-type: none"> <u>Competitive use:</u> Allow motorized and non-motorized competitive events. Prohibit high-speed motorized competitive events. 	Manage as the Kanab-Escalante ERMA.

Recreation and Visitor Services (REC)								
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)		
						Alternative B		
						<ul style="list-style-type: none"> <u>Organized group event/activity use*</u>: Allow 25 people or fewer. Groups over 25 could be approved by the authorized officer. <u>Motorized event/activity</u>: Limited to designated roads and trails. <u>Mechanized event/activity</u>: Limited to designated trails. <u>Stock use event/activity</u>: Allow cross-country travel for equestrian use only. <u>Camping</u>: Allow dispersed primitive camping where resource damage does not occur. Prohibit camping within 0.25 mile of trailheads. <u>Campfires*</u>: Allow propane/non-wood fires only. Prohibit wood collection for campfires. <u>Overnight use*</u>: Require self-registered permits for overnight camping. <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes one vehicle length for dispersed camping access. <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing. <u>Mineral materials</u>: Close to mineral material disposals. <u>ROWs and renewable energy</u>: Manage as ROW avoidance area. 		
						<ul style="list-style-type: none"> <u>Organized group events/activity use*</u>: Allow 50 people or fewer. Groups over 50 could be approved by the authorized officer. <u>Motorized event/activity</u>: Limited to designated roads and trails. <u>Mechanized event/activity</u>: Limited to designated trails. <u>Stock use event/activity</u>: Allow cross-country travel for equestrian use only. <u>Camping</u>: Allow dispersed primitive camping where resource damage does not occur. Prohibit camping within 0.25 mile of trailheads. <u>Campfires*</u>: Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*</u>: Encourage self-registered permits for overnight camping. <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access. <u>Leasable minerals</u>: Apply Controlled Surface Use and Timing Limitation Stipulation for mineral leasing (refer to Appendix H [Stipulations and Exceptions, Modifications, and Waivers] for a description). <u>Mineral materials</u>: Close to exclusive pits. Open to community pits 5 acres or fewer. Allow expansion of existing pits. Apply visual mitigation to reduce visual impacts. <u>ROWs and renewable energy</u>: Open to ROWs. 		
2096*	REC:1 REC:2			X	Activities in this SRMA include canyoneering, equestrian use, backpacking, hiking, hunting, and scenic touring along the House Rock Valley Road. Continue the overall primitive, uncrowded, and remote recreation experience. Overall social encounters will remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters occur. Allow camping in developed campgrounds or in designated primitive camping areas in the Frontcountry and Passage Zones. Prohibit dispersed primitive camping in these zones.	Paria Canyons Vermillion Cliffs SRMA (30,011 acres) <ul style="list-style-type: none"> <u>Competitive use</u>: Prohibit competitive events. <u>Organized group event/activity use*</u>: Allow up to 12 people. Permits for over 12 people may be approved by the authorized officer. <u>Motorized event/activity</u>: Limited to designated roads and trails. <u>Mechanized event/activity</u>: Limited to designated roads and trails. <u>Stock use event/activity</u>: Prohibit in the Paria River corridor south of Whitehouse Campground and side canyons north of Whitehouse Campground; allow in the House Rock area to the wilderness boundary. <u>Camping</u>: Allow in developed campgrounds or in designated camping areas. Prohibit camping along House Rock Valley Road. <u>Campfires*</u>: In campgrounds: allow campfires only in designated fire grates, designated fire pits, or mandatory fire pans and prohibit wood collection for campfires. In House Rock area: allow propane/non-wood fires only; prohibit wood collection for campfires. <u>Overnight use*</u>: Require self-registered permits for overnight camping. <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes one vehicle length for dispersed camping access. <u>Leasable minerals</u>: Apply No Surface Occupancy stipulation for mineral leasing. 	Paria Canyons Vermillion Cliffs SRMA (30,011 acres) <ul style="list-style-type: none"> <u>Competitive use</u>: Prohibit motorized competitive events; allow non-motorized competitive events. <u>Organized group event/activity use*</u>: Allow up to 25 people. Permits for over 25 people may be approved by the authorized officer. <u>Motorized event/activity</u>: Limited to designated roads and trails. <u>Mechanized event/activity</u>: Limited to designated roads and trails; authorize cross-country mechanized use in specific areas as identified in the TMP. <u>Stock use event/activity</u>: Prohibit in the Paria River corridor south of Whitehouse Campground; allow in the House Rock area to the wilderness boundary. <u>Camping</u>: Allow dispersed camping in designated areas. <u>Campfires*</u>: Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Overnight use*</u>: Encourage self-registered permits for overnight camping. <u>Parking*</u>: Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access. <u>Leasable minerals</u>: Apply Controlled Surface Use and Timing Limitation Stipulation for mineral leasing (refer to Appendix H [Stipulations and Exceptions, Modifications, and Waivers] for a description). 	Manage as the Kanab-Escalante ERMA.

Recreation and Visitor Services (REC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
							<ul style="list-style-type: none"> <u>Mineral materials</u>: Close to mineral material disposals. <u>Locatable minerals</u>: Recommend withdrawal from mineral entry. <u>ROWS and renewable energy</u>: Manage as ROW avoidance area. 	<ul style="list-style-type: none"> <u>Mineral materials</u>: Close to exclusive pits. Open to community pits 5 acres or fewer. Allow expansion of existing pits. Apply visual mitigation to reduce visual impacts. <u>Locatable minerals</u>: Recommend withdrawal from mineral entry. <u>ROWS and renewable energy</u>: Open to ROWs. 	
Extensive Recreation Management Areas									
2097*	REC:1 REC:2	X	X	X	X	Areas outside SRMAs were not managed as an ERMA.	<p>Kanab-Escalante ERMA (678,694 acres)</p> <ul style="list-style-type: none"> <u>Competitive events</u>: Allow non-motorized competitive events. Prohibit motorized competitive events. <u>Parking/dispersed camping*</u>: Allow OHVs or mechanized vehicles to pull off designated routes one vehicle length for dispersed camping access. <u>Campfires*</u>: Allow campfires only in designated fire grates, designated fire pits, or mandatory fire pans and prohibit wood collection for campfires. <u>Group size: paved roads*</u>: Do not apply group size limit. <ul style="list-style-type: none"> <u>Primary collector roads (e.g., Burr Trail, Hole-in-the-Rock, Cottonwood, Skutumpah Roads)*</u>: Allow up to 25 people. Permits for over 25 people could be approved by the authorized officer. <u>Leasable minerals</u>: Apply Controlled Surface Use and Timing Limitation Stipulation for mineral leasing (refer to Appendix H [Stipulations and Exceptions, Modifications, and Waivers] for a description). <u>Mineral materials</u>: Close to mineral material disposals. <u>ROWS and renewable energy</u>: Manage as ROW avoidance area. 	<p>Kanab-Escalante ERMA (678,694 acres)</p> <ul style="list-style-type: none"> <u>Competitive events</u>: Allow motorized events. Allow high-speed motorized competitive events in designated areas. Allow non-motorized competitive events. <u>Parking/dispersed camping*</u>: Allow OHVs or mechanized vehicles to pull off designated routes into existing disturbed areas within 50 feet for dispersed camping access. <u>Campfires*</u>: Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Group size</u>: <ul style="list-style-type: none"> <u>Paved roads*</u>: Do not apply group size limit. <u>Primary collector roads (e.g., Burr Trail, Hole-in-the-Rock, Cottonwood, Skutumpah Roads)*</u>: Allow up to 50 people. Permits for over 50 people could be approved by the authorized officer. <u>Leasable minerals</u>: Apply Controlled Surface Use and Timing Limitation Stipulation for mineral leasing (refer to Appendix H [Stipulations and Exceptions, Modifications, and Waivers] for a description). <u>Mineral materials</u>: Open to mineral material disposals. <u>ROWS and renewable energy</u>: Open to ROWs. 	<p>Kanab-Escalante ERMA (1,835,630 acres)</p> <ul style="list-style-type: none"> <u>Competitive events</u>: Allow competitive events. <u>Campfires*</u>: Encourage fire pans and allow collection of dead and down wood in areas where campfires are allowed. <u>Parking/dispersed camping*</u>: Allow OHVs or mechanized vehicles to pull off designated routes 50 feet for dispersed camping access. <u>Group size*</u>: Group size is limited to 50 within ERMAs. More restrictive group size limits could be established within WSAs or areas adjacent to NPS units through implementation-level planning. Permits for over these group sizes could be approved by the authorized officer. <u>Leasable minerals</u>: Apply Controlled Surface Use and Timing Limitation Stipulation for mineral leasing (refer to Appendix H [Stipulations and Exceptions, Modifications, and Waivers] for a description). <u>Mineral materials</u>: Open to mineral material disposals. <u>ROWS and renewable energy</u>: Open to ROWs.

2.3.15 Travel and Transportation Management

Travel and Transportation Management (TA)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						<p>Goal TA:1 Establish a transportation system that contributes to protection of sensitive resources (such as wildlife habitat, riparian areas, and cultural resources), accommodates a variety of uses, and minimizes user conflicts.</p> <p>Objectives:</p> <p>TA:1.1 Establish OHV management areas that guide the establishment of a transportation system that provides access to public land resources, provides connectivity to other lands and communities, and provides for experiences compatible with the BLM's multiple-use mission.</p> <p>TA:1.2 Sustain compatible traditional, current, and future use of the land by establishing a route system that contributes to protection of sensitive resources, accommodates a variety of uses, and minimizes user conflicts.</p> <p>TA:1.3 Consider public access, resource management, and regulatory needs through transportation planning, incorporating consideration of access needs and the effects of and interaction among all forms of travel, including OHV, mechanized, and non-motorized/mechanized travel.</p> <p>TA:1.4 Coordinate OHV management with local counties, adjacent field offices, and other agencies.</p> <p>TA:1.5 Provide opportunities for OHV use on public lands.</p>				

Travel and Transportation Management (TA)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES										
2098	TA:1	X	X	X	X	No similar action.	Delineate the Planning Area into the following TMAs, with TMPs being developed in the following priority order: 1. KEPA in Garfield County <ul style="list-style-type: none">• Hole-in-the-Rock Road• Circle Cliffs 2. KEPA in Kane County 3. Grand Staircase 4. Kaiparowits 5. Escalante Canyons The size and prioritization of these TMAs may change due to changes in public interest and resource conflicts. Routes in the TMAs may be analyzed and approved separately. Adjustments to TMA boundaries may be made prior to conducting implementation travel planning.			
2099	TA:1.2	X	X	X		Limit use of bicycles to designated routes and prohibit cross-country travel.	Limit mechanized travel and equipment to designated routes unless otherwise identified as open.			
2100*	TA:1.2	X	X	X	X	Base the specific routes shown open for public use on a variety of considerations, including what is needed to protect monument resources, implement the planning decisions, and provide for the transportation needs of surrounding communities. The basic philosophy in determining which routes will be open was to determine which routes access some destination (e.g., scenic overlook, popular camping site, heavily used thoroughfare) and present no significant threat to monument resources. Keep these routes open for public use. Close routes that were not considered necessary or desirable (for resource protection purposes) to OHV and mechanized public access.	Until future travel management planning is complete, consistent with OHV area designations made through this planning process, allow OHV vehicle use on routes identified in the GSENM MMP (BLM 2000), unless otherwise specifically addressed in this EIS. While the GSENM MMP identified a route system for the monument, route designation is an implementation-level decision that the BLM undertakes in a separate NEPA process. <u>Future TMP Considerations*</u> : During the future travel management planning process, consider designation of OHV vehicle use and mechanical transport on primitive routes and ways that existed during the original inventory and were available for use immediately before the issuance of Presidential Proclamation 6920. The BLM will inventory linear transportation features in WSAs and compare them to the original wilderness inventory to determine whether any "new," unauthorized routes are present. Any routes that were not present during the original inventory must be designated "OHV closed" (except in instances related to provision of access to valid existing rights, and limited to the right holder [not available for public use]; see Manual 6330).			
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE										
			Travel Management							
2101*	TA:1.2 TA:1.3 TA:1.4 TA:1.5	X	X	X		The transportation map (Map 62) shows routes that will be open for public use and those available for administrative use only (see the Administrative Routes and Authorized Users section for related decisions). Any route not shown on Map 62 is considered closed upon approval of this plan, subject to valid existing rights. In the event that Title 5 ROWs are issued or in the event of legal decisions on RS 2477 assertions, routes will be governed under the terms of these actions.	Defer implementation of travel planning to a future TMP. Until travel planning is completed, consistent with OHV area designations made through this planning process, allow OHV vehicle use on routes identified in the GSENM TMP. <u>During implementation of travel planning, consider*</u> : <ul style="list-style-type: none">• Protection of monument objects and values in the determination of which routes to designate, develop, or close• Designation of non-mechanized trails	Defer implementation of travel planning to a future TMP. Until travel planning is completed, consistent with OHV area designations made through this planning process, allow OHV vehicle use on routes identified in the GSENM TMP, with the following exceptions: <ul style="list-style-type: none">• Open all designated routes to OHVs <u>During implementation of travel planning, consider*</u> : <ul style="list-style-type: none">• Protection of monument objects and values in the determination of which routes to designate, or close• Designation of routes consistent with Garfield and Kane Counties' motorized route system• Allowing OHV and non-mechanized vehicle use on roads and trails designated for such use immediately before the issuance of Presidential Proclamation 6920 (Presidential Proclamation 9682)• Designating non-mechanized trails	Defer implementation of travel planning to a future TMP. Until travel planning is completed, consistent with OHV area designations made through this planning process, allow OHV vehicle use on routes identified in the existing GSENM TMP, with the following exceptions: <ul style="list-style-type: none">• All designated routes will be open to OHVs.• The following routes will be added to the existing GSENM TMP after successful completion of route evaluation forms (Appendix K):*<ul style="list-style-type: none">○ The V-Road○ Inchworm Arch Road○ Flagpoint Road (off 562) <u>During implementation of travel planning, consider*</u> : <ul style="list-style-type: none">• Protection of monument objects and values in the determination of which routes to designate, or close• Designation of routes consistent with Garfield and Kane Counties' motorized route system• Allowing OHV and non-mechanized vehicle use on roads and trails designated for such use immediately before the issuance of Presidential Proclamation 6920 (Presidential Proclamation 9682)• Designating non-mechanized trails	

Travel and Transportation Management (TA)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
2102	TA:1.1 TA:1.2 TA:1.3 TA:1.4 TA:1.5	X	The transportation map (Map 62) shows routes that will be open for public use and those available for administrative use only (see the Administrative Routes and Authorized Users section for related decisions). Any route not shown on Map 62 is considered closed upon approval of this plan, subject to valid existing rights. In the event that Title 5 ROWs are issued or in the event of legal decisions on RS 2477 assertions, routes will be governed under the terms of these actions.	Defer implementation of travel planning to a future TMP. Until travel planning is completed, consistent with OHV area designations made through this planning process, allow OHV vehicle use on routes identified in the GSENM TMP. During implementation of travel planning, consider: <ul style="list-style-type: none">• Designation of non-mechanized trails• Designation of new OHV and mechanical transportation routes in accordance with 43 CFR 8342.1 and other applicable law	Defer implementation of travel planning to a future TMP. Until travel planning is completed, consistent with OHV area designations made through this planning process, allow OHV vehicle use on routes identified in the GSENM TMP, with the following exceptions: <ul style="list-style-type: none">• Open all designated routes to OHVs During implementation of travel planning, consider: <ul style="list-style-type: none">• Designation of non-mechanized trails• Designation of routes consistent with Garfield and Kane Counties' motorized route system• Allowing OHV and non-mechanized vehicle use on roads and trails designated for such use immediately before the issuance of Presidential Proclamation 6920 and maintain roads and trails for such use (Presidential Proclamation 9682)• Designation of new OHV and mechanical transportation routes in accordance with 43 CFR 8342.1 and other applicable law	Defer implementation of travel planning to a future TMP. Until travel planning is completed, consistent with OHV area designations made through this planning process, allow OHV vehicle use on routes identified in the existing GSENM TMP, with the following exceptions: <ul style="list-style-type: none">• All designated routes will be open to OHVs. During implementation of travel planning, consider: <ul style="list-style-type: none">• Designation of non-mechanized trails• Designation of routes consistent with Garfield and Kane Counties' motorized route system• Allowing OHV and non-mechanized vehicle use on roads and trails designated for such use immediately before the issuance of Presidential Proclamation 6920 and maintain roads and trails for such use (Presidential Proclamation 9682)• Designation of new OHV and mechanical transportation routes in accordance with 43 CFR 8342.1 and other applicable law				
OHV Area Designations										
2103	TA:1.1 TA:1.2 TA:1.3 TA:1.4 TA:1.5	X	X	X	X	The existing MMP did not make OHV area designations.	Limit OHV use to designated routes with the exception of those closed to meet other resource values. No Man's Mesa RNA is closed. (Map 63) <ul style="list-style-type: none">• Open: 0 acres• Limited: 448,955 acres• Closed: 1,417,124 acres	Same as Alternative B except (Map 64): <ul style="list-style-type: none">• Open: 116 acres (located in KEPA)• Limited: 1,801,163 acres• Closed: 64,801 acres	Same as Alternative B except (Map 65): <ul style="list-style-type: none">• Open: 2,528 acres (located in KEPA)• Limited: 1,863,552 acres• Closed: 0 acres	
2104	TA:1.1	X	X	X	X	Allow development and maintenance of trails per zone system.	Allow development and maintenance of trails for public safety, [protection of resources,] or to provide opportunities for visitors.	Same as Alternative B.	Same as Alternative B.	
2105	TA:1.1	X	X	X	X	With the exception of those segments listed below, maintain open routes within the disturbed travel surface area as of the date of this plan; prohibit widening, passing lanes, or other travel surface upgrades. Allow deviations from the current maintenance levels as follows: <ul style="list-style-type: none">• Hole-in-the-Rock Road: Allow stabilization of washout-prone areas, primarily along the southeastern end, to prevent erosion and sediment loading in drainages.• Smoky Mountain Road: Allow stabilization in the Alvey Wash section to prevent erosion and sediment loading in drainages.• Cottonwood Wash Road: Allow stabilization of washout-prone areas, primarily along the southern section, to prevent erosion and sediment loading in drainages.• Skutumpah Road: Allow new crossing for safety at Bull Valley Gorge, and stabilization of washout-prone areas, primarily along the northern section, to prevent erosion and sediment loading in drainages.	Repair, maintain, rehabilitate, and improve routes in accordance with the TMP.	Same as Alternative B.	Same as Alternative B.	

2.3.16 Areas of Critical Environmental Concern

Areas of Critical Environmental Concern (ACEC)														
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)					
		Goal ACEC:1 Maintain, protect, and enhance the relevance and important values for each ACEC and provide opportunities for other compatible uses where appropriate.												
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES														
3001	N/A	X	X	X		No ACECs are designated in GSENM because monument protections are substantially equivalent to ACEC designation.								
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE														
3002	ACEC:1				X	No similar action.	Manage all nominated ACECs found to meet relevance and importance values (308,683 acres, Map 66): including: <ul style="list-style-type: none">• Alvey Wash (29,769 acres)• Bulldog Bench (361 acres)• Butler Valley (15,780 acres)• Circle Cliffs (26,706 acres)• Cockscomb East (42,100 acres)• Cockscomb West (40,475 acres)• Collet Top (9,218 acres)• Henderson/Pardner (12,259 acres)• Hole-in-the-Rock Trail (60,578 acres)• Paria River (180 acres)• Scorpion Flat/Dry Fork (30,691 acres)• Straight Cliffs/Fiftymile Bench (21,357 acres)• Tibbet Head (19,079 acres)• Wahweap Hoodoos (130 acres) Special management for each ACEC is included in Appendix S.	Manage the following areas as ACECs (130,995 acres, Map 67): <ul style="list-style-type: none">• Circle Cliffs (26,706 acres)• Cockscomb East (32,683 acres)• Cockscomb West (40,462 acres)• Straight Cliffs/Fiftymile Bench (12,270 acres)• Tibbet Head (18,874 acres) Special management for each ACEC is included in Appendix S.	Do not manage any areas as ACECs.					

2.3.17 National Historic Trails

National Historic Trails (NHT)														
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)					
		Goal NHT:1 Promote the preservation and appreciation of the OSNHT for the enjoyment of the American people. Objectives: NHT:1.1 Identify and manage an appropriate trail management corridor for the OSNHT. NHT:1.2 Manage the landscape (viewshed) associated with the OSNHT so that visitors continue to get a sense of how this landscape influenced commercial trade along the trails. NHT:1.3 Provide appropriate interpretation and signage for the OSNHT to improve visitor experiences.												
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES														
3003	NHT:1.2 NHT:1.3		X	X	X	Prepare an Activity Plan for the OSNHT to identify specific uses and management actions that would be taken to implement the goals and objectives of the trail.								
3004	NHT:1.3		X	X	X	Develop interpretive signs or other features to increase access to trail, recognize trail location, and help guide users.								
3005	NHT:1.1 NHT:1.2		X	X	X	Manage Federal Protection Component of the OSNHT as VRM Class II.								

National Historic Trails (NHT)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
<i>Old Spanish National Historic Trail</i>									
3006	NHT:1.1		X	X	X	No similar action.	<p>Designate an OSNHT NTMC to include lands up to 3 miles on either side of the OSNHT centerline or within the viewshed, whichever is less (76,247 acres, Map 68). Manage the OSNHT NTMC as follows:</p> <ul style="list-style-type: none"> Prohibit new surface-disturbing activities in the OSNHT NTMC. Within KEPA, allow mineral leasing subject to No Surface Occupancy stipulation. Apply ROW exclusion area (including communication sites). Allow new crossings only in designated utility corridors. Manage OSNHT NTMC corridor as VRM Class II. <p>Allow discretionary uses that would be compatible with the protection of the purpose and nature, resources, qualities, values, and settings of the OSNHT.</p>	<p>Designate an OSNHT NTMC to include lands up to 0.5 mile on either side of the OSNHT centerline or within the viewshed, whichever is less (21,238 acres, Map 68). Manage the OSNHT NTMC as follows:</p> <ul style="list-style-type: none"> Allow new surface-disturbing activities in the OSNHT NTMC with the following restrictions: <ul style="list-style-type: none"> Authorize highly visible projects and/or projects out of scale with the surrounding environment (e.g., large wind-energy development projects, gas plants, power plants, high-voltage transmission lines) only if the project causes no more than a weak contrast, as defined in the BLM Visual Resource Manual. Prohibit new audible and atmospheric effects from exceeding current levels existing along the NHT corridors. Within KEPA, allow mineral leasing subject to No Surface Occupancy stipulation unless the proposed project and its associated impacts are not visible from the NHT. Apply ROW avoidance area, except in designated utility corridors. Manage the OSNHT NTMC corridor as VRM Class II, except where it falls within designated utility corridors, which are managed as VRM Class III. <p>Allow discretionary uses that would be compatible with the protection of the purpose and nature, resources, qualities, values, and settings of the OSNHT.</p>	<p>Designate an OSNHT NTMC to include lands up to 300 feet on either side of the OSNHT centerline or within the viewshed, whichever is less, where there is a Federal Protection Component (1,863 acres, Map 68). Manage the OSNHT NTMC as follows:</p> <ul style="list-style-type: none"> Within KEPA, allow mineral leasing subject to Controlled Surface Use stipulation. <p>Manage Federal Protection Components per the National Trails System Act as follows:</p> <ul style="list-style-type: none"> Allow discretionary uses that would be compatible with the protection of the purpose and nature, resources, qualities, values, and settings of the OSNHT. Prohibit new audible and atmospheric effects from exceeding current levels existing within the OSNHT NTMC.

2.3.18 Scenic Routes

						Scenic Routes (SCE)				
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
						Goal SCE:1 Manage designated scenic routes to protect values for which they were established. Objectives: SCE:1.1 Continue to coordinate management of National Scenic Byways, Utah Scenic Byways, and Utah Scenic Backways with other agencies, BLM offices, and local and State governments as appropriate. Goal SCE:2 Identify appropriate scenic routes to be designated as Scenic or Backcountry Byways in coordination with the State of Utah and other agencies and stakeholders. Objectives: SCE:2.1 Consider currently designated State Scenic Byways as Scenic or Backcountry Byways.				
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES										
3007	SCE:1.2	X	X	X	X	Manage corridors along National and State Scenic Byways and Backways, and scenic drives (All American Road-Scenic Byway 12, Burr Trail, Cottonwood Canyon Road, Hole-in-the-Rock Road, Smoky Mountain Road, Paria River Valley Road, and Johnson Canyon/Alton Roads) to meet VRM objectives.				

						Scenic Routes (SCE)			
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
3008	SCE:1.1	X	X	X	X	No similar action.	<p>Seek BLM Backcountry Byway designation for routes currently designated as State Scenic Backways as follows (Map 69). Determine byway types during future travel management planning.</p> <ul style="list-style-type: none"> • Burr Trail • Hole-in-the-Rock • Smoky Mountain • Cottonwood Road • Paria River Valley • Johnson Canyon/Alton <p>If designated, develop Corridor Management and Interpretive Master Plans for BLM Backcountry Byways.</p>	Same as Alternative B.	Do not consider BLM Backcountry Byways.
3009	SCE:1	X	X	X	X	No similar action.	Manage corridors along designated scenic byways and backways extending either for 3 miles or within the viewshed on either side of the centerline, whichever is less, as VRM Class II.	Manage corridors along designated scenic byways and backways extending either for 1 mile or within the viewshed on either side of the centerline, whichever is less, as VRM Class II.	No similar action.

2.3.19 Wild and Scenic Rivers

Wild and Scenic Rivers (WSR)										
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)	
Goal WSR:1 Preserve suitable rivers, or segments of rivers, and their immediate environments in their free-flowing condition for the protection of their ORVs and for the benefit and enjoyment of present and future generations, giving consideration to other resource values and uses.										
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES										
3010	WSR:1	X	X	X	X	Approximately 234.2 miles of river segments have been determined eligible and suitable and recommended for Congressional designation into the National Wild and Scenic River System. The suitable river segments include: Escalante River 1, 2, 3; Harris Wash; Lower Boulder Creek; Slickrock Canyon; Lower Deer Creek 1, 2; The Gulch 1, 2, 3; Steep Creek; Lower Sand Creek and tributary Willow Patch Creek; Mamie Creek and west tributary; Death Hollow Creek; Calf Creek 1, 2, 3; Twentyfivemile Wash; Upper Paria River 1, 2; Lower Paria River 1, 2; Deer Creek Canyon; Snake Creek; Hogeye Creek; Kitchen Canyon; Starlight Canyon; Lower Sheep Creek; Hackberry Creek; and Lower Cottonwood Creek (Map 70).				
3011	WSR:1	X	X	X	X	Manage suitable segments for their free-flowing condition, tentative classification, and preservation of ORVs.				
3012	WSR:1	X	X	X	X	Manage eligible river segments that are not determined to be suitable under the direction and prescriptions of other resources and resource uses in this plan. Designate no special protection or consideration specifically for the free-flowing condition, ORVs, and tentative classifications of these river segments.				
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE										
3013	WSR:1		X	X	X	Retain the existing tentative classification for all suitable segments (Map 70).	Same as Alternative A (Map 71).	Tentatively classify the Upper Paria 1 and Lower Sheep Creek segments (23.2 miles) as scenic. Retain the existing tentative classification for all other suitable segments (Map 72).	Tentatively classify the Upper Paria 1 and Lower Sheep Creek segments (23.2 miles) as recreational. Retain the existing tentative classification for all other suitable segments (Map 73).	

Wild and Scenic Rivers (WSR)						
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)
3014	WSR:1	X	X	X	X	The 2000 MMP manages suitable segments for preservation of ORVs.
						<p>Manage all suitable segments as follows:</p> <ul style="list-style-type: none"> • WSR suitable segments with scenic ORVs and a tentative wild classification as VRM Class I. • Manage WSR suitable segments with scenic ORVs and a tentative classification of recreational or scenic as VRM Class II. • Exclude ROWs (including communication sites) in all suitable WSR corridors. • Recommend withdrawal of all suitable WSR river corridors from mineral location and entry • Close all suitable WSR corridors to mineral leasing. • Close suitable wild or scenic river corridors to mineral material disposal. • Close WSR wild sections to OHV and mechanized vehicles. • WSR corridors within WSAs will be managed as VRM Class I.
						<p>Manage Upper Paria 1 and Lower Sheep Creek segments (both scenic), and all other suitable segments as follows:</p> <ul style="list-style-type: none"> • Manage WSR suitable segments with scenic ORVs as VRM Class II. • Exclude ROWs (including communication sites) in suitable WSR corridors with a tentative classification of wild or scenic. • Avoid ROWs (including communication sites) in all suitable WSR corridors with a tentative classified as recreational. • Recommend withdrawal of suitable WSR river corridors with a tentative classification of wild or scenic from mineral location and entry. • Close all suitable WSR corridors tentatively classified as wild or scenic to mineral leasing. • Open suitable WSR corridors tentatively classified as recreational to mineral leasing with a No Surface Occupancy stipulation. • Close suitable wild or scenic river corridors to mineral material disposal. • Close WSR wild sections to OHV and mechanized vehicles. • WSR corridors within WSAs will be managed as VRM Class I.
						<p>Manage Upper Paria 1 and Lower Sheep Creek segments (both recreational), and all other suitable segments as follows:</p> <ul style="list-style-type: none"> • Avoid ROWs (including communication sites) in all suitable WSR corridors. • Open all suitable WSR corridors to mineral leasing with a No Surface Occupancy stipulation. • Close suitable wild or scenic river corridors to mineral material disposal. • WSR corridors within WSAs will be managed as VRM Class I.

2.3.20 Wilderness Study Areas

Wilderness Study Areas (WSA)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)			
						Goal WSA:1. Manage WSAs in a manner that does not impair their suitability for designation as wilderness.			
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES									
3015	WSA:1	X	X	X	X	Manage all WSAs (Map 74) under VRM Class I objectives to support current policy and guidelines to retain a natural landscape. Exceptions: (1) case-by-case exceptions for valid existing rights and grandfathered uses; (2) if the WSA is released by Congress, the area would need to be amended and appropriate VRM objectives established.			
3016	WSA:1	X	X	X	X	Manage WSAs as ROW exclusion areas, closed to mineral leasing, and closed to mineral material disposal.			
3017	WSA:1	X	X	X	X	Should any WSA, in whole or in part, be released from wilderness consideration, manage such released lands in accordance with the goals, objectives, and management prescriptions established in this RMP, unless otherwise specified by Congress in its releasing legislation. Examine proposals in the released areas on a case-by-case basis but defer all actions that are inconsistent with RMP goals, objectives, and prescriptions until a land use plan amendment is completed.			
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
3018	WSA:1	X	X	X	X	<p>The 2000 MMP identified prescriptions for management zones. Generally include WSAs in the "Primitive" zone or portions of certain WSAs in the "Outback" zone. Close the Primitive zone to OHV use and limit the Outback zone to designated routes.</p>	<p>Manage all WSAs as OHV closed areas.</p>	<p>Manage 15 WSAs (881,159 acres) as OHV limited areas. Manage Steep Creek (23,960 acres) as an OHV closed area.</p> <p>During the travel management planning process, consider designation of OHV use and mechanical transport in WSAs on primitive routes and ways that existed during the original wilderness inventory and that were available for OHV use immediately before the issuance of Presidential Proclamation 6920, consistent with the requirements of BLM Manual 6330—Management of BLM Wilderness Study Areas.</p>	<p>Manage all WSAs as OHV limited areas.</p> <p>During the travel management planning process, consider designation of OHV use and mechanical transport in WSAs on primitive routes and ways that existed during the original wilderness inventory and that were available for OHV use immediately before the issuance of Presidential Proclamation 6920, consistent with the requirements of BLM Manual 6330—Management of BLM Wilderness Study Areas.</p>

Wilderness Study Areas (WSA)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
3019	WSA:1	X	X	X	X	<p>No specific management action for WSAs. RM-2: Allow the use of machinery (e.g., roller chopping, chaining, plowing, discing) in all zones except the Primitive Zone. Chaining has been used in the past to remove pinyon and juniper prior to reseeding with perennial grasses. Due to the potential for irreversible impacts on other monument resources, such as archaeological sites and artifacts, and paleontological resources, prohibit this treatment method to remove pinyon and juniper. Allow covering rehabilitation seed mixes with soil after wildfires only where:</p> <ul style="list-style-type: none"> • Noxious weeds and invasive nonnative species are presenting a significant threat to monument resources or watershed damage could occur if the burned area is not reseeded • It can be demonstrated that monument resources will not be detrimentally affected (i.e., completion of full archaeological, paleontological, threatened and endangered species, and other resource clearance and consultation) • It is determined that seed cover is necessary for the growth of the native species proposed for seeding • Other, less surface-disturbing measures of covering seed are not available or cannot be applied in a timely manner 	<p>Prohibit all vegetation treatments in WSAs, except where necessary to restore human impacts or to restore vegetation to characteristic conditions of the ecological zone. Under these two exceptions, allow manipulation only when restoration by natural forces is no longer attainable, and only to restore or maintain vegetative communities to the closest approximation of the natural range of conditions.</p>	<p>Allow manipulation of vegetation through prescribed fire, chemical application, mechanical treatment, or human-controlled biological means only where it meets the non-impairment standard or one of the exceptions. If vegetative manipulation was allowed under the grazing or other authorization that was in effect in 1976, maintain the vegetative treatment by reapplying the same or similar treatment as long as it does not create greater impacts and achieves the same objective. Use only native plants.</p>	<p>Consistent with Federal policy, prioritize the use of native species. Allow the use of nonnative species where necessary to optimize land health, forage, and productivity in nonstructural range improvements.</p>

2.3.21 Social and Economic Considerations

Social and Economic Considerations (SOC)									
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Goal SOC:1 Provide maximum sustainable economic development opportunities for a diversity of resources including energy, grazing and other agricultural activities, recreation, wildlife, fisheries, tourism, and others. Objectives: SOC:1.1 Continue to work with local governments to consider local and regional economic development and land use plans and impacts in BLM decisionmaking. SOC:1.2 Provide opportunities for the public to view and understand local customs and culture of resources and communities in the area. SOC:1.3 Work with local communities and governments to recognize the importance of custom and culture during activity and implementation-level decisions. Goal SOC:2 Reduce hazards to public health and safety. Objectives: SOC:2.1 Strive to ensure that human health and safety concerns on public lands remain a major priority. SOC:2.2 Minimize or mitigate hazardous or potentially hazardous sites and situations, including hazardous materials, hazardous or solid wastes, abandoned mine sites, abandoned well sites, and other potential hazards on public lands. SOC:2.3 Minimize the potential for intentional or accidental releases of hazardous materials or wastes and solid wastes onto public lands.									
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE									
Custom and Culture									
4001	SOC:1	X	X	X		<p>Establish continuing collaborative programs with local communities, organizations, local and State agencies, Native American Indian communities, outfitters and guides, volunteers, and other interested parties. Use the information collected to create a better understanding of cultures and communities and work to showcase the histories of the local communities as part of the "long and dignified history" of the monument.</p>	<p>Same as Alternative A.</p>	<p>Same as Alternative A, and also support the development of a museum with local stakeholders. The museum would serve as a science and educational center for use by visitors and the local community.</p>	<p>Same as Alternative C.</p>

2.3.22 Science and Monument Advisory Committee

						Science and Monument Advisory Committee (SM)						
Record #	OBJ	EC	KP	GS	KE	Alternative A (Current Management)		Alternative B	Alternative C	Alternative D (Preferred Alternative)		
GSENM Goal SM:1 Provide opportunities for science and research on GSENM and establish the Monument Advisory Committee in accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682.		<p>Objectives:</p> <p>SM:1.1 Focus monument management priorities and budgets on a comprehensive understanding of the resources of GSENM while assisting in the development of improved and innovative land management, ecological restoration, and vegetation management activities. Emphasize natural, physical, and social sciences in monument pure and applied research activities. Encourage research projects to have a multi-scale and interdisciplinary approach.</p> <p>SM:1.2 Encourage and support educational programs for grades Kindergarten through 12, emphasizing the area's scientific and cultural resources.</p> <p>SM:1.3 Work with livestock permittees to research innovative grazing techniques to improve rangeland and vegetative health.</p>										
MANAGEMENT ACTIONS COMMON TO ALL ALTERNATIVES												
4002	SM:1:1 SM:1:2	X	X	X		Facilitate appropriate research of resources identified in the Presidential Proclamation 6920 as modified by Presidential Proclamation 9682 and Monument Science Plan so that GSENM is recognized as an outdoor classroom and laboratory.						
4003*	SM:1:1 SM:1:2	X	X	X		Request researchers to incorporate a public outreach/education component into projects. Allow educators and students the opportunity to participate in research activities where appropriate. Use outreach efforts to showcase results of scientific research and inventory data by dissemination to the public through interpretive displays, publications, forums, presentations, and public exhibition of objects and artifacts. Help facilitate the transfer of research information to the public through periodic science forums, monument-sponsored publications, interpretive displays, and the Southern Utah University digital library.						
4004	SM:1:1 SM:1:2 SR:1:3	X	X	X		Prioritize in-house and partner-driven pure research and applied research in order to create a catalog of natural, cultural, and sociological knowledge, as well as the ability to effectively manage all of monument values and objects within an adaptive management framework. Prioritize inventory and pure research on objects and values in danger of being lost over short time frames (hundreds of years or less) over those that are more stable in the long term.						
4005*	SM:1:1 SM:1:2	X	X	X		Cooperate with colleges and universities in undergraduate and graduate programs as resources permit. Conduct outreach efforts such as monument-sponsored science publications and fund field schools to the extent possible.						
4006*	SM:1:1 SM:1:2	X	X	X		In addition to normal avenues for research publications (e.g., scientific journals, symposia proceedings, etc.), help facilitate the transfer of research information to the public by way of a monument-sponsored multi-day interdisciplinary science symposium on a decadal rotation.						
4007	SM:1:1 SM:1:2	X	X	X		Require a science permit application for internal and external research projects on GSENM. The application will be reviewed by an interdisciplinary team and approved or denied by an authorized officer. Require appropriate collection permits or licenses.						
4008*	SM:1:1 SM:1:2 SM:1:3	X	X	X		Improve the understanding of the processes and mechanisms that affect soil organic carbon dynamics on arid rangelands as a means of sequestering atmospheric carbon dioxide, coupled with implementing management actions and technologies focused on rangelands soils to accumulate and conserve carbon.						
4009	SM:1:1	X	X	X		A Grand Staircase-Escalante National Monument Advisory Committee (MAC) (chartered under the Federal Advisory Committee Act) will be established to advise monument managers as per the MAC Charter.						
MANAGEMENT ACTIONS & ALLOWABLE USES BY ALTERNATIVE												
4010	SM:1:1	X	X	X		No similar action.	Work with local communities and within existing infrastructure and develop an active (hands-on) science learning center.	Work with local communities and augment existing infrastructure to include a small dormitory and develop an active (hands-on) science learning center.	Work with local communities to develop a new facility for an active science learning center.			
4011	SM:1:1 SM:1:2	X	X	X		No similar action.	Use the Monument Science Program to support and emphasize research focused on how global climate variability affects the need to apply adaptive management actions across all resources.	Develop and implement a portfolio approach to land use planning that allows for diverse strategies and adaptive, dynamic planning as climate change adaptation strategy. This involves establishing and setting aside restoration, innovation (experimental) and observation (control) areas in GSENM in order to "learn while doing."	No similar action.			

ACEC – Area of Critical Environmental Concern, AIM – Assessment, Inventory, and Monitoring, ASFO – Arizona Strip Field Office, AUM – animal unit month, bhp-hr – brake horsepower-hour, BLM – Bureau of Land Management, BMP – best management practice, CEQ – Council on Environmental Quality, CFR – Code of Federal Regulations, DWFC – Desired Wildland Fire Condition, EC – Escalante Canyons, ERMA – Extensive Recreation Management Area, ESA – Endangered Species Act, FLPMA – Federal Land Policy and Management Act, FMP – Fire Management Plan, FRCC – Fire Regime Condition Class, GS – Grand Staircase, GSENM – Grand Staircase-Escalante National Monument, IM – Instruction Memorandum, KE – Kanab-Escalante, KEPA – Kanab-Escalante Planning Area, KFO – Kanab Field Office, KP – Kaiparowits Plateau, MFP – Management Framework Plan, MMP – Monument Management Plan, NEPA – National Environmental Policy Act, NHPA – National Historic Preservation Act, NHT – National Historic Trail, NOx – nitrogen oxides, NPS – National Park Service, NRA – National Recreation Area, NRHP – National Register of Historic Places, NTMC – National Trail Management Corridor, OBJ – objective, OHV – off-highway vehicle, ORV – outstandingly remarkable value, OSNHT – Old Spanish National Historic Trail, PAC – protected activity center, PFYC – Potential Fossil Yield Classification, RMP – Resource Management Plan, RMZ – Recreation Management Zone, ROD – Record of Decision, ROW – right-of-way, SRMA – Special Recreation Management Area, SRP – Special Recreation Permit, TMA – Travel Management Area, TMP – Travel Management Plan, UDWR – Utah Division of Wildlife Resources, USFWS – U.S. Fish and Wildlife Service, VRI – Visual Resource Inventory, VRM – Visual Resource Management, WSA – Wilderness Study Area, WSR – Wild and Scenic River, WUI – Wildland-Urban Interface

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2.4 Alternatives Considered but not Analyzed in Detail

The BLM considered, but eliminated from detailed analysis, several alternatives. This section describes the alternatives that were considered and the rationale that the BLM used for eliminating them from further analysis.

2.4.1 No Grazing Alternative

Prior to Presidential Proclamation 9682, the BLM was working with Federal, State, and local agencies and stakeholders to prepare a GSENM Livestock Grazing Plan Amendment EIS. During the scoping process for that plan, the BLM received comments indicating that the agency should consider a no grazing alternative due to potential impacts on monument objects. In response to public comments, the BLM, in coordination with its cooperating agencies, developed a range of alternatives that included a no-grazing alternative. The BLM released preliminary alternatives for the Livestock Grazing Plan Amendment Draft EIS for public review in December 2014 and received comments both in support of and opposed to the elimination of grazing within the Planning Area. Completion of the Livestock Grazing Plan Amendment Draft EIS was placed on hold following issuance of Executive Order 13792, which mandated review of certain National Monument designations, including GSENM. The Livestock Grazing Plan Amendment Draft EIS, which has since been superseded by this planning process, was never published; however, the BLM has adopted three alternatives (C, D, and E) from the previous Livestock Grazing Plan Amendment Draft EIS as alternatives B, C, and D in this document. In developing the GSENM/KEPA Draft RMPs/EIS, the BLM determined that consideration of no-grazing alternative is no longer warranted or needed for the following reasons:

1. The BLM determined that existing resource conditions on BLM-administered surface land, including vegetation, watershed, and wildlife habitat, as reflected in land health assessments, do not warrant prohibiting livestock grazing on all public lands in the Planning Area, including BLM-administered allotments within Glen Canyon NRA. The condition of public lands in the majority of the Planning Area indicates that grazing can occur while maintaining soil/site stability, hydrologic function, and biotic integrity. In areas where rangeland health standards are not being met, past grazing practices and persistent drought have been identified as the causal factors.
2. The BLM has considered decisions that would reduce or eliminate conflicts between livestock grazing and monument objects in the lands that are retained in GSENM, and between livestock grazing and other resources or resource uses in KEPA and Glen Canyon NRA. In areas where there are unresolved conflicts, the BLM and NPS are considering making public lands unavailable for grazing. Under Alternative B, approximately 607,226 acres would be unavailable for grazing. This level of reduced grazing represents a “meaningful reduction” in grazing under one of the existing alternatives, consistent with BLM Instruction Memorandum 2012-169 (BLM 2012a).
3. Finally, in addition to analyzing an alternative that includes a substantial reduction in the number of acres available for livestock grazing, the BLM uses laws, regulations, and policies governing livestock grazing on public lands to consider making changes to management when new issues are identified and/or when conditions indicate that changes are necessary. Such determinations would be made when the BLM considers renewal of term grazing permits. Changes in permits would be based on several factors, including monitoring studies, review of current range management science, input from livestock operators and interested members of the public, and ability to meet rangeland health

standards. The amount of grazing that takes place each year on BLM-managed surface lands can also be adjusted in response to factors such as drought and wildfire.

Based on the factors described above, a no grazing alternative was eliminated from further detailed analysis.

2.4.2 Manage the Entirety of the Planning Area as a Special Recreation Management Area

The BLM considered an alternative that would manage the entire Planning Area as a single Special Recreation Management Area (SRMA). The BLM determined that this alternative would generally be inconsistent with the BLM Land Use Planning Handbook (H-1601-1) and the BLM Recreation and Visitor Services Handbook (H-8320-1), which require SRMAs to be managed to protect and enhance a targeted set of activities, experiences, and benefits and focus on specific recreation opportunities and outcome-focused objectives in each SRMA. A single SRMA would not provide sufficient delineation and management for the range of objectives, experience, and activities across the Planning Area. As a result, the BLM eliminated this alternative from detailed analysis because it would be inconsistent with basic policy objectives and guidance.

2.4.3 Manage the Planning Area as One Extensive Recreation Management Area with SRMAs in Small Targeted Areas

The BLM considered an alternative that would manage the entire Planning Area as an Extensive Recreation Management Area with small SRMAs in targeted areas. The BLM considered reducing the size of SRMAs that are carried forward in the range of alternatives, but determined that managing for smaller SRMA areas would not recognize the interconnected nature of recreation planning. The range of alternatives considered in this EIS covers a full spectrum of recreation management under the alternatives. The BLM eliminated this alternative from detailed analysis because it is within the range of alternatives considered, and would be substantially similar to another alternative (Alternative D).

2.4.4 Manage Wilderness Study Areas as Visual Resource Management Class II

BLM policy mandates that the Wilderness Study Areas (WSAs) should be managed as Visual Resource Management (VRM) Class I areas (Manual 6330). During alternatives development, the BLM received comments suggesting that WSAs in the Planning Area should be managed as VRM Class II areas instead of VRM Class I areas. The BLM determined that managing WSAs as VRM Class II areas would not result in any notable management differences, as the BLM is required to manage WSAs based on the non-impairment standard. As a result, the BLM eliminated this alternative from detailed analysis because it is contrary to agency policy, and the environmental consequences of the alternative would be substantially similar to other alternatives that are being analyzed.

2.4.5 Additional Open Off-Highway Vehicle Areas

The BLM considered an alternative that would include additional areas open to cross-country off-highway vehicle (OHV) use, such as Wahweap Creek and Smokey Mountain/Big Water. As part of the alternatives development process, the BLM considered OHV open areas in a variety of locations. However, the BLM determined that the majority of other areas recommended as

open to OHV use have resource conflicts that make designation of an OHV open area incompatible with resource management and objectives for other resources. For example, managing the Wahweap Creek area as open to OHV use would conflict with management of the Paria Hackberry WSA and managing the Smokey Mountain/Big Water area as open to OHV use would conflict with the BLM, Glen Canyon NRA, and State management of sensitive soils in these areas. The BLM did carry forward the Little Desert recreation management zone as an OHV open area under some action alternatives.

2.4.6 Manage Herd Management Areas

The BLM considered an alternative that would manage the Harvey's Fear and Moody's Herd Areas as Herd Management Areas (HMAs). The BLM determined that the genetic viability and generally small size of these herds do not support HMA designation or setting Appropriate Management Levels. As a result, the BLM eliminated this alternative from detailed analysis because it was not practical to implement and not consistent with guidance.

2.4.7 Alternatives Submitted during Scoping

During the scoping period, commenters submitted three full alternatives for BLM consideration:

- A “Sustainable Grand Staircase-Escalante Alternative,” which mostly consisted of management from the existing GSENM Approved MMP and ROD (BLM 2000) with some revisions and the Sustainable Grazing Alternative that was submitted during the scoping process for the GSENM Grazing Management Plan in 2016.
- A complete alternative focusing on specific management components using management from the existing GSENM Approved MMP and ROD (BLM 2000) as an outline with proposed management specific to the excluded lands (i.e., KEPA lands).
- A “Conservation Alternative” that was originally submitted to the BLM in 2009 and primarily describes proposed changes in range management for allotments in the Planning Area to reduce livestock grazing and grazing conflicts.

While the BLM is not considering any of these alternatives in their entirety, the BLM has included many of the management recommendations from these alternatives in the range of alternatives. Specifically, Alternative B was heavily influenced by scoping comments that suggested that the agency should consider management actions aimed at maximizing resource protection. Additionally, many of the suggested measures are carried forward into the RMPs/EIS under Alternative A (No Action Alternative).

The range of alternatives considered in this EIS covers the full spectrum of alternatives, including those that were put forward during scoping. The BLM did not carry forward these alternatives in their entirety because they would have effects that are substantially similar to other alternatives that are being analyzed.

2.4.8 Alternatives Considered but Eliminated as Part of the GSENM Grazing Management Plan

Prior to Presidential Proclamation 9682, the BLM was working with Federal, State, and local agencies and stakeholders to prepare a GSENM Grazing Management Plan. With modification of GSENM boundaries through Presidential Proclamation 9682, the grazing planning process was halted prior to a Draft RMP/EIS release. However, during the multi-year planning process, the BLM worked extensively with stakeholders to develop grazing management alternatives in

the Grazing Management Plan. The BLM adopted three alternatives (C, D, and E) from the previous GSENM Grazing Management Plan as alternatives B, C, and D for this RMP. As a result, the alternatives considered but eliminated from detailed analysis from the previous GSENM Grazing Management Plan effort are applicable to these RMPs/EIS and are summarized below.

2.4.8.1 Freeze Grazing Levels and Grazing Management Alternative

An alternative that would freeze grazing levels and grazing systems was suggested during the GSENM Grazing Management Plan alternatives development. Under this concept, grazing levels would be maintained at either the 1981 grazing levels identified in the 1981 Management Framework Plans or at 1996 grazing levels when GSENM was established. This alternative was eliminated from detailed analysis because it would be substantially similar to Alternative A. This alternative is not consistent with laws, rules, and regulations governing the grazing program because it does not provide for future allotment-specific adjustments or allow for the flexibility to adapt to new and emerging issues and opportunities through adaptive management.

2.4.8.2 Enhanced Grazing Management Alternative

An enhanced grazing alternative, which set a goal of 146,000 animal unit months (AUMs), was among several proposals brought forward during the GSENM alternative development workshop. The BLM determined that the enhanced grazing alternative does not represent a feasible or reasonable alternative because the 146,000-AUM goal exceeds the grazing capacity identified for the Planning Area. An enhanced grazing alternative would make all allotments available for grazing and implement vegetation restoration actions, water improvements, seeding restoration with improved grass varieties, and other actions as needed to improve land health and forage production.

The level of development and vegetation treatments needed to more than double forage for livestock is not consistent with BLM policy. FLPMA Section 102(a)(7) requires the BLM to manage renewable resources for sustained yields, and the Planning Area contains ecological communities that have low resistance to, and slow recovery from, disturbance. Extensive vegetation treatments specifically to increase forage would also be inconsistent with other resources and policy direction, including management of WSAs.

WSAs overlay approximately half of the Planning Area, and uses and activities in WSAs are guided by BLM Manual 6330. Grazing is a grandfathered use. Grazing uses and facilities may continue in the same manner and degree as prior to the area's designation as a WSA. Generally, in FLPMA Section 603, WSAs, the BLM will continue to authorize the level of permitted use that was documented on October 21, 1976. There can be no reduction in grazing use levels because of attendant impacts on wilderness characteristics. Temporary increases in authorizations and new livestock developments may be approved only if they meet the non-impairment standard or one of the exceptions, such as protecting or enhancing wilderness characteristics.

2.4.8.3 Conservation Grazing Management Alternative

During scoping for the GSENM Grazing Management Plan, Wild Utah Project submitted an alternative for consideration that it named the Conservation Alternative. The submission was co-signed by several other groups: Western Watersheds Project, Southern Utah Wilderness

Alliance, Yellowstone to Uintas Connection, Sierra Club, Grand Canyon Wildlands Council, Wild Earth Guardians, and Center for Biological Diversity. The proposal includes criteria for determining lands capable and suitable for livestock grazing.

The BLM conducted preliminary analyses on the capability criteria and one of the suitability criteria provided by the Wild Utah Project (and signed by others) to determine whether the proposal was substantially different from other alternatives analyzed in detail. After the preliminary analysis, it was determined that approximately 543,000 acres (24 percent of the Decision Area) would remain suitable for livestock grazing. This analysis did not consider the remainder of the suitability criteria, which would have evolved during full development of the alternative and further reduced the acres suitable for livestock grazing. At that point it was determined that the alternative would be similar to Alternative B, which calls for a substantial reduction in grazing.

Some concepts from the Conservation Alternative are carried forward in or are similar to those in Alternative B in these RMPs/EIS, such as a priority on restoring ecosystem health, a high emphasis on research through the establishment of ungrazed reference areas representative of the dominant ecological sites in the Decision Area, the use of native species only to restore existing seedlings, and management of biological soil crusts for the ecological functions that they provide.

2.4.8.4 Science and Research-Based Grazing Management Alternative

An alternative that focused solely on science and research was proposed during the development of the GSENM Grazing Management Plan. The alternative would implement livestock grazing practices from a scientific perspective and use outcomes to further scientific knowledge. Scientific studies would be developed monument-wide, as well as in those portions of Glen Canyon where the BLM administers livestock grazing.

This alternative on its own does not meet the purpose and need because it does not identify lands as available or unavailable for livestock grazing. The BLM conducts land health assessments and uses the results of these assessments to adjust grazing management or systems where necessary to improve land health. Other data-gathering efforts, such as the Assessment, Inventory, and Monitoring strategy, can also identify areas where changes in management are needed to improve land health or curtail impacts on monument objects. Full implementation of this alternative may also be speculative. It would require willing researchers and funding as well as permittees willing to graze livestock as prescribed by a research plan. While the science and research-based alternative is not considered in detail as a stand-alone alternative, all alternatives, including the No Action Alternative (Alternative A), include a science and research component.

2.4.8.5 Sustainable Multiple Use Grazing Alternative

During scoping, Grand Canyon Trust, the Wilderness Society, and Great Old Broads for Wilderness provided an alternative for consideration titled “The Sustainable Multiple Use Grazing Alternative” for detailed analysis and requested that it be analyzed unaltered alongside other alternatives considered. As described, this alternative would allow for continued livestock grazing in the Planning Area while reducing environmental damage associated with current grazing management. This alternative emphasized the following:

- Management would prioritize native species diversity.

- Livestock grazing would be managed to protect monument objects.
- Best available science would be used to inform management of grazed and ungrazed areas.
- A diversity of interested publics would be encouraged to engage in management of livestock grazing.
- A diversity of grazing arrangements would be used.
- A number and variety of ungrazed reference areas would be established over time.

During land use planning, the BLM is directed to identify lands as available or unavailable for livestock grazing considering factors such as terrain, soil, vegetation, and watershed characteristics; the presence of other resources that may require special management; and other uses for the land. Once a land use decision is made to identify those lands, they remain available or unavailable for the life of the plan or until an amendment to the plan is made. This alternative sought provisional determinations of allotments being available or unavailable for livestock grazing due to shifting resource conditions. These determinations would have been predicated on comparing grazed areas to ungrazed reference areas. The reference areas would have been determined after this planning effort was finalized. Only areas currently unavailable and unallotted areas would be identified as unavailable under this alternative. Therefore, at its core, this alternative would not make land use decisions per BLM land use planning guidance.

Additionally, some of the items included in this alternative were not land use planning decisions, as they were either administrative decisions or site-specific, implementation-level decisions, many of which are made during the permit renewal process. These types of decisions are not within the scope of this planning effort. This alternative also included actions for public engagement, including actions that are already required by laws and policies, such as providing public comment opportunities for environmental assessments. Others would diminish a manager's discretion as to how to handle public engagement opportunities. None of the items included are land use planning decisions. While the BLM has decided not to carry this alternative forward for detailed analysis in its unaltered state, many of the goals, objectives, and concepts provided in it form the basis for Alternative B management in these RMPs/EIS. These include managing livestock grazing to protect monument objects and prevent degradation of native species diversity and ecosystem function, utilizing the best science available, establishing ungrazed reference areas representative of the dominant ecological sites in the Decision Area, restoring existing seedlings using only native species, managing biological soil crusts for the ecological functions that they provide, and using a diversity of grazing systems.

2.5 Summary Environmental Consequences by Alternative

Refer to Table ES-2 in the Executive Summary for a tabular description and comparison of environmental consequences across the alternatives and refer to Chapter 3, *Affected Environment and Environmental Consequences*, for a detailed description of potential environmental consequences.

3 Affected Environment and Environmental Consequences

3.0 Introduction

This chapter describes the existing conditions for the Bureau of Land Management (BLM) resources, resource uses, special designations, and social and economic conditions within the Planning Area that may be affected by the alternatives presented in Chapter 2, *Alternatives*. For a more detailed discussion of existing conditions within the Planning Area, refer to the Grand Staircase-Escalante National Monument (GSENM) and Kanab-Escalante Planning Area (KEPA) *Analysis of the Management Situation (AMS)* (BLM 2018b). This chapter also describes the effects that may result from implementing the action alternatives (alternatives B, C, or D), or continuing with current management (Alternative A). The affected environment and environmental consequences have been combined in this chapter to provide a concise and parallel description of existing resource conditions and the impacts on them under each alternative.

3.0.1 Analytical Assumptions

A National Environmental Policy Act (NEPA) analysis is used to inform a Federal agency decision and may be conducted on a programmatic (large-scale) level or site-specific level. A programmatic NEPA analysis is intended to address general environmental issues relating to broad decisions and can effectively frame the scope of subsequent site- and project-specific Federal actions. A programmatic analysis is appropriate for the Resource Management Plans (RMPs) due to:

- The large size of the Planning Area
- The programmatic nature of the management plan alternatives, which do not identify the exact locations of future implementation actions
- The unknown locations of future development activities in the Planning Area
- The lack of current, detailed data that are available across the entire Planning Area
- The need to consider programmatic environmental change agents such as climate change, wildfire, and invasive species
- The need to focus the scope of alternatives, environmental effects analysis, and mitigation in subsequent tiered levels of NEPA review
- Following the signing of the Record of Decision (ROD) for the RMPs/Environmental Impact Statement (EIS), the BLM will consider specific implementation-level plans and projects. The BLM's decisionmaking process for these activities will include appropriate site-specific NEPA review.
- Due to the programmatic nature of this document, several assumptions were made to facilitate the analysis of potential effects. These assumptions set guidelines for the analysis and are disclosed to provide a basis for the conclusions reached in this chapter.
Assumptions common to all alternatives and all resources are listed below, whereas assumptions unique to specific resources and resource uses are listed under the Methods and Assumptions section in the resource sections.

- Environmental consequences descriptions focus on key issues in order to streamline the analysis in accordance with Secretarial Order 3355 and to highlight the key issues of concern for the public, the BLM, and cooperating agencies. If a particular impact is not discussed for a given resource, it is either because no impacts are expected, the anticipated impact was not identified as a key issue at this programmatic scale of analysis, or there is no meaningful difference in impacts by alternative.
- The analysis of impacts focuses on the anticipated effects of management actions and allowable uses proposed under each alternative. The effects of past and present actions are in the description of existing conditions (Affected Environment).
- Discussions of impacts are based on best available existing data. Knowledge of the Planning Area and professional judgment, which are based on observations and analyses of conditions and responses in similar geographic locations, are used to infer environmental effects when data are limited.
- The BLM will implement all applicable standard operating procedures, best management practices (BMPs), and mitigation (Appendix G, *Best Management Practices*, and Appendix I, *Monitoring Strategy*). The analysis incorporates the BMPs included in Appendix G, *Best Management Practices*.
- Sufficient funding and personnel will be available to implement the selected alternative.
- Demand for recreational activities (both dispersed and concentrated), energy production, and mineral development will increase during the life of the RMPs.
- Geospatial data boundaries may have slight overlaps and gaps where features should align and share a boundary. As a result, there may be a small margin of error associated with geographic information system (GIS)-derived acreage calculations.
- For Alternative A, management of the entire Planning Area would continue under the direction of the GSENM Approved Monument Management Plan (MMP) and ROD (BLM 2000), to the extent that the plan is consistent with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682. Under Presidential Proclamation 9682, lands within KEPA are no longer withdrawn from mineral location, entry, disposal, or leasing. Despite the fact that the all mineral related withdrawals have been lifted, for the purposes of analysis, under Alternative A, it is assumed that the entire KEPA would be closed to mineral material sales and mineral leasing because these are discretionary uses that are not allowed under the existing Approved MMP and ROD (BLM 2000). Conversely, staking of mining claims, casual exploration, notice level activity, and plans of operation could occur; however, the BLM would be required to complete project-specific NEPA review and analysis to approve a proposed plan of operations.

3.0.2 Types of Impacts Addressed

Impacts are defined as modifications to the existing environment brought about by implementing an alternative. Impacts may result from the action directly, indirectly, or cumulatively with other actions, can be beneficial or adverse, and can be characterized as long-term or short-term impacts. Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500–1508) require NEPA reviews to analyze direct, indirect, and cumulative impacts for all resources that make up the human environment. In general, direct impacts result from BLM-authorized activities and generally occur at the same time and place as the management activity or action causing the impact. Indirect impacts often occur at some distance or time from the action, but are still

reasonably foreseeable and have a cause and effect relationship with the action. Short-term impacts occur during or after the activity or action and may continue for up to 5 years. Long-term impacts occur beyond the first 5 years, an approximation of the time required to restore or reclaim an area following surface disturbance. Cumulative impacts are the direct and indirect impacts of a proposed project's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

3.0.3 Allocations and Resource Use Acreages by Alternative

To reduce redundancy and streamline the impact analysis, Table 3-1 is provided to summarize commonly cited allocation and resource use acreages that are likely to affect resources or resource programs. While unique impacts and acreages are included in each resource impact section, Table 3-1 is frequently referenced throughout this chapter.

Table 3-1. Summary of Allocations and Resource Use Acreages by Alternative

Resource Use	Alternative A	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Rights-of-Way				
Exclusion	Planning Area Total: 1,264,502 EC: 232,263 KP: 494,516 GS: 85,921 KE: 451,802	Planning Area Total: 1,676,040 EC: 237,768 KP: 547,357 GS: 130,600 KE: 760,314	Planning Area Total: 892,221 EC: 190,031 KP: 413,257 GS: 75,501 KE: 213,432	Planning Area Total: 883,808 EC: 184,826 KP: 441,888 GS: 74,860 KE: 212,235
Avoidance	Planning Area Total: 601,744 EC: 10,562 KP: 56,511 GS: 124,041 KE: 410,629	Planning Area Total: 190,205 EC: 5,057 KP: 3,670 GS: 79,362 KE: 102,117	Planning Area Total: 397,076 EC: 17,969 KP: 101,619 GS: 39,550 KE: 237,938	Planning Area Total: 338,446 EC: 13,139 KP: 94,219 GS: 31,796 KE: 199,293
Open	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 576,949 EC: 34,826 KP: 36,151 GS: 94,911 KE: 411,061	Planning Area Total: 643,992 EC: 44,860 KP: 44,921 GS: 103,307 KE: 450,904
Designated Utility Corridors	Planning Area Total: 11,012 EC: 0 KP: 0 GS: 0 KE: 11,012	Planning Area Total: 11,012 EC: 0 KP: 0 GS: 0 KE: 11,012	Planning Area Total: 11,012 EC: 0 KP: 0 GS: 0 KE: 11,012	Planning Area Total: 11,012 EC: 0 KP: 0 GS: 0 KE: 11,012
Renewable Energy				
Exclusion	Planning Area Total: 1,455,616 EC: 242,825 KP: 551,027 GS: 209,962 KE: 451,802	Planning Area Total: 1,807,813 EC: 242,825 KP: 551,027 GS: 209,963 KE: 803,998	Planning Area Total: 1,217,246 EC: 242,825 KP: 551,027 GS: 209,962 KE: 213,432	Planning Area Total: 1,216,049 EC: 242,825 KP: 551,027 GS: 209,962 KE: 212,235
Variance	Planning Area Total: 410,629 EC: 0 KP: 0 GS: 0 KE: 410,629	Planning Area Total: 58,433 EC: 0 KP: 0 GS: 0 KE: 58,433	Planning Area Total: 237,938 EC: 0 KP: 0 GS: 0 KE: 237,938	Planning Area Total: 199,293 EC: 0 KP: 0 GS: 0 KE: 199,293
Open	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 411,061 EC: 0 KP: 0 GS: 0 KE: 411,061	Planning Area Total: 450,904 EC: 0 KP: 0 GS: 0 KE: 450,904

Resource Use	Alternative A	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Livestock Grazing⁽¹⁾				
Available for Grazing (Total)	2,039,014	1,604,094	2,045,796	2,120,591
Available for Grazing (Total - GSENM Only)	926,404	714,408	927,564	977,056
Available for Grazing	EC: 173,066 KP: 546,711 GS: 206,627 KE: 831,566 KFO: 38,751 Glen Canyon: 228,505 ⁽¹⁾ AZ Strip: 2,317 ⁽¹⁾	EC: 112,340 KP: 421,649 GS: 180,419 KE: 675,684 KFO: 34,192 Glen Canyon: 168,567 ⁽¹⁾ AZ Strip: 2,317 ⁽¹⁾	EC: 174,993 KP: 544,338 GS: 208,233 KE: 847,090 KFO: 38,758 Glen Canyon: 218,596 ⁽¹⁾ AZ Strip: 2,317 ⁽¹⁾	EC: 221,863 KP: 546,960 GS: 208,233 KE: 847,230 KFO: 54,012 Glen Canyon: 228,505 ⁽¹⁾ AZ Strip: 2,317 ⁽¹⁾
Unavailable for Grazing (Total - All Units)	137,339	607,226	161,545	106,927
Unavailable for Grazing	EC: 37,550 KP: 4,427 GS: 0 KE: 6,722 KFO: 6 Glen Canyon: 88,633 ⁽¹⁾ AZ Strip: 0 ⁽¹⁾	EC: 128,578 KP: 117,035 GS: 29,279 KE: 175,032 KFO: 4,578 Glen Canyon: 150,179 ⁽¹⁾ AZ Strip: 0 ⁽¹⁾	EC: 51,309 KP: 6,801 GS: 1,464 KE: 6,722 KFO: 13 Glen Canyon: 95,236 ⁽¹⁾ AZ Strip: 0 ⁽¹⁾	EC: 4,451 KP: 4,178 GS: 1,464 KE: 6,592 KFO: 0 Glen Canyon: 90,242 ⁽¹⁾ AZ Strip: 0 ⁽¹⁾
Minerals				
Open to Mineral Leasing with Moderate Constraints	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 25,145 EC: 0 KP: 0 GS: 0 KE: 25,145	Planning Area Total: 278,385 EC: 0 KP: 0 GS: 0 KE: 278,385	Planning Area Total: 551,582 EC: 0 KP: 0 GS: 0 KE: 551,582
Open to Mineral Leasing with Major Constraints	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 272,506 EC: 0 KP: 0 GS: 0 KE: 272,506	Planning Area Total: 380,242 EC: 0 KP: 0 GS: 0 KE: 380,242	Planning Area Total: 108,230 EC: 0 KP: 0 GS: 0 KE: 108,230
Closed/Withdrawn to Mineral Leasing	Planning Area Total: 1,874,056 EC: 243,083 KP: 549,995 GS: 211,119 KE: 869,529	Planning Area Total: 1,576,075 EC: 243,083 KP: 549,995 GS: 211,119 KE: 571,878	Planning Area Total: 1,215,099 EC: 243,083 KP: 549,995 GS: 211,119 KE: 210,902	Planning Area Total: 1,213,914 EC: 243,083 KP: 549,995 GS: 211,119 KE: 209,717

Resource Use	Alternative A	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Unsuitable /Non-Unsuitable for Surface Coal Mining	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 75,076 / 66,097 EC: 0 KP: 0 GS: 0 KE: 75,076 / 66,097	Planning Area Total: 75,076 / 66,097 EC: 0 KP: 0 GS: 0 KE: 75,076 / 66,097	Planning Area Total: 75,076 / 66,097 EC: 0 KP: 0 GS: 0 KE: 75,076 / 66,097
Open to Mineral Material Disposal	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 623,917 EC: 0 KP: 0 GS: 0 KE: 623,917	Planning Area Total: 654,975 EC: 0 KP: 0 GS: 0 KE: 651,975
Closed to Mineral Material Disposal/ Closed to Commercial / Open to Community Pits	Planning Area Total: 1,870,958 / 7,870,958 EC: 242,792 / 242,792 KP: 549,402 / 549,402 GS: 210,379 / 210,379 KE: 868,385 / 868,385	Planning Area Total: 1,870,798 / 178,580 EC: 242,792 / 99 KP: 549,402 / 261 GS: 210,379 / 0 KE: 868,385 / 178,623	Planning Area Total: 1,312,538 / 467,893 EC: 242,792 / 242,720 KP: 549,402 / 37,507 GS: 210,379 / 565 KE: 244,347 / 255,335	Planning Area Total: 1,215,983 / 2,833 EC: 242,792 / 2,833 KP: 549,402 / 0 GS: 210,379 / 0 KE: 225,394 / 0
Travel and Transportation Management				
Open (Planning Area Total)	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 116 EC: 0 KP: 0 GS: 0 KE: 116	Planning Area Total: 2,528 EC: 0 KP: 0 GS: 0 KE: 2,528
Closed (Planning Area Total)	Planning Area Total: 1,210,137 EC: 227,201 KP: 456,448 GS: 82,011 KE: 444,476	Planning Area Total: 1,417,124 EC: 233,131 KP: 523,167 GS: 93,195 KE: 567,631	Planning Area Total: 64,801 EC: 50,420 KP: 8,485 GS: 2,594 KE: 3,302	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0
Limited to Designated Routes (Planning Area Total)	Planning Area Total: 655,408 EC: 15,552 KP: 94,431 GS: 127,889 KE: 417,536	Planning Area Total: 448,955 EC: 9,694 KP: 27,860 GS: 116,767 KE: 292,634	Planning Area Total: 1,801,163 EC: 192,405 KP: 542,543 GS: 207,369 KE: 858,847	Planning Area Total: 1,863,552 EC: 242,825 KP: 551,027 GS: 209,962 KE: 859,738
Visual Resource Management				
VRM Class I	Planning Area Total: 937,517 EC: 196,893 KP: 441,263 GS: 77,638 KE: 221,723	Planning Area Total: 1,416,637 EC: 232,965 KP: 522,523 GS: 92,495 KE: 568,654	Planning Area Total: 881,142 EC: 184,809 KP: 411,888 GS: 74,738 KE: 209,707	Planning Area Total: 867,799 EC: 184,809 KP: 409,529 GS: 74,738 KE: 207,723

Resource Use	Alternative A	Alternative B	Alternative C	Alternative D (Preferred Alternative)
VRM Class II	Planning Area Total: 569,417 EC: 40,283 KP: 45,478 GS: 123,980 KE: 359,676	Planning Area Total: 333,082 EC: 9,726 KP: 18,556 GS: 95,087 KE: 209,713	Planning Area Total: 651,308 EC: 53,349 KP: 72,323 GS: 110,425 KE: 415,211	Planning Area Total: 436,664 EC: 53,352 KP: 54,312 GS: 106,469 KE: 222,531
VRM Class III	Planning Area Total: 357,124 EC: 5,454 KP: 64,153 GS: 8,193 KE: 279,324	Planning Area Total: 75,286 EC: 77 KP: 9,867 GS: 22,318 KE: 43,024	Planning Area Total: 163,172 EC: 4,611 KP: 9,121 GS: 14,485 KE: 134,955	Planning Area Total: 328,507 EC: 4,607 KP: 19,027 GS: 16,910 KE: 287,963
VRM Class IV	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 40,830 EC: 0 KP: 0 GS: 0 KE: 40,830	Planning Area Total: 170,214 EC: 0 KP: 57,615 GS: 10,251 KE: 102,348	Planning Area Total: 223,864 EC: 0 KP: 68,078 GS: 11,782 KE: 144,004
Special Designations				
Areas of Critical Environmental Concern	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 308,683 EC: 0 KP: 0 GS: 0 KE: 308,683	Planning Area Total: 130,995 EC: 0 KP: 0 GS: 0 KE: 130,995	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0
National Historic Trails, including Trail Management Corridor	Planning Area Total: 0 EC: 0 KP: 0 GS: 0 KE: 0	Planning Area Total: 76,247 EC: 0 KP: 2,113 GS: 12,878 KE: 61,256	Planning Area Total: 21,238 EC: 0 KP: 409 GS: 2,949 KE: 17,879	Planning Area Total: 1,863 EC: 0 KP: 50 GS: 404 KE: 1,409
Wild and Scenic Rivers (miles)	Planning Area Total: 224 EC: 131 KP: 44 GS: 20 KE: 29	Planning Area Total: 224 EC: 131 KP: 44 GS: 20 KE: 29	Planning Area Total: 224 EC: 131 KP: 44 GS: 20 KE: 29	Planning Area Total: 224 EC: 131 KP: 44 GS: 20 KE: 29
Wilderness Study Areas	Planning Area Total: 881,159 EC: 184,826 KP: 411,888 GS: 74,738 KE: 209,707	Planning Area Total: 881,159 EC: 184,826 KP: 411,888 GS: 74,738 KE: 209,707	Planning Area Total: 881,159 EC: 184,826 KP: 411,888 GS: 74,738 KE: 209,707	Planning Area Total: 881,159 EC: 184,826 KP: 411,888 GS: 74,738 KE: 209,707

Note: Geospatial data boundaries may have slight overlaps and gaps where features should align and share a boundary. As a result, there may be a small margin of error.

¹These acreages are included because GSENM has administrative responsibility for livestock grazing in these portions of the BLM's Kanab Field Office, Arizona Strip Field Office, and National Park Service-managed lands in Glen Canyon National Recreation Area (Glen Canyon).

EC – Escalante Canyons Unit, KFO – Kanab Field Office, KP – Kaiparowits Unit, GS – Grand Staircase Unit, KE – Kanab-Escalante Planning Area, GSENM – Grand Staircase-Escalante National Monument, VRM – Visual Resource Management

3.1 Air Resources

3.1.1 Affected Environment

The analysis area for air resources includes Garfield and Kane Counties, encompassing the Planning Area plus the nearby Class I and Sensitive Class II areas of Bryce Canyon National Park, Zion National Park, Capitol Reef National Park, Box Death Hollow Wilderness Area, Kanab Creek Wilderness Area, and Glen Canyon National Recreation Area (NRA) as designated under the Prevention of Significant Deterioration program of the Clean Air Act (Map 2, Air Quality Sensitive Receptor Areas). Refer to Chapter 2, Section 2.2.1, *Air Quality* (pages 5–12), in the GSENM and KEPA AMS (BLM 2018b) for information on Class I designations and other regulatory programs and requirements.

Air quality in the analysis area is good, typical of undeveloped regions in the western United States. Garfield and Kane Counties are designated by the U.S. Environmental Protection Agency (EPA) as attainment (meeting the standards) or unclassified for all National Ambient Air Quality Standards (NAAQS). Table 3.1-1 shows the most recent estimate of total emissions for the two-county region. Volatile organic compounds (VOCs) make up the largest quantity of criteria pollutant emissions in both counties and originate mostly from biological sources such as vegetation and soils, along with the burning of fuels such as gasoline, coal, natural gas, and wood (UDAQ 2017). Many VOCs are hazardous air pollutants (HAPs). VOCs can also combine with nitrogen oxides (NO_x) in the atmosphere to form ground-level ozone. While neither Garfield County nor Kane County has violated the ozone NAAQS, ground-level ozone is a regional issue affecting Utah and surrounding States. Therefore, ozone and its precursors (VOCs and NO_x) are pollutants of concern. The analysis area experiences high winds from the south during spring and summer, which reduce the probability of ground-level ozone formation during these seasons. Refer to Appendix M, *Air Quality Technical Support Document*, for more information on wind speed and direction in the analysis area.

Table 3.1-1. 2014 Criteria Pollutant Emissions (tons per year)

Criteria Pollutant	Kane County	Garfield County
Carbon monoxide	12,471.19	12,654.67
Nitrogen oxides	854.50	650.01
Particulate matter 10 microns or less in diameter	1,544.46	2,186.49
Particulate matter 2.5 microns or less in diameter	234.61	379.19
Sulfur oxides	12.29	3.83
Volatile organic compounds	46,630.31	44,283.16

Source: UDAQ 2017

Particulate matter (both 10 [PM₁₀] and 2.5 [PM_{2.5}] microns or less in diameter) is also a pollutant of concern. Local population centers and areas immediately surrounding surface-disturbing activities are the most vulnerable to increased particulate matter concentrations, likely attributable to fugitive dust resulting from high traffic volumes and poor vegetative cover. The BLM regularly authorizes surface-disturbing projects but applies mitigation measures to reduce the potential for fugitive dust creation. Fugitive dust can be found across the analysis area from wildfire events and during times of high wind. All prescribed burns occurring in the Planning Area are managed in compliance with guidelines in the *Utah Smoke Management*

Plan (UDAQ 2006) to ensure application of mitigation measures and to reduce adverse impacts on public health and safety and visibility.

The use of equipment powered by internal combustion engines, such as cars, construction equipment and off-highway vehicles (OHVs) contribute carbon monoxide (CO), carbon dioxide (CO₂), and NO_x emissions to the analysis area. On-road, off-road, and area sources are responsible for the majority of all NO_x emissions in Garfield and Kane Counties. Sulfur oxide levels are not currently of concern in either Garfield County or Kane County (Table 3.1-1). Refer to Chapter 2, Section 2.2.1, *Air Quality* (pages 5–12), in the AMS (BLM 2018b) for more information on criteria pollutant levels, sources, and the NAAQS in Garfield and Kane Counties.

Ozone levels have been decreasing in the analysis area since 2002; however, concentrations remain near the NAAQS and exceedances of the current 70 parts per billion standard have previously been recorded. Visibility has been monitored in nearby Class I areas and has shown to be improving on the clearest days since 1999 (NPS 2010). Atmospheric deposition levels, as measured in Bryce Canyon National Park over the same time frame, have shown a statistically significant decrease in sulfate deposition. Data also shows a decrease in nitrate deposition and an increase in ammonium deposition, although these are not statistically significant trends (NPS 2010). Population growth is forecasted in the analysis area and the associated increases in tourism, recreation, and resource development would likely contribute to increased concentrations of all criteria pollutants (BLM 2018b).

3.1.1.1 Climate Change

Climate in the analysis area is similar to that of the Great Basin and falls within the Colorado Plateau ecoregion. The area experiences hot summers and receives the majority of precipitation in the winter and summer. Annual precipitation amounts vary with elevation, with the largest areas of the ecoregion receiving between 10 and 20 inches. The Earth is experiencing long-term warming trends globally with increasing anthropogenic greenhouse gas (GHG) emissions, and the Colorado Plateau ecoregion will be similarly affected. Lands within the analysis area range from moderate-low to very high climate change potential (Map 75, Long-Term Potential for Climate Change). Warming between 33 degrees Fahrenheit ($^{\circ}$ F) (0.6 degrees Celsius [$^{\circ}$ C]) and 34 $^{\circ}$ F (1.2 $^{\circ}$ C) is expected throughout the region by 2060 (Bryce et al. 2012). Precipitation levels are expected to decline throughout much of the year during the 2015 to 2030 time period, resulting in severe drought in some areas. Drier conditions will remain, with sporadic wetter months through 2060 (Bryce et al. 2012). Refer to Chapter 2, Section 2.2.2, *Climate Change* (pages 13–15), in the AMS (BLM 2018b) for more information on GHGs, global warming potential, and climate change modeling predictions in the Colorado Plateau ecoregion.

3.1.2 Environmental Consequences

3.1.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on air quality and climate change from a scenario utilizing the reasonably foreseeable development (RFD) for minerals (BLM 2018c) and other conservative management assumptions. When assessing effects on air resources, it is important to consider the cumulative air pollutant emissions or reductions from all other program-specific management decisions.

3.1 Air Resources

To meet obligations in the National Memorandum of Understanding Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the NEPA Process, the BLM formed an Air Resources Technical Advisory Group (AiRTAG) consisting of representatives from the U.S. Forest Service, the National Park Service (NPS), the U.S. Fish and Wildlife Service (USFWS), and the EPA. Additionally, the BLM consulted with the Utah Division of Air Quality. Potential emissions from oil and gas development and for a coal mine in lands removed from GSENM were reviewed by AiRTAG. After reviewing the emissions inventory, the BLM and AiRTAG decided to perform a near-field modeling analysis to better understand potential impacts on nearby communities and Class I areas. Far-field modeling was determined to not be necessary based on the emissions inventory and the speculative nature or development at the RMP stage. If development activity exceeds what was anticipated in the RFD and in this EIS, additional cumulative far-field modeling may be required. In addition, prior to project-specific approval, additional air quality analyses may be required to comply with NEPA, the Federal Land Policy and Management Act (FLPMA), and/or other applicable laws and regulations.

Impacts on air resources would primarily result from changes in mineral activity. Emissions resulting from these changes were quantified in an emissions inventory. The emissions calculations were based on the best available data; air, visibility, and emission inventory procedures; and professional and scientific judgment. Assumptions were used when specific data or procedures were unavailable. The calculations used emissions factors that are accepted and recognized by State and Federal regulatory agencies and were calculated for the BLM's predicted maximum emissions scenario, as defined by the *Mineral Potential Report* (BLM 2018c). Potential air quality and visibility impacts on nearby Class I and Sensitive Class II areas and population centers from minerals activities were assessed through the use of EPA-preferred near-field models. Refer to Appendix M, *Air Quality Technical Support Document*, for more information on emissions inventory calculations and air quality modeling performed.

Air pollutant emissions could also result from changes in levels of recreation, travel, prescribed fire, or livestock grazing. Emissions from these sources are analyzed qualitatively by describing the relative magnitude of emissions changes compared with current management, and indicating the extent of potential impacts. All analyses consider emissions of criteria pollutants as well as GHGs.

This analysis uses the following assumptions:

- A total of 14 oil and gas wells (four exploration and ten new development wells) could be drilled during the next 15 years (BLM 2018c).
- Coal production could be 3 to 5.5 million tons per year for an underground mine covering roughly 10,000 acres (BLM 2018c).
- The RFD of 10 producing oil and gas wells (and four exploratory wells) and one coal mine would vary by alternative because mineral development constraints vary between the alternatives. Alternative D assumes that all 10 producing oil and gas wells (and four exploratory wells) and the coal mine would be developed. Alternative C assumes the development of 5 oil and gas production wells and no coal mine. Alternative B assumes the development of 2 oil and gas wells and no coal mine.
- There is a correlation between global concentrations of GHGs and climate change. However, it is not currently possible to link projected GHG emissions associated with any particular activity to specific environmental impacts at a specific site or location.

3.1.2.2 Direct and Indirect Effects

Management of mineral development, fire and fuels, lands and realty, livestock grazing, recreation, and transportation have the potential to result in direct and indirect impacts on air quality and climate through changes in emissions levels. Management decisions that institute constraints on resource uses (e.g., limiting surface disturbance on lands with wilderness characteristics) would limit the potential adverse impacts on air resources from increased air pollutant emissions.

Impacts from Changes in Emissions from Minerals Development Activity

In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, the lands within the monument remain withdrawn from mineral location, entry, disposal, and leasing; therefore, there is no anticipated new minerals development activity in GSENM. Short- and long-term direct and indirect impacts on air resources could result from an increase in minerals development activity in KEPA, which is no longer withdrawn as a result of Presidential Proclamation 9682. Impacts could result from the emissions of criteria pollutants including NO_x, CO₂, CO, particulate matter, fugitive dust, HAPs, and GHGs, resulting largely from the heavy equipment activity during drilling and construction phases, the increased traffic on unpaved and paved roads, and well flaring. Compression activities, including burning of natural gas, could increase emissions of NO_x, CO, and CO₂, while any glycol operations or flashing could increase emissions of particulate matter, CO, NO_x, and VOCs. Emissions of criteria pollutants can negatively affect human and vegetative health. Coal development in KEPA would increase criteria pollutant emissions and also increase GHG emissions that could contribute to climate change. Other leasable mineral development in KEPA would also contribute to these adverse impacts, and could result in additional adverse impacts through the emission of HAPs.

Alternative B would increase the potential for mineral leasing and mineral material sales compared to Alternative A. Mineral leasing and mineral material sales would result in increased particulate matter, fugitive dust, NO_x, CO₂, VOCs, and other pollutants from development, production, and mineral-related traffic. However, Alternative B places the greatest constraints on mineral leasing and mineral material sales. Emissions associated with locatable mineral development are expected to be similar to those under Alternative A, but to a lesser degree due to the 485,422 acres of recommended locatable mineral withdrawals in KEPA under Alternative B. As a result, overall emissions associated with minerals development are expected to be minimal under Alternative B. Alternative C would reduce the extent of mineral constraints and the area recommended for mineral location withdrawal in KEPA (210,676 acres) compared to alternatives A and B. As a result, Alternative C could increase the potential for mineral development and mineral-related emissions. Alternative D places the fewest constraints on mineral leasing and mineral material sales compared to the other alternatives. Alternative D also decreases the area recommended for mineral location withdrawal (225 acres). As a result, Alternative D could increase the potential for mineral-related emissions compared to the other alternatives.

Due to the limited extent of anticipated minerals development under alternatives A, B, and C, there would be no anticipated exceedances of NAAQS associated with minerals development in KEPA. Under Alternative D, air quality modeling indicates that development of the reasonably foreseeable mineral projects (BLM 2018b) could contribute to a short-term localized exceedance of the 1-hour NO₂ NAAQS. Due to the short duration of activities that would lead to

3.1 Air Resources

this modeled exceedance of NO₂, it is not likely that minerals development activities would result in an NAAQS violation. There were no other potential NAAQS exceedances identified due to the reasonably foreseeable minerals development projects (BLM 2018b) under Alternative D. The potential impacts at nearby Class I areas would also be below the applicable Prevention of Significant Deterioration increments. Short-term exposure to HAPs is not likely to be of concern under any alternative. Refer to Appendix M, *Air Quality Technical Support Document*, for more information.

Estimated impacts on visibility from reasonably foreseeable minerals development in KEPA are below the applicable Federal Land Manager's Air Quality Related Values Work Group project level thresholds for distant Class I areas (USFS et al. 2010). Based on air quality modeling, minerals activity under Alternative D has the potential to produce a perceptible plume in contrast with the sky and terrain in Bryce Canyon National Park. This could occur as a result of the overlap between oil and gas completion activities and days of adverse meteorological conditions and would therefore be a rare occurrence. No adverse impacts from reductions in visibility are expected in the other nearby Class I or Sensitive Class II areas. The potential for visibility impacts would be reduced under alternatives C, B, and A due to additional constraints placed on minerals development that may reduce the extent of development under those alternatives. Refer to Appendix M, *Air Quality Technical Support Document*, for more information on near-field modeling results.

Closing areas to mineral material disposals could increase emissions by requiring maintenance/construction projects in the Planning Area to obtain materials from sources that are farther away, thus increasing vehicle travel distances and associated emissions. These impacts would be greatest under alternatives B and C due to the closing of 868,225 acres and 309,965 acres to mineral material disposals in KEPA, respectively.

Climate change is a global issue and while Alternative D would increase GHG emissions compared to the other alternatives, the relatively low level of RFD (BLM 2018b) and associated GHG emissions is not expected to notably affect regional or global climate change.

Application of mineral development and air quality BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect adverse impacts on air resources from increased emissions. For example, applying best available control technologies would minimize air pollutant emissions and utilizing directional drilling would decrease the acreage of surface disturbance from oil and gas well pads and reduce fugitive dust.

Impacts from Changes in Emissions from Non-Mineral Related Activity

The use of prescribed fire and wildland fire management could cause short- and long-term adverse impacts from emissions of particulate matter, CO, and GHGs. The extent of adverse impacts from emissions would depend on the size of the fire and meteorological conditions (e.g., wind). Fire-suppression activities may also increase the use of heavy equipment on unpaved roads and result in emissions of particulate matter, CO, NO_x, and HAPs. Vegetation management treatments would cause short-term adverse impacts by temporarily increasing particulate matter emissions, but would provide long-term beneficial impacts on air resources by aiding vegetation resiliency and soil stabilization. Management actions that improve soil and vegetation health or increase biomass could improve carbon sequestration and result in long-term beneficial impacts by mitigating climate change effects in the Planning Area.

(Environmental News Network 2016; McDermot and Elavarthi 2014). Fire and vegetation management would occur under all alternatives, and air pollutant emissions would occur regardless of the alternative selected. Guidance and BMPs would help to mitigate adverse impacts.

Livestock grazing and livestock grazing management (e.g., the maintenance or development of range improvement) generate both vehicular exhausts and dust. These activities, along with enteric fermentation from livestock, also create GHGs. Higher grazing densities and climate change can also lead to destruction of biological soil crusts, leaving the Planning Area more susceptible to particulate matter emissions from windblown dust (Memmott et al. 1998; Rutherford et al. 2017). The Planning Area is available for livestock grazing under all alternatives, though to varying degrees. Alternative D allows the most livestock grazing utilization, followed by Alternative C, Alternative A, and Alternative B (see Table 3-1).

The use of OHVs for recreational and other purposes could cause fugitive dust and vehicular exhaust emissions of particulate matter, CO, and NO_x. An increase in OHV use could be accompanied by increased criteria pollutant emissions and increased levels of fugitive dust. To the extent that levels of OHV use are affected by the mileage of routes available for travel, Alternative D would result in the greatest potential for impacts because OHV use would be allowed in more areas than other alternatives. OHV use and associated emissions would be lowest under Alternative A, Alternative B, and Alternative C, respectively. The amount of OHV use in the Planning Area is also driven by increases in visitation that will occur under all alternatives. As a result, emissions from OHV use would likely be similar under all alternatives.

The BLM will utilize an adaptive management approach (Appendix I, *Monitoring Strategy*; Appendix H, *Stipulations and Exceptions, Modifications, and Waivers*) to limit potential adverse impacts from resource development and associated changes in emissions. If projects are proposed that could result in adverse impacts on air quality, additional analyses would occur during project-specific permitting. Site-specific permitting may prescribe additional stipulations or mitigation measures to reduce emissions and associated impacts in the Planning Area, nearby Class I and Sensitive Class II areas, and nearby population centers.

3.1.2.3 Cumulative Effects

The cumulative impacts analysis area for air resources is Garfield and Kane Counties, as well as the nearby Class I and Sensitive Class II areas. This area encompasses emissions from various sources within the region that may contribute to emissions and affect air quality concentrations and air quality-related values throughout the region. Trending increases in visitation in the analysis area will continue to result in increases in vehicle-related emissions and contributions to cumulative impacts. Historic grazing, vegetation treatments, and recreation (including OHV) management plans and the upcoming Capitol Reef National Park Livestock Grazing and Trailing Management Plan could also contribute to cumulative air quality levels if these plans result in management that increases emissions-generating activities (Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*). These activities, along with other potential development activities in the analysis area such as minerals development and construction of pipelines (e.g., Lake Powell pipeline) and transmission lines, could affect ambient air quality, visibility, and atmospheric deposition if they continue to increase with upward trends in population density. Air quality and climate change are also affected by emissions generated outside of the analysis area, which

could include anthropogenic sources (e.g., commercial activities, power generation) and natural sources (e.g., fires). Among the alternatives, Alternative D would increase contributions to cumulative emissions and associated air quality impacts more than the other alternatives. Impacts from climate change would be mitigated through continued observation and science-based adaptive management actions.

3.2 Cultural Resources

3.2.1 Affected Environment

The analysis area for cultural resources is the Planning Area. Cultural and heritage resources within the Planning Area span the period of human occupation of the region. Previous inventories indicate that there are 3,179 known cultural resources sites within the Planning Area. Of this total there are 483 cultural resources in the Escalante Canyons Unit; 430 in the Grand Staircase Unit; 1,010 in the Kaiparowits Unit; and 1,256 in KEPA. Refer to Appendix 1 (Maps), Map 3, Cultural Resources (page 215), in the AMS (BLM 2018b) for more information.

The human occupation in the Planning Area began during the Paleoindian period (11,500–9,500 B.C.). Paleoindian sites are rare in the Planning Area and primarily consist of isolated diagnostic projectile points, such as fluted Clovis, Folsom, and large, lanceolate-style points used during megafauna hunting activities. The subsequent Archaic period (7,000–100 B.C.) began following regional climatic shifts and the extinction of North American megafauna species. Hunter-gatherers continued using lanceolate points and also produced stemmed or notched dart points. The Archaic period is commonly divided into Early, Middle, and Late sub-periods. Archaic sites often consist of flaked-stone and ground stone scatters, as well as rock art sites, temporary camps, and uncommon residential sites. While common across the Planning Area, Archaic sites are often obscured by later Basketmaker and Pueblo Periods sites. Refer to Appendix 2, *Cultural Resources* (pages 245–256), in the AMS (BLM 2018b) for more information about Paleoindian and Archaic resources within the Planning Area.

The subsequent Formative Period (100 B.C.–A.D. 1250) began with the adoption of agriculture, which greatly altered prehistoric lifeways within the Planning Area. Within the Grand Staircase and Kaiparowits Units, the Virgin Ancestral Pueblo (also referred to as the Anasazi) occupied and farmed benches, terraces, and canyons at elevations between 4,700 feet and 6,400 feet above mean sea level. The generally accepted Virgin Ancestral Pueblo chronology includes five periods: the Basketmaker II Period (100 B.C.–A.D. 400), the Basketmaker III Period (A.D. 400–700), the Pueblo I Period (A.D. 700–900), the Pueblo II Period (A.D. 900–1150), and the Pueblo III Period (A.D. 1150–1250). Basketmaker II groups settled along the base of the Vermilion Cliffs in areas particularly suited for high water table and alluvial outwash farming. From the Late Basketmaker II Period through the Pueblo III Period, Virgin Ancestral Pueblo populations occupied higher-elevation settings to maximize precipitation farming (McFadden 2016). Over the course of the Formative Period, land-tenure systems developed in the Planning Area as sites were abandoned and reoccupied over hundreds of years. Virgin Ancestral Pueblo sites are commonly defined by an arc of surface storage structures around a semi-subterranean pithouse, temporary camps, field houses, the presence of Rose Spring, Parowan Basal-notched, and Bull Creek projectile points, and a diagnostic suite of ceramic wares and types. Other site types found include rock art panels and isolated storage units. Virgin Ancestral Pueblo site density is approximately 70 sites per square mile along the Shinarump and Vermilion Cliffs. Refer to Appendix 2, *Cultural Resources* (pages 245–256), in

the AMS (BLM 2018b) for more information regarding early Formative Period cultural resources.

From the Basketmaker III Period to the Pueblo II Period, there was little evidence of broad-ranging external influence. In the late Pueblo II Period, however, an influx of “exotic” Kayenta Ancestral Pueblo material culture from southern groups appears within the central and eastern sections of the Planning Area. The appearance of finely dressed, masonry, L-shaped unit pueblos is evidence of probable Kayenta Ancestral Pueblo migration into the Planning Area (McFadden 2016). The arrival of Kayenta migrants to the region appears to have lasted only a generation or two, and by A.D. 1150, the settlement and architecture within the Virgin Ancestral Pueblo region returned to a more traditional pattern. By A.D. 1250, the Virgin Ancestral Pueblo appear to have abandoned the Planning Area. Refer to Appendix 2, *Cultural Resources* (pages 245–256), in the AMS (BLM 2018b) and the *Formative Chronology and Site Distribution on the Grand Staircase-Escalante National Monument: A Research Reference* (McFadden 2016) for more information regarding later Formative Period cultural resources.

The Formative Period within the Escalante Canyons Unit and portions of the Kaiparowits Unit is represented by the Fremont archaeological culture. The Fremont chronology consists of three periods: the Early Agricultural Period (A.D. 100–500), the Early Formative Period (A.D. 500–1050), and the Late Formative Period (A.D. 1050–1200). During the Early Agricultural Period, the Fremont practiced a seasonal residential subsistence pattern, occupying canyon bottoms and valleys during the summers and hunting camps at higher elevations during the winter (McFadden 2016). The Early Formative Period is defined by the adoption of ceramics by the Fremont. The Late Formative Period in the Kaiparowits Unit is characterized by a mix of Anasazi and Fremont material culture and architecture. This mixture may indicate interactions between Kayenta Anasazi and Fremont groups. The Fremont of the Escalante Unit appears to have abandoned the area around A.D. 1050. Refer to Appendix 2, *Cultural Resources* (pages 245–256), in the AMS (BLM 2018b) and the *Formative Chronology and Site Distribution on the Grand Staircase-Escalante National Monument: A Research Reference* (McFadden 2016) for more information regarding Formative Period cultural resources in the Escalante Canyons Unit.

The Late Prehistoric and Protohistoric Periods (A.D. 1250–1776) represent a return to hunter-gatherer subsistence strategies across the Planning Area. Numic-speaking populations appear in the region as early as the 1300s. Archaeological sites of the Late Prehistoric and Protohistoric periods are commonly associated with the Southern Paiute and include temporary and hunting camps, resource procurement locales, and seasonal habitations. Hopi yellow ware ceramics documented throughout the Planning Area indicate that Hopi traveled to areas potentially associated with pilgrimage. Navajo use of the region appears to occur after the arrival of Euro-Americans. Refer to Appendix 2, *Cultural Resources* (pages 245–256), in the AMS (BLM 2018b) for more information. The Kaibab Band of Paiute Indians and the Navajo claim certain locations within the Planning Area as Traditional Cultural Properties, although none to date have been officially documented. The Kaibab Paiute still utilize lands and resources within the Planning Area for traditional purposes. Refer to Chapter 2, Section 2.2.3, *Cultural Resources* (pages 16–40) and Appendix 2, *Cultural Resources* (pages 245–256), in the AMS (BLM 2018b) for more information regarding Late Prehistoric and Protohistoric cultural resources.

Historic-period use of the Planning Area is associated with Euro-American population expansion and grazing. Several notable historic trails, including the Hole-in-the-Rock Road (HITRR) and the

Old Spanish National Historic Trail (OSNHT), which each have segments listed in the National Register of Historic Places (NRHP), pass through sections of the Planning Area. The NPS and BLM are completing a Traditional Cultural Properties Ethnographic Study to support the recognition of the HITRR as a Church of Jesus Christ of Latter Day Saints Traditional Cultural Property. Relatively small-scale historic coal, manganese, and copper mining operations occurred within the Planning Area, as well. Ranching-related activities, however, constitute the most common historic-period activity within the Planning Area. Known historic-age sites within the Planning Area include corrals, fence lines, stock tanks, trail segments, historic inscriptions, and the remains of various types of structures. Refer to Appendix 2, *Cultural Resources* (pages 245–256), in the AMS (BLM 2018b) for more information regarding historic-age cultural resources.

The BLM has identified the potential threats to cultural resources within the Planning Area: human-induced impacts, vandalism, looting and casual artifact collection, cattle grazing, and natural erosion. Zweifel (2010) estimated that up to 40 percent of archaeological sites in the Kanab Field Office and adjacent to the Planning Area may suffer from human-induced impacts. While this percentage is likely less within the Planning Area due to current management actions, human-induced impacts are still an important management concern. Vandalism of archaeological sites, especially rock art panels, appears to be on the rise within the Planning Area due to increased tourism. Looting of archaeological sites has decreased over the past two decades; however, casual artifact collection persists. A recent analysis completed by the BLM indicates that cattle grazing has had a wide range of effects on cultural resources, from almost no impacts in some locations to significant adverse effects in other locations within the Planning Area. Beyond cattle grazing, the natural processes of erosion reflect an unavoidable natural adverse impact to cultural resources. Refer to Chapter 2, Section 2.2.3, *Cultural Resources* (pages 16–31), in the AMS (BLM 2018b) for more information.

3.2.2 Environmental Consequences

3.2.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on cultural resources from implementation of the management alternatives. Impacts on cultural resources would primarily result from the following impact mechanisms:

- Destruction or removal of cultural resources from surface-disturbing activities
- Implementing proactive cultural resource management

Seven percent of the Planning Area has been inventoried for cultural resources. An in-depth analysis of site types and NRHP eligibility in a quantitative manner is beyond the scope for these RMPs/EIS due to time and personnel constraints. The Planning Area also currently lacks visual analyses for use in evaluating and establishing a management corridor for the OSNHT. As such, this analysis is based on professional judgment of potential impacts and relative degrees of difference between alternatives.

This analysis uses the following assumptions:

- Impacts on cultural resources are long term and permanent, because cultural resources are non-renewable resources that cannot be replaced once lost.

- Impacts on historic properties related to BLM-authorized surface disturbances will be addressed through the National Historic Preservation Act (NHPA) Section 106 review process, which requires direct or indirect effects on properties included or eligible for inclusion in the NRHP to be avoided, minimized, or mitigated.
- Any increase in visitation, road construction, grazing and recreational development will result in direct and indirect impacts on cultural resources.
- Unpermitted and unauthorized activities within the Planning Area, including unauthorized OHV use, vandalism and looting, unmonitored site visitation, and group camping in unauthorized locations, will continue to occur and will affect cultural resources in the Planning Area. Impacts from unpermitted and unauthorized activities include: surface artifact collection and displacement of surface features and artifacts; damage, destruction, vandalism, and looting of cultural resource sites, artifacts, and features; increased and accelerated erosion and soil degradation; and artifact collection and human trampling. The BLM does not manage unpermitted and unauthorized activities, but can help to control these activities through closures of sensitive areas, education, and other management.

3.2.2.2 Direct and Indirect Impacts

In accordance with NHPA Section 106, BLM management under any of the alternatives must avoid, minimize, or mitigate direct and indirect impacts on historic properties. Although this process ensures resolution of any adverse effects on historic properties, management decisions under some alternatives may result in more prevalent use of avoidance strategies, whereas other alternatives would be more likely to minimize or mitigate impacts. The alternatives would also vary in regard to potential direct and indirect impacts on cultural resources not considered historic properties, because they are undiscovered, were previously evaluated and deemed ineligible for listing in the NRHP, or site conditions or assessments of eligibility have changed.

Direct, adverse impacts on cultural resources typically result from actions that disturb the ground's surface or physically alter or damage all or part of a resource; move cultural materials from their original positions (*in situ*) prior to scientific documentation; alter the characteristics of the surrounding environment that contribute to the significance of a particular cultural resource; introduce visual or audible elements out of character with the property or alter its setting; or result in neglect or physical exposure of the resource to the extent that it deteriorates or is destroyed. Indirect impacts on cultural resources could result from the development of facilities and infrastructure, increased access to previously remote or difficult to get to areas, and by opening areas to camping or OHV use, that increase the potential for damage to or erosion effects on cultural sites.

Authorization of a broad range of resource use activities and conservation actions would result in direct adverse impacts on cultural resources through surface disturbance or other damage. Recreation, mineral development, OHV use, and livestock grazing are the primary activities that could result in adverse impacts on cultural resources. Management decisions and allocations that limit the potential for adverse impacts on cultural resources by instituting constraints on resource uses include designation and management of special designations (e.g., Areas of Critical Environmental Concern [ACECs] that limit surface disturbance for the protection of ACEC values), certain recreation management areas (e.g., Special Recreation Management Areas [SRMAs] and Recreation Management Zones [RMZs]) that limit surface disturbance to meet recreation objectives), lands with wilderness characteristics (e.g., limits on surface disturbance and activity to preserve naturalness and outstanding opportunities for solitude),

and resource/area-specific protective closures (e.g., area closures as a scientific control). Management decisions that increase access to the Planning Area could increase accessibility to cultural resources, resulting in increased potential for damage and vandalism.

Impacts from BLM-Authorized Surface-Disturbing Activities and Proactive Management of Cultural Resources

BLM-authorized surface-disturbing activities—primarily from forestry and woodland product harvest, fire and fuel treatments, mechanical vegetation treatments, development of recreation facilities, rights-of-way (ROWs), range improvements, minerals development in KEPA, renewable-energy facilities, and travel routes and trails—have the potential to directly and indirectly affect cultural resources. Subsurface excavation or other types of ground-disturbing activities would have the greatest potential to damage cultural resource sites, artifacts, and/or features. Development or maintenance that requires vegetation clearing, grading, and leveling of ground surfaces can also damage or displace surface artifacts and features. Indirect adverse impacts associated with authorized development activities could result from increased and accelerated erosion and soil degradation from vegetation removal and soil disturbances. A potential beneficial impact of surface disturbances mitigated through Section 106 is the opportunity to retrieve and catalogue information about cultural sites, artifacts, or features that contribute to scientific understanding of past cultures.

Livestock grazing within the livestock grazing analysis area (Maps 44 through 48) and cross-country OHV travel have the potential to damage exposed or shallowly buried cultural artifacts. However, due to the long-term historic use of the Planning Area for livestock grazing and current restrictions on cross-country OHV travel, impacts from these activities are unlikely under Alternative A unless cultural artifacts are newly exposed through erosion or soil disturbance. Impacts from these activities are similarly unlikely under Alternative B, which designates portions of the Planning Area as closed to OHVs and does not permit any cross-country OHV travel.

The BLM would develop a cultural resources management plan under each of the three action alternatives to ensure that impacts on culture resource sites are avoided, minimized, or mitigated and that sites are properly managed and interpreted for the public. Adverse impacts on cultural resources could also be mitigated through the designation of public, scientific, and traditional use areas in the cultural resources management plan. The levels of avoidance, minimization, or mitigation required under each alternative would vary based on the location and degree of use restrictions on minerals development, the availability of areas for issuance of new ROW and renewable energy permits, the ability to develop range improvements, areas available for livestock grazing, the creation of facilities and infrastructure for OHV use and recreation, and the extent and management of special designations.

Considering the net effect of the management decisions, the potential for adverse impacts on cultural resources from surface-disturbing activities would be greatest under Alternative D and lowest under Alternative A. Among the action alternatives, Alternative B would result in the fewest potential impacts on cultural resources. Impacts on cultural resources resulting from Alternative C, with its balanced approach to resource use and resource protection, would fall between alternatives B and D. Alternative D contains the fewest special designations and restrictions on resource uses, followed by alternatives C, A, and B, respectively (refer to Table 3-1). Fourteen ACECs are proposed under Alternative B, and six of these ACECs are defined to

protect cultural and historical values. Under Alternative C, only two ACECs would be defined to protect cultural and historical values; no ACECs would be defined to protect cultural values under Alternative D. The designation of ACECs would also benefit cultural resources because these areas would be prioritized for NHPA Section 110 inventories and monitoring. Limiting public access to fragile and damaged cultural resources would also reduce adverse impacts on those resources. Alternatives C and D would allow greater access and development in the Planning Area, which could increase adverse impacts on cultural resources through increased accessibility to cultural resources and associated damage and vandalism that could occur. In general, impacts on cultural resource across the three GSENM units would be similar based on the similar management in the three units.

Providing opportunities for science and research, as well as understanding and interpreting cultural resources, is a goal of all alternatives. Management actions common to all the alternatives would have beneficial impacts on cultural resources as the BLM facilitates and engages in the research, outreach, and education efforts detailed in Section 2.3.22, *Science and Monument Advisory Committee*.

Application of cultural resources BMPs (see Appendix G) would assist in reducing the potential for direct and indirect adverse impacts on cultural resources. Conducting cultural resource inventories as part of NHPA Section 106 compliance would assist in avoiding, minimizing, and mitigating the adverse impacts from BLM-authorized activities in the Planning Area. Conducting NHPA Section 110 compliance activities, such as cultural resources inventory and monitoring, within portions of the Planning Area prone to heavy visitation and OHV use would assist in identifying and avoiding, minimizing, or mitigating adverse impacts along transportation corridors. Likewise, implementing access restrictions and area closures as a scientific control could limit potential impacts from increased accessibility and associated damage and vandalism of cultural resources.

Impacts on Monument Objects

Several cultural resources are described as “Archaeological, Historical, and Cultural Resources” monument objects within the Grand Staircase, Kaiparowits, and Escalante Canyons Units of GSENM, and are prioritized for conservation, protection, and restoration (see Appendix E, *Grand Staircase-Escalante National Monument Objects and Resource Values*). Monument objects, such as Ancestral Puebloan habitations and cliff structures and Archaic-era sites, have the potential to contribute valuable data to the understanding of the prehistory of the region. Other monument objects, such as the Dance Hall Rock, the Old Paria town site, and movie set landmarks and sites, are associated with westward expansion and historic film production in the region. Alternatives A and B would provide for the greatest potential for preservation, protection, and scientific research of the cultural resources monument objects in GSENM. The beneficial direct and indirect impacts and protective restrictions described above under alternatives A and B would also increase protection of unique archaeological, historical, and traditional cultural resources compared to alternatives C and D. Alternatives C and D would generally allow greater access and development in the Planning Area than alternatives A and B, which could increase adverse impacts on cultural resources monument objects. Alternative D does not provide any additional protective restrictions beyond legally mandated cultural resource protections, resulting in the least potential for preservation, protection, and scientific research of cultural resources monument objects among the alternatives.

Native American Use of Lands and Concerns

The BLM consults with Native American groups to identify and preserve traditional and cultural practices and places within the Planning Area. As part of the consultation process, the BLM and Native American groups identify traditional practices and places that would be affected by management. The BLM will continue consultation with Native American groups to refine the understanding and analysis of potential impacts.

In general, alternatives A and B would increase the potential for protecting natural and historic resources important to Native Americans through increased special designations, allocations, and management that would preserve natural and historic resources important to Native Americans.

All alternatives would allow for Native American collection of vegetation and forest products for traditional uses, but with variation in permit requirements. Alternative A does not include any permit requirements for the noncommercial collection of vegetation, forest, and woodland products for Native American traditional uses or for personal use. Alternative D provides the fewest restrictions or controls on such resource uses (i.e., such collections would not require permits). Alternative B would allow non-commercial traditional use of vegetation and forest and woodland products for traditional, religious, or ceremonial purposes without a permit but would require a free permit for personal collection. Alternative C would require a free permit for both non-commercial traditional use and personal collection. Alternative D would allow non-commercial traditional use and personal collection without a permit.

Application of cultural resources BMPs (see Appendix G) would assist in reducing the potential for direct and indirect adverse impacts on Native American religious and traditional/cultural places through compliance with Section 106 and Section 110 of the NHPA, as well as compliance with the American Indian Religious Freedom Act.

3.2.2.3 Cumulative Impacts

The cumulative impacts analysis area for cultural resources is the Planning Area plus a 15-mile buffer, which includes lands administered by the NPS. This area encompasses cultural resources that could be directly affected by surface-disturbing activities as well as the viewshed of historic trails that could be affected by cumulative impacts. Direct and indirect impacts of each action alternative, when considered in conjunction with past, present, and reasonably foreseeable future actions (e.g., authorized surface-disturbing activities from mineral leasing, transportation management, recreational development, grazing, and renewable energy), would result in cumulative adverse impacts on cultural resources within the Planning Area (Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*). Reasonably foreseeable future actions that result in surface disturbance are most likely to contribute to cumulative impacts, including the Lake Powell pipeline, Garkane Transmission line, buried fiber optic lines, and reasonably foreseeable minerals development projects in the analysis area.

The development and improvement of transportation corridors managed by the BLM and adjacent landowners would result in increased visitation to previously difficult to access portions of the Planning Area. Increased and unmonitored visitation would result in higher risk of unauthorized artifact collection, looting, vandalism, and destruction of cultural resources. Implementing restrictions on public access to areas with fragile or dense cultural resources

would assist in mitigating adverse impacts related to increased visitation. Alternative B would have the greatest likelihood of reducing potential cumulative impacts on cultural resources, while Alternative D would increase the likelihood of potential cumulative impacts due to fewer restrictions on activities that could affect cultural resources and increased potential for access.

3.3 Fish, Wildlife, and Special Status Species

3.3.1 Affected Environment

The analysis area for fish, wildlife, and special status species is the Planning Area.

3.3.1.1 Fish and Wildlife

Complex geography and the availability of surface water have a major influence on the fish and wildlife communities in the Planning Area. There have been 15 species of fish, 350 species of birds, 29 species of amphibians and reptiles, 82 species of mammals (including 16 species of bats), and 650 species of bees and other pollinators documented in the Planning Area (BLM 2018b; Messinger 2006). Refer to Chapter 2, Section 2.2.5, *Fish and Wildlife* (pages 39–47), in the AMS (BLM 2018b) for descriptions of the general fish and wildlife species present in the Planning Area.

The Paria and Escalante Rivers are the two major drainages in the Planning Area. The Paria River system supports an assemblage of warm-water fish species, though the speckled dace is the only native species that has been verified in the system. The Escalante River system has cold-water and warm-water habitats that support five native species: speckled dace, flannelmouth sucker, bluehead sucker, roundtail chub, and Colorado River cutthroat trout (though Colorado River cutthroat trout are limited to the cooler waters upstream of the Planning Area). Fish populations have been reduced and habitats degraded as compared to historic conditions due to the introduction of nonnative species and a combination of human activities such as water diversions, irrigation projects, roads, mining, riparian degradation as a result of livestock activities, and recreational use. These activities have led to a loss of wetland and riparian habitats, reduced water quality and quantity, increased water temperatures, and loss and fragmentation of instream habitats (BLM 2018b).

A mosaic of habitats in varying successional stages is necessary to accommodate the needs of all wildlife in the Planning Area. Major habitat types for wildlife in the Planning Area include desert shrub, sagebrush/grassland steppe, pinyon-juniper woodlands, oak/mountain shrub, ponderosa pine, aspen, riparian/wetland, and non-vegetated/rock outcrop. Refer to Appendix 4, *Fish and Wildlife* (pages 263–268), in the AMS (BLM 2018b) for descriptions of the wildlife habitats that are present in the Planning Area.

Game species are an important aesthetic and economic resource in the Planning Area. The Utah Division of Wildlife Resources (UDWR) is responsible for managing wildlife populations in Utah; the BLM is a partner in managing the diverse habitats that sustain these wildlife populations. The Planning Area includes UDWR game management units 25c/26 (Boulder/Kaiparowits Plateau) and 27 (Paunsaugunt). Game species in the Planning Area include desert bighorn sheep, mule deer, pronghorn, elk, upland game birds, mountain lion, bear, and furbearers (i.e., bobcats, raccoons, badgers, weasels, and beavers). Crucial habitats have been identified for several big game species based on various species' requirements such as winter range and lambing areas (Map 3, Big Game Crucial Winter and Year-Long Habitat).

Refer to Chapter 2, Section 2.2.5, *Fish and Wildlife* (pages 39–47), and Appendix 4, *Fish and Wildlife* (pages 263–268), in the AMS (BLM 2018b) for information on big game populations in the Planning Area.

Federal agencies are required to consider the effects that planned or authorized activities will have on migratory birds and their habitats, and to consider migratory birds in their land use planning efforts. The Planning Area includes important breeding and wintering habitats for migratory and non-migratory (resident) birds, including habitat for upland game species such as chukar. The Coordinated Implementation Plan for Bird Conservation in Utah (Utah Steering Committee Intermountain West Joint Venture 2005) identified portions of two Bird Habitat Conservation Areas that occur in the Planning Area: Paria River and Escalante River. The Planning Area is located in Bird Conservation Region 16 (Southern Rockies/Colorado Plateau) as delineated by the North American Bird Conservation Initiative; the BLM has identified 17 species from the USFWS's *Birds of Conservation Concern 2008* (USFWS 2008) that have the potential to occur in the Planning Area. Refer to Appendix 4, *Fish and Wildlife* (page 263), in the AMS (BLM 2018b) for more information on birds of conservation concern.

Research has shown that the Planning Area has a very high diversity of insect pollinators; over 650 species of bees were documented during one long-term study, including many unique species that have not been found elsewhere (Messinger 2006). Bees and other insect pollinators play a critical role in supporting ecosystem health by helping plants reproduce. Flowering plants rely on these insects (e.g., bees, butterflies, wasps) and other pollinators (e.g., birds, small mammals) to maintain their populations, and many agricultural crops also require pollination by insects. Pollinators play a critical role in sustaining the many endemic plant species that occur in the Planning Area; there are about 125 species of plants in GSENM that occur only in Utah or on the Colorado Plateau and 11 species of plants in GSENM are found nowhere else (BLM 2018b).

3.3.1.2 Special Status Species

Special status species include federally listed threatened and endangered species, State-listed species, and sensitive species designated by the BLM Utah State Director that may require specific management attention as a result of population or habitat concerns.

The BLM objectives for special status species management are to (1) conserve and/or recover Endangered Species Act (ESA)-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species, and (2) initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA (BLM 2008a). Refer to Chapter 2, Section 2.2.10, *Special Status Species (Threatened, Endangered, and Sensitive)* (pages 58–68), in the AMS (BLM 2018b) for more information on special status designations and BLM policies regarding special status species management.

There are six plant species, four bird species, and four fish species that have been federally listed as threatened or endangered under the ESA that have been documented or could potentially occur in the Planning Area. There are no species that are proposed for ESA listing or candidates for ESA listing in the Planning Area. Critical habitat has been designated for two ESA-listed bird species, the Mexican spotted owl (MSO) and southwestern willow flycatcher, and portions of these designated critical habitats extend into the Planning Area (Map 4, Special Status Species Habitat). Refer to Chapter 2, Section 2.2.10, *Special Status Species*

(*Threatened, Endangered, and Sensitive*) (pages 58–68), and Appendix 6, *Special Status Species* (pages 307–314), in the AMS (BLM 2018b) for more information on threatened and endangered species and their designated critical habitats in the Planning Area.

BLM sensitive species and Utah State-listed species that have been documented or could potentially occur in the Planning Area include 12 plants, 8 birds, 6 mammals, 1 amphibian, 2 reptiles, and 3 fish. Refer to Chapter 2, Section 2.2.10, *Special Status Species (Threatened, Endangered, and Sensitive)* (pages 58–68), in the AMS (BLM 2018b) for more information on BLM sensitive species and Utah State-listed species in the Planning Area. Refer to UDWR's Utah Conservation Data Center website (<https://dwrcdc.nr.utah.gov/ucdc/>) and the Kanab Field Office RMP (BLM 2008b) for additional information on species' life histories, distribution, and abundance.

There are five special status species (i.e., greater sage-grouse, northern goshawk, bluehead sucker, flannelmouth sucker, and roundtail chub) in the Planning Area that are managed under multi-agency conservation plans. The greater sage-grouse is managed under a conservation plan that was finalized in 2013 (Utah Governor's Office 2013); conservation measures for sage-grouse were incorporated into BLM RMPs by the 2015 *Utah Greater Sage-Grouse Approved Resource Management Plan Amendment* (BLM 2015). There is one designated Sage-grouse Management Area (SGMA) that extends into the Planning Area, the Panguitch SGMA. There are 23,654 acres of designated SGMA in the Planning Area, including 7,941 acres in KEPA and 15,713 acres in GSENM (Map 4, Special Status Species Habitat). All 23,654 acres of designated SGMA within the Planning Area are identified as Priority Habitat Management Areas; there are no General Habitat Management Areas in the Planning Area. The northern goshawk is managed under a conservation agreement that was signed in 1998. The three BLM sensitive fish species are managed under a conservation plan that was finalized in 2006 (UDWR 2006). These BLM sensitive fish species are present only in the Escalante Canyons Unit.

3.3.2 Fish and Wildlife Environmental Consequences

3.3.2.1 Methods and Assumptions for Fish, Wildlife, and Special Status Species

This section describes direct, indirect, and cumulative effects on fish, wildlife, and special status species from implementation of the management alternatives. Impacts on fish, wildlife, and special status species would primarily result from the following impact mechanisms:

- Surface disturbance and vegetation removal that results in the degradation, loss, or fragmentation of habitat
- Disturbance/displacement that alters habitat use, breeding, and/or survival
- Habitat quantity and/or quality improvements that are achieved through vegetation treatments and other habitat restoration activities

Effects on fish, wildlife, and special status species from these impact mechanisms are generally described in a qualitative fashion, with acreages provided where appropriate to draw distinctions among the alternatives.

This analysis uses the following assumptions:

- The methodology for assessing potential impacts on fish, wildlife, and special status species often relies on the evaluation of impacts on wildlife habitats as a surrogate for

individual species that may not have mapped distributions in the Planning Area or available habitat suitability models that would allow for quantitative assessment. Species are assumed to be potentially present where suitable habitats may occur in the Planning Area. In reality, many species, particularly those that are rare and endemic, are not evenly distributed across the landscape due to the more localized occurrence of the specific habitat features or conditions on which they rely.

- KEPA is expected to be subject to a broader range of uses, and in some cases more intensive use, than is currently allowed in GSENM. Under Presidential Proclamation 9682, these uses would specifically include (1) entry, location, selection, sale, or other disposition under the public land laws, (2) disposition under all laws relating to mineral and geothermal leasing, and (3) location, entry, and patent under the mining laws. Even without the monument designation, it is anticipated that existing protections for fish, wildlife, and special status species under current BLM policies (e.g., implementation of the USFWS Utah Field Office Guidelines For Raptor Protection From Human And Land Use Disturbances) and Federal regulations such as the ESA would continue to be incorporated in permit and ROW stipulations for these lands, such that there would be a similar level of protection to that which currently exists for lands within GSENM.
- The effects of management actions on fish, wildlife, and special status species can vary widely depending on a variety of factors such as the type, extent, and frequency of any associated disturbance; time of year; population status (e.g., number of individuals in an affected population); habitat conditions; and environmental conditions such as drought that may exacerbate the effects of habitat alteration or disturbance/displacement from allowed activities.
- Consultation with USFWS under Section 7 of the ESA would be undertaken for any actions that have the potential to affect federally listed species or their designated critical habitats. Under all alternatives, no decision would be approved or authorized on BLM-administered surface lands that would jeopardize the continued existence of special status species that are listed as threatened, endangered, proposed, or candidates for listing as threatened or endangered. Implementation of the special status species program is directed at preventing the need for listing proposed or candidate species under the ESA, protecting special status species, and improving their habitats to a point where their special status recognition is no longer warranted.

3.3.2.2 Direct and Indirect Effects

Management that allows removal, degradation, fragmentation, or disturbance to wildlife habitat in the Planning Area is generally considered adverse. Beneficial impacts would result from management that conserves or improves habitat conditions and results in increased sustainability of wildlife populations.

Recreation, minerals development, renewable energy development, livestock grazing, lands and realty actions, extraction of forestry and woodland products, and transportation would result in short- and long-term, direct, adverse impacts on fish and wildlife resources through surface disturbance, habitat alteration, and disturbance/displacement of fish and wildlife. Management decisions that allow habitat loss, fragmentation, and degradation could result in long-term impacts such as the extirpation of a species from an area where it once thrived. In contrast, management designed to improve habitats, such as vegetation treatments, fuels treatments, fish and wildlife habitat management, and soils and watershed enhancement

activities, would cause habitat alteration and disturbance/displacement of fish and wildlife in the short term, but would result in long-term direct and indirect, beneficial impacts on fish and wildlife.

Management decisions and allocations that would limit the potential adverse effects on fish and wildlife by instituting constraints on resource uses include special designations (e.g., ACECs that limit surface disturbance for the protection of specific resource values) and designation of recreation management areas (e.g., SRMAs and RMZs that limit surface disturbance to meet recreation objectives). Management of lands with wilderness characteristics that limits surface disturbance, promotes activities to preserve naturalness and outstanding opportunities for solitude, and implements resource-/area-specific protective closures or buffers (e.g., seasonal restrictions in crucial winter range or lambing areas, temporary closures near raptor nests, restrictions on development in suitable or occupied habitats for special status species) would also limit the potential adverse effects on fish and wildlife through constraints on resource use. Potential impacts on fish and wildlife would generally fall within the categories of habitat degradation/loss/fragmentation, disturbance/displacement (which could affect individual animals or entire populations), and habitat improvement (e.g., vegetation treatments and other habitat restoration activities).

Impacts from Habitat Degradation/Loss/Fragmentation

Surface-disturbing activities, and where they are allowed and restricted, serve as primary indicators of impacts on fish and wildlife because these activities may alter wildlife habitats through the direct loss of vegetation that is used for sheltering, breeding, and foraging. The alteration of soils or vegetation communities that results in degraded habitat conditions, such as the introduction or spread of nonnative or invasive species, may also have long-term impacts. Fragmentation of wildlife habitats may reduce their suitability, reduce productivity, increase predation during the breeding season (e.g., many birds rely on patches of dense vegetation to hide their nests), and/or preclude seasonal or adaptive movements that would allow animals to avoid harsh environmental conditions.

Impacts on pollinators would primarily be associated with surface-disturbing activities that remove vegetation, alter vegetation communities, and/or disturb native soils, resulting in the loss or fragmentation of foraging and nesting habitat. The introduction and spread of nonnative plant species can disrupt the existing relationships between pollinators and their native host plants. In general, bees and other insect pollinators are highly specialized and have co-evolved with specific plant hosts, which may make them less adaptable to anthropogenic disturbances and changing conditions. Some endemic plants are dependent on only one or a few specialized pollinator species and these plants may be unable to persist in the pollinators' absence; the relationship is mutualistic in that the pollinators also may not survive without their host plant counterparts.

Alternatives B, C, and D progressively increase the acreage of KEPA lands that are open to mineral exploration and development (refer to Table 3-1), with Alternative B having the greatest constraints on minerals development and Alternative D having the least constraints. The BLM employs site-specific analysis, BMPs, and mitigation for any mineral lease, permit, or ROW that is granted. In general, the potential for impacts on fish and wildlife resources from disturbance and displacement increases commensurate with the area available for minerals development with fewer constraints. As a result, Alternative D would result in the greatest potential for

impacts on fish and wildlife by allowing minerals development in KEPA with fewer constraints, followed by alternatives C, B, and A, respectively.

Unlike permitted activities that are subject to site-specific environmental review and monitoring (e.g., oil and gas exploration and development, forestry and woodland harvest), ground-disturbing recreation, such as cross-country OHV use, would have limited reviews following designation of SRMAs and Extensive Recreation Management Areas (ERMAs). These recreation management areas may result in impacts on fish and wildlife habitats as dispersed use increases over time. Although damage to fish and wildlife habitats would continue to be monitored, impacts from dispersed use may not be apparent until after the damage has occurred, which the BLM would then mitigate to the extent practical and feasible. Alternatives A and B incorporate the most restrictions on surface-disturbing activities to protect recreation values, conferring beneficial impacts on fish and wildlife, followed by alternatives C and D, respectively.

Impacts on aquatic habitats include reductions in surface flows; changes in water quality (e.g., pH, dissolved oxygen, temperature, and turbidity); sediment accumulation; and loss of instream habitat features that are important for sheltering, breeding, or foraging (e.g., boulders, riffles, and overhanging vegetation). Buffer areas that protect riparian habitats from development and stricter requirements for the use and reclamation of upland habitats by limiting disturbance in sensitive soils and requiring a greater degree of revegetation during reclamation of disturbed lands may reduce the short- and long-term adverse impacts of surface-disturbing activities. By prohibiting new surface-disturbing activities within 0.5 mile of riparian/wetland areas, Alternative B would reduce adverse impacts on aquatic habitats. Alternatives C and D would likely result in a greater potential for adverse impacts on aquatic habitats by allowing surface-disturbing activities closer to riparian/wetland areas (330 feet), compared to Alternative B.

Impacts associated with livestock grazing management may occur from improper livestock grazing, surface disturbance related to range improvement projects, and vegetation treatments. Livestock grazing in the Planning Area would be managed so that grazed lands meet or make progress toward meeting the applicable standards described in the *Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah* (BLM 1997). In general, range improvements (vegetation treatments and water developments) would result in beneficial impacts on wildlife distribution and habitat. In general, while livestock grazing management would play a large role in determining the extent of impacts on wildlife habitat, the more acres that are available for grazing and the higher the animal unit months (AUMs) permitted under a given alternative, the greater the potential for impacts from livestock grazing and management actions. Alternative B allocates the fewest acres as available for livestock grazing and the fewest AUMs compared to alternatives C, A, and D, respectively (refer to Table 3-1). Alternatives A and C allocate similar acreage available for livestock grazing, and Alternative D allocates the most, with the greatest potential for impacts on fish and wildlife habitat. In general, impacts on fish and wildlife across the three GSENM units would be similar based on the similar management in each of the units.

In KEPA, the designation of ACECs, Wilderness Study Areas (WSAs), and other special designations and management of lands for wilderness characteristics would benefit habitat preservation (see Table 3-1). These designations and restrictions on resource uses and disturbance with them support the maintenance of large blocks of wildlands as diverse habitats for native plant, fish, and wildlife species and protecting areas as refuge for species imperiled

by habitat loss or degradation. Alternatives C and D would have fewer special designations and fewer areas managed for the protection of wilderness characteristics, increasing potential adverse impacts from habitat loss and fragmentation in these areas compared to alternatives A and B (refer to Table 3-1).

Application of the various BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect adverse impacts on fish and wildlife resources. For example, limiting disturbance at raptor nest sites during the breeding season and implementing protections for special status species would reduce potential impacts on fish and wildlife from a variety of surface-disturbing and disruptive activities. Similarly, applying BMPs for reclamation and restoration would improve the potential for reclamation success, thereby reducing long-term adverse impacts on fish and wildlife habitats.

Impacts from Disturbance and Displacement

Human activity and disturbance can result in impacts on wildlife that can range in severity from temporary noise and visual disturbance associated with light recreational use (e.g., climbing, hiking, horseback riding) to permanent displacement of individual animals or entire populations from frequent heavy use or permanent habitat alterations (e.g., road construction, trailhead and facility construction, minerals development projects). Recreational use, mineral exploration and development, and establishing ROWs may result in displacement and physiological stress to wildlife from human presence and activity during sensitive life stages. Surface disturbance that would result in habitat degradation or loss may displace animals or interfere with a species' movement patterns by putting them into competition with other animals for resources or forcing them into lower quality habitats that may not meet their needs for sheltering, breeding, or foraging. Disturbance from human activities causes animals to expend energy in fleeing from or avoiding the disturbance, and has a physiological cost that can be exacerbated during breeding seasons, periods of low food availability, or harsh environmental conditions such as extreme heat, cold, or drought. Chronic or continuous disturbance could result in reduced survival or reproduction.

Recreational activities and uses in the Planning Area have increased substantially over time and have the potential for short- and long-term adverse impacts on fish and wildlife. Continued increases in recreational use without management attention to how and where that recreation occurs may result in further dispersion of recreation users, increasing the potential for wildlife disturbance and displacement. Alternatives A and B include the most targeted management of recreational use (e.g., designation of more SRMAs and RMZs) followed by alternatives C and D, respectively. Under Alternative D, no SRMAs would be designated and the entire Planning Area would be designated as an ERMA with less targeted recreation management than alternatives B and C, which could increase the potential for impacts on wildlife associated with disturbance/displacement from recreation conflicts and uses.

Management specific to fish and wildlife is intended to reduce the potential for human disturbance and displacement that can result in long-term impacts on fish and wildlife populations. Alternative A is generally focused on limiting adverse impacts on wildlife corridors and migration routes, and limiting human access to key forage, nesting, and breeding areas. Alternatives B and C provide more specific management to address important big game habitat, with Alternative B providing the greatest protection from disturbance and displacement during sensitive seasonal and life-cycle periods. Alternative C allows more human activity

during sensitive periods and a greater potential for habitat modification, resulting in increased potential for impacts compared to Alternative B. Alternative D would result in the greatest potential for impacts on big game from disturbance and displacement. Alternative D does not include specific protective measures for important big game habitat and would therefore allow the most human activity during sensitive periods and the greatest potential for habitat modification, compared to the other alternatives. Alternatives B, C, and D include measures to avoid contact and the potential spread of disease from domestic goats and sheep to desert bighorn sheep, reducing potential adverse impacts. Alternative A includes no specific restrictions on domestic goats and sheep grazing near desert bighorn sheep habitat, and would result in the greatest potential for adverse impacts associated with the spread of disease to desert bighorn sheep.

Impacts from Vegetation Treatments and Other Habitat Restoration Activities

Habitat maintenance and/or improvement would occur as a result of vegetation treatments that reduce soil loss, improve crucial big game habitat, restore ecological function, and increase forage production. Habitat alteration through targeted vegetation treatments sometimes serves to benefit a particular species of concern (or more often a suite of species) but also results in loss of habitat features for other species (e.g., juniper trees that are removed in an area where grassland restoration is under way). However, habitat availability, as it pertains to a particular vegetation community, is not always a limiting factor for wildlife populations. Food or water availability are also factors that affect carrying capacity for many species, such as predators that rely on the availability of suitable prey species in any given habitat.

There would be increased flexibility for various habitat restoration activities under alternatives B, C, and D, compared to Alternative A. Alternatives A and B would provide the most opportunity for the introduction, transplant, augmentation, and reestablishment of native fish and wildlife species. Alternatives C and D would also allow these activities for naturalized species. Alternatives C and D would specifically allow for the removal of unwanted nonnative wildlife species, which can be an important additional tool for accomplishing restoration goals, with long-term beneficial impacts on native wildlife populations. Alternative D would also allow for habitat restoration and recovery for certain introduced fish and wildlife species in accordance with UDWR species management plans with goals and objectives set forth by UDWR. Habitat treatments and habitat management for the recovery and reestablishment of species on BLM-administered surface land could also result in impacts on fish and wildlife on NPS units adjacent to the Planning Area, especially if treatments and species recovery and reestablishment are not consistent with NPS management and objectives.

The four alternatives take differing approaches to managing vegetation and accomplishing restoration. Alternatives A and B would emphasize natural processes and the use of native species during reclamation, while alternatives C and D would allow a greater range of vegetation treatment options, which would increase short-term impacts from human activity and habitat modification, but could also increase the potential long-term beneficial impacts by increasing the ability of land managers to effect change in habitat to the benefit of some species. However, the increased potential for resource use and associated surface disturbance and human activity under alternatives C and D would require the BLM to expend greater

resources for vegetation treatments and habitat restoration to maintain and improve fish and wildlife habitats as compared to alternatives A and B.

Alternative D would also allow the use of nonnative species where necessary to optimize land health, forage, and productivity in nonstructural range improvements, and Alternative C would allow the use of desirable nonnative species where the probability of success or adapted seed availability is low, or if desirable nonnative species are needed to support ecological objectives. Use of nonnative species could increase the potential for the spread and establishment of these species, which could alter native vegetation communities and wildlife habitat.

Impacts on Monument Objects

A number of fish and wildlife resources are monument objects described as “Biological and Ecological Resources and Processes” within the Grand Staircase, Kaiparowits, and Escalante Canyons Units of GSENM, and are prioritized for conservation, protection, and restoration (refer to Appendix E, *Grand Staircase-Escalante National Monument Objects and Resource Values*). These include riparian corridors that provide habitat for neotropical birds and bald eagles, as well as relict plant communities and various microhabitats (i.e., hanging gardens, tinajas, canyon bottom, dunal pockets, salt-pocket, and rock crevice communities) that provide for a diversity of fish and wildlife in GSENM.

Given the greater protective measures applied to water resources and riparian areas, alternatives A and B would result in the greatest potential for conservation, protection, and restoration of the fish- and wildlife-related monument objects. The beneficial direct and indirect impacts and protective restrictions described above for alternatives A and B would also result in the greatest protection of these monument objects as compared to alternatives C and D. In general, the types of impacts on fish- and wildlife-related monument objects across the three GSENM units would be similar based on similar management in each of the units. Overall, Alternative D, which has the least restrictions on resource uses, would have the potential for greater adverse impacts on fish- and wildlife-related monument objects, followed by alternatives C, A, and B, respectively, which place greater restrictions on surface-disturbing activities and resource uses. However, all alternatives generally limit the extent of surface disturbance in GSENM (e.g., ROW exclusion, withdrawn from minerals development), and thus impacts on fish and wildlife objects are expected to be minimal.

3.3.3 Special Status Species Environmental Consequences

3.3.3.1 Direct and Indirect Effects

This analysis focuses on impacts on special status species, including federally listed species, and BLM and Utah sensitive species as a result of management that affects individuals or their populations and changes to the condition of their habitats. Although some data on known locations and habitats within the Planning Area are available, the data are neither complete nor comprehensive regarding all special status species known to occur or regarding potential habitat that might exist. Known and potential special status species and habitat locations were considered in the analysis; however, the potential for species to occur outside these areas was also considered and, as a result, some impacts are discussed in more general terms. Impacts on non-special status fish and wildlife species and their habitats are addressed in Section 3.3.2, *Fish and Wildlife Environmental Consequences*.

Special status species and their habitats in the Planning Area would be affected under all of the potential alternatives. Surface-disturbing activities would modify habitat and/or cause loss or gain of special status species individuals depending on the amount of area disturbed, the nature of the disturbance, the species affected, and the location of the disturbance. In general, the nature and type of impacts on special status species would be similar to those on general fish and wildlife species, as described in Section 3.3.2, *Fish and Wildlife Environmental Consequences*, above. However, impacts on special status species may be of more consequence, as these species typically exhibit limited distributions and relatively low population numbers, compared with common fish, wildlife, and plant species. The impact analysis in this section builds upon, rather than repeats, the analysis included in Section 3.3.2, *Fish and Wildlife Environmental Consequences*, above.

Impacts from Habitat Degradation/Loss/Fragmentation

Special status bird habitat and designated critical habitat for southwestern willow flycatchers and MSOs occurring in various portions of the Planning Area could be affected by human activity and surface-disturbing activities.¹ Potential impacts on riparian areas may affect habitat for species such as southwestern willow flycatcher and yellow-billed cuckoo, while disturbance and activities in canyon areas may affect MSO and California condor habitat. Surface disturbance and human activity (e.g., noise) in sagebrush communities may affect greater sage-grouse and their habitat.

BMPs that would protect special status bird habitats under all alternatives are included in Appendix G, *Best Management Practices*. Examples of these BMPs include restricting permanent surface disturbances within 0.5 mile of suitable southwestern willow flycatcher habitat and prohibiting surface-disturbing projects or activities within 0.5 mile of MSO nests unless USFWS consultation shows no impacts would occur. Additionally, Alternative B prohibits surface-disturbing activities within 0.25 mile of suitable habitat for southwestern willow flycatcher and yellow-billed cuckoo during the breeding season, while Alternative C only prohibits surface-disturbing activities within 0.25 mile of occupied breeding habitat during the breeding season. Alternative D allows surface-disturbing activities within occupied breeding habitats during the breeding season if site-specific analysis and consultation with USFWS determine that the activity would not adversely affect these species or their habitats. Alternative D, which has the least restrictions on surface-disturbing activities, would have the greatest potential for impacts on special status bird habitats, followed by alternatives C, A, and B, which place increasingly higher restrictions on surface-disturbing activities and resource use.

Special status fish species, such as bluehead sucker, flannelmouth sucker, and roundtail chub, habitat may be affected when aquatic habitat in the Escalante Canyons Unit (i.e., Escalante River) is affected. A BMP included in Appendix G that would prohibit the use of chemical substances that may affect downstream habitat for the Colorado pikeminnow and the razorback sucker would protect downstream habitat for these species (and consequently for other special status fish species, as well) under all alternatives. Alternative B provides the greatest protection by prohibiting new surface-disturbing activities within 0.5 mile of special status fish habitat, followed by Alternative C, which avoids surface-disturbing activities within 330 feet of special status fish habitat unless impacts are adequately mitigated and the action

¹ Specific types of impacts from surface-disturbing activities are discussed in more detail in Section 3.3.2, *Fish and Wildlife Environmental Consequences*, above.

would benefit the species and/or habitat. Alternative D would provide the least protection to special status fish species by allowing surface-disturbing activities after site-specific analysis and consultation with USFWS.

Habitat for a variety of special status plants, including listed species such as Kodachrome bladderpod that occurs in the Kaiparowits Unit and Ute ladies'-tresses that occurs in the Kaiparowits and Escalante Canyons Units, may be affected by surface-disturbing activities or disruptive activities (such as OHV use and livestock grazing). BMPs that would protect special status plant habitats under all alternatives are included in Appendix G, *Best Management Practices*. These BMPs include prohibiting surface-disturbing projects or activities in identified special status species populations and measures to close areas if necessary to protect special status plant species. Surface-disturbing activities and construction of new trails would have the most impact on special status plant habitat under Alternative D, with fewer impacts under alternatives A, B, and C, respectively. Construction of recreation facilities (e.g., trails, parking lots) and permitting of communication sites, utility ROWs, and road ROWs would have lower potential for adverse impacts on special status plant habitat under Alternative C as compared to Alternative D, and even fewer impacts under alternatives A and B. Surface-disturbing restoration activities after fires would have greater potential for short-term impacts under alternatives C and D as compared to alternatives A and B, but greater potential for long-term beneficial impacts on special status species preferring more open habitat types or earlier seral stages.

Livestock grazing is authorized under all alternatives at varying levels. Special status plant communities are typically isolated in the Planning Area and livestock grazing typically does not affect special status plant species. The BLM can modify the terms and conditions of livestock grazing permits, typically during the permit renewal process, to minimize impacts on special status plants as needed.

Habitat for BLM sensitive amphibians, reptiles, and mammals may be affected in a similar manner as described above; however, no federally listed amphibians, reptiles, or mammal species are known to be present in the Planning Area. As such, specific BMPs for these types of species and their habitats have not been developed, though general BMPs for special status species afford protection to these species (refer to Appendix G). For example, general BMPs include avoiding, controlling, or regulating surface-disturbing activities on a case-by-case basis to minimize impacts on identified crucial habitat for special status species and co-locating communication and other facilities to avoid or reduce fragmenting special status species habitat.

In general, impacts on special status species habitats across the three GSENM units would be similar based on similar management in each of the units. Overall, Alternative D, which has the least restrictions on surface disturbance and resource use, would increase the potential for impacts on special status species habitats followed by alternatives C, A, and B, respectively, which place greater restrictions on surface-disturbing activities and resource uses.

Impacts from Disturbance/Displacement

Human activity and disturbance can result in impacts on wildlife as discussed in detail in Section 3.3.2, *Fish and Wildlife Environmental Consequences*. Continued increases in visitation and recreation without management attention to how and where that recreation occurs may result in further dispersion of recreation users, increasing the potential for special status

wildlife species disturbance and displacement. Alternatives B and C include the most intensive management of recreational use (e.g., designation of more SRMAs and RMZs and application of management zones), followed by alternatives A and D, respectively. Under Alternative D, no SRMAs would be designated and the entire Planning Area would be designated as an ERMA with less targeted recreation management than alternatives B and C, which could increase the potential for impacts on special status species from disturbance/displacement from recreation conflicts and uses.

Alternative A generally limits potential impacts on key foraging, nesting, and breeding areas from development due to monument protections afforded across the Planning Area. Alternative B prohibits surface-disturbing activities during sensitive seasons, while Alternative C allows permanent facilities and surface-disturbing and disruptive activities during sensitive seasons under certain conditions. Alternative D allows surface-disturbing activities in special status species habitats, if mitigated as required by law. As a result, alternatives A and B would result in the greatest beneficial impact on special status species, followed by Alternative C and then Alternative D.

BMPs that would protect special status species from disturbance under all alternatives are included in Appendix G, *Best Management Practices*. Examples of these BMPs include taking appropriate actions to prevent trampling of special status plants, prohibiting designation of climbing areas within known special status raptor species nesting areas, and ensuring project designs incorporate measures to avoid direct disturbance to special status species populations and suitable habitats where possible.

Impacts from Vegetation Treatments and Other Habitat Restoration Activities

Alternatives B, C, and D would provide for increased flexibility to conduct various habitat restoration and wildlife augmentation activities, which could provide greater long-term beneficial impacts on special status species than Alternative A. Refer to the discussion of impacts on general fish and wildlife from vegetation treatments and other habitat restoration activities above for more information.

Alternatives A and B emphasize natural processes and the use of native species during reclamation and, given that these alternatives would result in less surface disturbance, they would generally increase the potential for beneficial impacts on special status species. Alternatives C and D allow a greater range of vegetation treatment options, which could increase the potential for long-term beneficial impacts on some special status species, but a greater potential for surface disturbance and human activity under alternatives C and D would result in additional opportunities for new or expanding infestations of nonnative invasive species as compared to alternatives A and B.

Impacts on Monument Objects

Several special status species are monument objects identified as “Biological and Ecological Resources and Processes” within the Grand Staircase, Kaiparowits, and Escalante Canyons Units of GSENM, and are prioritized for conservation, protection, and restoration (refer to Appendix E, *Grand Staircase-Escalante National Monument Objects and Resource Values*). Specific objects identified include bald eagles and their habitat; the Paria River (because of MSO protected activity centers (PACs) and southwestern willow flycatcher critical habitat);

additional MSO PACs; Kodachrome bladderpod habitat; Ute ladies'-tresses habitat; Jones's cycladenia habitat; sensitive and endemic plant species; and special status species habitats at such places as Fiftymile Mountain, Wahweap, and Mud Spring. Alternatives A and B would result in the greatest beneficial direct and indirect impacts due to their higher potential for conservation, protection, and restoration of the special status species-related monument objects as compared to alternatives C and D. For the conservation of raptor-related monument objects, such as bald eagles, BMPs would be applied for special status raptor species management during management actions and project-level activities under all alternatives. The beneficial direct and indirect impacts and protective restrictions under alternatives A and B would also result in the protection of sensitive and endemic plant species and allow for greater preservation of intact ecological values over a greater area than alternatives C and D. Under all alternatives, BMPs would be implemented to avoid surface-disturbing activities or placement of permanent facilities in areas where there are known populations of endemic plant species.

MSO PACs would be protected under all alternatives. The most protection would be provided under Alternative B, which does not allow recreation facilities or trails in these areas.

Alternative C allows development of recreation facilities or trails in MSO PACs if it would not conflict with MSO management objectives, while Alternative D includes the least protection of MSO PACs by allowing the greatest potential for development of recreation facilities within MSO PACs.

Monument objects such as Kodachrome bladderpod, Ute ladies'-tresses, and Jones cycladenia habitats, as well as special status species habitats at such places as Fiftymile Mountain, Wahweap, and Mud Spring, would be protected under all alternatives from surface-disturbing and disruptive activities. The most protection would be provided under Alternative B, which would not allow surface disturbance in these areas. Alternative C would allow surface disturbance in these special status species habitats with the implementation of BMPs. Alternative D would result in the least protection of special status species habitats as compared to the other alternatives by allowing surface-disturbing activities across the greatest portion of the Planning Area.

3.3.4 Cumulative Effects

The cumulative impacts analysis area for fish, wildlife, and special status species varies by species. Analysis areas for big game species are composed of game management units that intersect the Planning Area. For aquatic species, including special status fish, the cumulative impacts analysis area extends outside the Planning Area, following boundaries of the watersheds that completely or partially overlap it. For migratory birds and non-big game terrestrial wildlife species, the cumulative impacts analysis area is the Planning Area. These areas include the documented home range or foraging territories of species or groups of species that are present or have suitable habitat in or adjacent to the Planning Area and that may experience direct or indirect effects from management actions. Cumulative impacts on fish, wildlife, and special status species are linked to those described for vegetation, as vegetation communities provide habitat for wildlife and can affect habitat for fish (e.g., riparian vegetation).

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis areas would have varying beneficial and adverse impacts on fish, wildlife, and special status species. In general, resource use activities have caused habitat degradation and

loss, habitat fragmentation, noise, increased human presence, and the spread of invasive species; conversely, land use planning efforts, along with vegetation management and habitat restoration activities, have countered these adverse impacts to some degree by improving habitat connectivity, plant productivity, vegetation diversity, and ecosystem health. Past actions, including Federal land acquisitions and designation of GSENM/Glen Canyon NRA, along with management actions resulting from subsequent comprehensive planning efforts (e.g., BLM and county management plans, Kane and Garfield County general plans, livestock grazing plans) have established and increased protections for fish, wildlife, and special status species throughout the cumulative impacts analysis area.

Ongoing management for fish, wildlife, and special status species by the BLM, UDWR, and NPS include the dedication of resources for maintaining and restoring habitats, and the consideration of these resources during review and approval of discretionary actions. These actions are critical to maintaining healthy and sustainable populations given the increasing levels of development, recreation, and resource use that are anticipated.

Reasonably foreseeable future actions that would affect fish, wildlife, and special status species in the cumulative impacts analysis areas include utility ROWs (e.g., Lake Powell pipeline) that would contribute to short-term and long-term habitat degradation, loss, and fragmentation, as well as short-term disturbance and displacement during construction and maintenance activities. Recreation site improvements (e.g., Calf Creek recreation site improvements) and development of recreation management plans to address specific activities such as climbing and canyoneering would contribute to long-term, adverse impacts by supporting recreational activities that could affect fish, wildlife, and special status species. However, these recreational management plans would also have some beneficial impacts due to additional restrictions that would be enforced for some activities/locations and the provision of facilities such as shade structures or parking areas that would reduce the dispersed use of natural areas by recreationists.

BLM management and associated activity in the Planning Area would incrementally contribute to adverse cumulative impacts on fish, wildlife, and special status species. Fewer restrictions and increased development under Alternative D are anticipated to result in greater levels of habitat degradation, loss, and fragmentation in addition to more disturbance and displacement of fish and wildlife than the other alternatives. Alternative D, when combined with other land uses and past, present, and reasonably foreseeable future actions, would result in adverse cumulative impacts on fish, wildlife, and special status species within the cumulative impacts analysis areas. Management actions associated with alternatives A, B, and C would incrementally contribute to adverse cumulative effects on fish, wildlife, and special status species to a lesser degree than Alternative D due to the additional restrictions on surface-disturbing activities and other resource uses under these alternatives. However, the effects of alternatives A, B, and C, when combined with other land uses and past, present, and reasonably foreseeable future actions, would also result in adverse cumulative impacts on fish, wildlife, and special status species within these resources' cumulative impacts analysis areas.

3.4 Lands with Wilderness Characteristics

3.4.1 Affected Environment

The analysis area for this resource is lands with wilderness characteristics in the Planning Area. Lands with wilderness characteristics are defined and considered according to direction in BLM

Manuals 6310 and 6320 (BLM 2012b, 2012c). Indicators for lands with wilderness characteristics are sufficient size, naturalness, outstanding opportunities for primitive and unconfined recreation, outstanding opportunities for solitude, and/or any identified supplemental values (BLM 2012b). Interest in wilderness resources throughout the Planning Area has local, regional, and national significance.

The 1999 Utah Wilderness Inventory conducted by the BLM identified approximately 482,000 acres outside of existing WSAs as lands with wilderness characteristics within the Planning Area (BLM 1999b). In 2018, the BLM updated the lands with wilderness characteristics inventory to support this planning effort (BLM 2018d). In addition to the approximately 482,000 acres inventoried (BLM 1999b, 2018d), there are 86 former Utah School and Institutional Trust Lands Administration (SITLA) sections totaling approximately 54,450 acres that are completely surrounded by WSAs within the Planning Area. The BLM concluded there is a reasonable probability that these 86 SITLA sections (i.e., approximately 54,450 acres) generally contain the same apparent naturalness and outstanding opportunities for solitude or primitive and unconfined recreation as the surrounding WSAs (BLM 2018b). Therefore, in total, lands with wilderness characteristics encompass approximately 536,450 acres of the Planning Area. Refer to Chapter 2, Section 2.2.7, *Lands with Wilderness Characteristics*, Table 13 (pages 48–50), and Appendix 1 (Maps), Map 6 (page 218), in the AMS (BLM 2018b) for more information on lands with wilderness characteristics in the Planning Area.

3.4.2 Environmental Consequences

3.4.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on lands with wilderness characteristics within the Planning Area from implementation of the management alternatives. Map 6, Lands with Wilderness Characteristics Alternative B, and Map 7, Lands with Wilderness Characteristics Alternative C, depict areas that would be managed for protection of wilderness characteristics under the alternatives. Impacts on lands with wilderness characteristics would primarily result from the following impact mechanisms:

- Mineral management and potential development in KEPA
- ROWs and/or renewable energy development
- Vegetation treatments
- OHV use

Effects on lands with wilderness characteristics from these impact mechanisms are generally described in a qualitative fashion, with acreages provided where appropriate to draw distinctions among the alternatives.

This analysis uses the following assumptions:

- Public interest in the BLM's inventory determinations, as well as management actions for these areas, has increased in the past 20 years and is expected to increase in the future.
- As areas that contain wilderness characteristics become more limited, pressure for preservation of these areas is expected to increase. Outstanding opportunities for solitude or primitive and unconfined recreation would become increasingly important to residents of and visitors to the area as visitation increases. Conflict between development interests and preservation interests is expected to increase, as well (BLM 2018b).

- Scenic resources contributing to lands with wilderness characteristics would be increasingly important as visitation increases.

3.4.2.2 Direct and Indirect Effects

Adverse impacts on lands with wilderness characteristics occur when one or more components (e.g., size, naturalness) of wilderness characteristics are diminished. Adverse impacts are reduced when components of wilderness characteristics are preserved or improved. Surface-disturbing activities and other resource uses could result in short- and long-term (depending on the extent and intensity of the disturbance) adverse impacts on lands with wilderness characteristics. Activities such as ROW and minerals development would introduce activities or disturbances that could adversely affect the natural conditions in these areas over the short and long term.

Lands with wilderness characteristics that are managed to protect, preserve, or maintain their wilderness characteristics would generally prevent authorization of most activities that would adversely affect those characteristics. In areas managed for protection of wilderness characteristics, authorization of most activities that would adversely affect wilderness characteristics are prohibited. As shown in Table 3.4-1, only alternatives B and C specifically manage lands with wilderness characteristics to protect, preserve, or maintain their wilderness characteristics.

Table 3.4-1. Acres Managed for Wilderness Characteristics

Alternative	Grand Staircase Unit (acres)	Kaiparowits Unit (acres)	Escalante Canyons Unit (acres)	KEPA (acres)	Total Acres
Alternative A	0	0	0	0	0
Alternative B	20,080	139,477	59,612	370,617	589,787
Alternative C	13,751	60,310	26,110	43,377	143,548
Alternative D (Preferred Alternative)	0	0	0	0	0

KEPA – Kanab-Escalante Planning Area

Impacts from Mineral Development in Lands with Wilderness Characteristics in KEPA

Mineral resource development would have long-term, direct, adverse impacts on lands with wilderness characteristics in KEPA resulting from surface disturbance, infrastructure development, OHV and mechanized vehicle use and traffic, and other project-related activity (e.g., noise). These adverse effects could alter the naturalness of the area and conflict with opportunities for solitude and primitive and unconfined recreation. Alternative D does not specifically restrict mineral development on lands with wilderness characteristics, and lands with wilderness characteristics areas in KEPA would generally be available for mineral development that could adversely affect wilderness characteristics. Alternative B manages lands with wilderness characteristics as closed to mineral development, which would decrease the potential for adverse impacts from mineral development in comparison to the other alternatives. While Alternative C recommends withdrawals from locatable mineral entry and prohibits surface occupancy for mineral leasing (no surface occupancy [NSO]) in KEPA, it allows

expansion of mineral material sites, potentially resulting in adverse impacts on components of wilderness characteristics. For former SITLA parcels that are completely surrounded by WSAs, alternatives C and D, respectively, would result in a checkerboard pattern of lands that are open to mineral leasing (subject to minor and moderate constraints) but completely surrounded by lands that are closed. While no lands with wilderness characteristics would be managed specifically for protection of wilderness characteristics in Alternative A, the substantial overlap between these areas and the Outback and Primitive Management Zones would generally provide protection of wilderness characteristics similar to management under alternatives B and C.

Impacts from ROWs and/or Renewable Energy Development

ROW development, such as a road, pipeline, transmission line, communication site, or energy-related project, can result in adverse impacts on lands with wilderness characteristics by altering their naturalness and conflicting with opportunities for solitude and unconfined recreation. Alternative D does not specifically manage areas for the protection of wilderness characteristics, increasing the potential for adverse effects on wilderness characteristics in these areas from ROW development. Conversely, Alternative B manages all lands with wilderness characteristics as ROW exclusion areas, avoiding potential adverse impacts. Alternative C designates all areas specifically managed to protect lands with wilderness characteristics as ROW avoidance areas, providing additional opportunities to reduce or mitigate adverse impacts from ROW development to a greater extent than management under Alternative D, although not to the extent of management under Alternative B. For former SITLA parcels that are completely surrounded by WSAs, alternatives C and D, respectively, would result in a checkerboard pattern of lands that are open to new ROWs, but completely surrounded by lands that are managed as ROW exclusion. Under all alternatives, it is unlikely that ROWs could be granted access across the surrounding WSAs to reach these former SITLA parcels. While no lands with wilderness characteristics would be managed specifically for protection of wilderness characteristics under Alternative A, the substantial overlap between these areas and the Outback and Primitive Management Zones would generally provide protection of wilderness characteristics similar to management under Alternative B (in the Primitive Management Zones) or Alternative C (in the Outback Management Zones).

Impacts from Vegetation Treatments

Vegetation management actions would reduce fuel loads, control the spread of invasive species, and reduce the potential for uncharacteristic wildfires and large-scale alterations to vegetation patterns. While short-term, adverse impacts could include the noise and presence of people, equipment, and operations that could temporarily diminish opportunities for solitude and primitive forms of recreation, vegetation management that maintains or improves ecosystem health and function and apparent naturalness is likely to have long-term, beneficial impacts on lands with wilderness characteristics. Under Alternative A, the use of machinery for vegetation restoration is prohibited in the Primitive Management Zone and stipulations for chaining are applied in the Outback, Frontcountry, and Passage Management Zones, reducing potential short-term adverse as well as long-term beneficial impacts. Alternative B prohibits vegetation treatments on all lands with wilderness characteristics, eliminating potential short-term adverse as well as long-term beneficial impacts from active vegetation management. Alternative C allows vegetation treatments for the purpose of maintaining or restoring ecological condition, increasing both potential short-term adverse effects on opportunities for

solitude and primitive forms of recreation and long-term beneficial impacts on the appearance of naturalness compared to Alternative B. Alternative D does not specifically manage areas for the protection of wilderness characteristics, and as a result would generally allow the broadest range of vegetation treatments in these areas of any alternative. However, because Alternative D allows the use of mechanical treatments and nonnative seed for restoration efforts, the long-term beneficial effects on naturalness from vegetation treatments anticipated under Alternative C are less likely to occur.

Impacts from Travel Management and Visual Resources Management

Management that allows or restricts OHV access to lands, and management that allows more or less visual contrast (as measured by Visual Resource Management [VRM] classes), can affect the preservation of wilderness characteristics. The application of restrictive VRM Class I or II management for lands with wilderness characteristics can help preserve the naturalness of these areas, while application of VRM Classes III and IV can allow levels of visual contrast that damage or degrade the naturalness of these areas. Allowing access for motorized OHV travel via routes in the lands with wilderness characteristics could adversely affect the opportunities for solitude or primitive and unconfined recreation components of these areas. Alternative B manages all lands with wilderness characteristics as closed to OHV use and VRM Class I, eliminating potential effects on wilderness characteristics components in these areas. Under both Alternative C and Alternative D, which do not specifically manage these areas for the protection of wilderness characteristics, OHV use in lands with wilderness characteristics is limited to designated routes. Limiting OHV use to designated routes would reduce impacts on wilderness characteristics by reducing the areas where OHV use is allowed, although not to the extent of management under Alternative B. In addition, Alternative C designates ACECs that overlap some lands with wilderness characteristics, which would increase protection for opportunities for solitude or primitive and unconfined recreation in these areas. Alternative C also applies VRM Class II in areas specifically managed to preserve their wilderness characteristics, limiting degradation of naturalness of some of the lands with wilderness characteristics in the Planning Area. VRM management under Alternative D is less restrictive, and would likely allow development in some lands with wilderness characteristics that would adversely affect the apparent naturalness of these areas. For former SITLA parcels that are completely surrounded by WSAs, alternatives C and D would result in a checkerboard pattern of lands designated as OHV limited and VRM Class II, III, or IV that are completely surrounded by lands that are managed as OHV closed areas and VRM Class I.

3.4.2.3 Cumulative Effects

The cumulative impacts analysis area for lands with wilderness characteristics includes the identified lands with wilderness characteristics and the WSAs within the Planning Area. This analysis area encompasses the extent of areas identified as lands with wilderness characteristics and WSAs. Lands with wilderness characteristics in the Planning Area are particularly susceptible to impacts from mineral development, ROWs, and renewable energy development, as well as vegetation treatments, as these actions can reduce an area's naturalness by introducing human-made activity, disturbance, and features. These activities would contribute to cumulative impacts on lands with wilderness characteristics if they occur within the boundaries of areas managed for wilderness characteristics. Development projects that fragment lands with wilderness characteristics may result in certain areas no longer meet the minimum size requirements for protection (Appendix N, *Cumulative Impact Methodology*)

and Past, Present, and Reasonably Foreseeable Future Actions). Based on the management actions for development under the alternatives, the potential for adverse direct and indirect cumulative impacts from mineral development, ROWs, and renewable energy development, as well as vegetation treatments, would be greatest under Alternative D, and smallest under alternatives B, A, and C, respectively.

3.5 Paleontological Resources

3.5.1 Affected Environment

The analysis area for paleontological resources is the Planning Area.

The Planning Area includes bedrock geologic formations ranging from Permian to Late Cretaceous in age, and Neogene surficial deposits. Fossils occur in all geologic formations and in the Neogene units in the Planning Area, but the most scientifically important geologic units are the Chinle and Morrison formations, and the entire Late Cretaceous succession. The Late Cretaceous succession is unique to the Planning Area and holds high scientific and public significance, particularly from the western Kaiparowits Plateau to Skutumpah Terrace. Dozens of new dinosaur and other large vertebrate taxa and hundreds of smaller taxa have been discovered, making it one of the most complete Late Cretaceous terrestrial fossil vertebrate successions in the world. Petrified wood sites and areas with high visitation potential are also of elevated management concern.

Age, fossil types, acreage, and Potential Fossil Yield Classification² (PFYC) for all geologic formations in the Planning Area are summarized in Table 3.5-1, and geologic and PFYC features are depicted on Maps 8 and 9 in Appendix A, *Maps*. Refer to Chapter 2, Section 2.2.8, *Paleontological Resources* (pages 51–55), and Appendix 5, *Paleontology* (pages 269–305), in the AMS (BLM 2018b) for more information on geologic units and fossil resources within the Planning Area. The PFYC system is a predictive resource management tool developed by the BLM (2016) that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential).

The BLM has tracked key paleontological indicators and trends in the Planning Area since 2000. The following is a summary of the paleontological indicators, current conditions, trends, and forecasts. There are approximately 52,000 museum-curated specimens that came from the Planning Area. The total number of museum-curated specimens has steadily increased over the years, with 300 to 500 new specimens added annually, and is expected to continue to increase. There are typically between two and ten scientific publications annually for paleontological resources in the Planning Area, and this number has steadily increased since GSENM was established and is expected to continue to increase. There are five partnerships with major institutions, which have stayed constant over the years. Between 30 and 50 in-situ fossil sites are monitored for public impacts and 5,000 to 6,000 new acres are proactively inventoried per year. The number of sites monitored fluctuates greatly each year, but the number of proactively inventoried acres per year has been relatively constant over the last 18 years. Five fossil sites are dedicated to public visitation (four within GSENM boundaries and one within KEPA) and two to three new public exhibits are added annually, and these numbers are expected to increase. There are no public collecting sites, but it is anticipated such sites will be

² PFYC values listed in Appendix 5 (*Paleontology*), (pages 269–305) in the AMS (BLM 2018b) were updated to reflect current BLM PFYC guidance (BLM 2016).

established in the future. Refer to Chapter 2, Section 2.2.8, *Paleontological Resources* (pages 51–55), in the AMS (BLM 2018b) for more information on paleontological indicators, current conditions, trends, and forecasts.

Several locations within the Planning Area have been the target of illegal fossil collection. This includes the collection of invertebrates from the Permian formations, petrified wood and small vertebrate specimens (especially phytosaur teeth) from the Chinle Formation, fossil bone and petrified wood from the Morrison Formation, invertebrates and plants from the Naturita Formation, large invertebrates and shark teeth from the Tropic Shale, shark teeth and other smaller vertebrate remains from the Straight Cliffs Formation, and large petrified logs from the Wahweap Formation. Illegal/unauthorized molding and casting of footprints has occurred in the Kayenta and Navajo formations. Refer to Appendix 5, *Paleontology* (pages 269–305), in the AMS (BLM 2018b) for more information on illegal fossil collection in specific geologic units.

Table 3.5-1. Geology and Paleontology Summary

Geologic Formation	Age	PFYC	Documented Fossil Types	GS (acres)	KP (acres)	EC (acres)	KE (acres)
Various	Permian	3	Invertebrate	0	0	0	13,373
Moenkopi	Triassic	3	Invertebrate; trace; stromatolite	5,512	0	1,683	124,685
Chinle	Triassic	4	Crocodile-like reptile, amphibian; invertebrate; plant; trace	9,673	797	14,150	22,401
Moenave	Triassic - Jurassic	4	Fish, tetrapod, dinosaur; invertebrate; microfossil; trace; stromatolite	6,266	1,018	0	605
Wingate Sandstone	Triassic - Jurassic	3	Fish, tetrapod, dinosaur; invertebrate; microfossil; trace; stromatolite	0	0	7,532	511
Kayenta	Jurassic	4	Trace; plant; frog, turtle, mammal-like reptile, protosuchid, pterosaur, dinosaur	29,246	6,992	25,735	2,577
Navajo	Jurassic	3	Fish, cynodont, dinosaur; trace	77,434	36,281	111,509	36,198
Carmel	Jurassic	2	Invertebrate; trace; stromatolite	33,188	18,470	33,107	70,745
Entrada	Jurassic	4	Trace	79	4,820	3,852	41,462
Morrison	Jurassic	4	Dinosaur; plant	0	5,796	0	12,543
Cedar Mountain/ Naturita (formally Dakota) ⁽¹⁾	Cretaceous	4-5	Shark, fish, amphibian, lizard, turtle, snake, crocodilian, dinosaur, marine reptile, mammal; invertebrate; plant; trace	110	3,222	0	22,164
Tropic Shale ⁽¹⁾	Cretaceous	5	Shark, fish, turtle, marine reptile, dinosaur; invertebrate	18	10,929	0	48,515
Straight Cliffs ⁽¹⁾	Cretaceous	3-4	Shark, fish, frog, salamander, lizard, snake, dinosaur, mammal; invertebrate; plant; trace	0	165,365	0	221,233
Wahweap	Cretaceous	5	Fish, amphibian, lizard, turtle, crocodilian, dinosaur, mammal; Invertebrate; plant; trace	0	151,191	0	32,746
Kaiparowits	Cretaceous	5	Shark, fish, amphibian, turtle, lizard, snake, crocodilian, pterosaur, dinosaur, mammal; invertebrate; plant	0	65,336	0	1,532
surficial deposits	Neogene	3	Mammoth, camel, horse, giant bison	52,822	89,877	45,599	252,532
			Total	214,247	56,095	243,168	903,821

Sources: BLM 2016, 2018b, 2018f

¹ Most of the scientifically significant vertebrate fossil producing areas are now outside of special designation.

GS – Grand Staircase Unit, KP – Kaiparowits Unit, EC – Escalante Canyons Unit, KE – Kanab-Escalante Planning Area

3.5.2 Environmental Consequences

Direct adverse impacts on paleontological resources result from destruction due to surface-disturbing activity and natural biological and physical erosion. Adverse indirect impacts typically result from the continuing implementation of management decisions and resulting activities, including normal ongoing operations of facilities constructed within a given project area. They also occur as a result of management decisions that increase public access and therefore increase the likelihood of the loss of paleontological resources through vandalism and unlawful collecting. Adverse cumulative impacts result from the incremental loss of paleontological resources and the associated irretrievable loss of scientific information over time because of ground disturbance, vandalism, and both lawful (casual collection) and unlawful collection. Conversely, beneficial direct, indirect, and cumulative impacts on paleontological resources could result from management decisions that restrict surface-disturbing activities, close or limit travel and access, establish areas as special designations, conserve important specimens in publicly accessible museum collections, and inventory sites to facilitate mitigation and avoidance.

3.5.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on paleontological resources from implementation of the management alternatives. Impacts on paleontological resources would primarily result from the following impact mechanisms:

- Surface-disturbing activities
- Increased public access
- Proactive management to benefit paleontological resources
- Natural agents of erosion
- Collecting activities both legal and illegal

Effects on paleontological resources from these impact mechanisms are generally described in a qualitative fashion, with acreages provided where appropriate to draw distinctions among the alternatives. This analysis uses the following assumptions:

- The degree of impact attributed to ground disturbance would be affected by several factors, including the PFYC of the affected geologic units, the type and degree of disturbance, and mitigating actions applied to the disturbance.
- Impacts on paleontological resources are long term and permanent, because fossils are non-renewable resources that cannot be replaced once lost.

3.5.2.2 Direct and Indirect Effects

Management for minerals development, lands and realty, and renewable energy development could result in direct adverse impacts on paleontological resources through opening areas to surface-disturbing activities in geologic units with PFYC 3 to 5. Management for recreation and transportation could result in indirect adverse impacts by increasing public access to sensitive paleontological resources. Management decisions that limit the potential adverse effects on paleontological resources from other resource uses by instituting constraints on those uses include special designations (e.g., ACECs designated to protect paleontological resources and ACECs that limit surface disturbance), certain recreation management areas (e.g., SRMAs and RMZs that limit surface disturbance to meet recreation objectives), lands with wilderness

characteristics (e.g., limits on surface disturbance and activity to preserve naturalness and outstanding opportunities for solitude), WSAs (e.g., limitations on mineral leasing and ROWs to maintain wilderness designation), and resource-/area-specific protective closures (e.g., limitations in relict plant communities). In general, potential impacts on paleontological resources would be greatest in the GSENM Kaiparowits Unit compared to the other units due to the higher concentration of discovered paleontological resources and the higher PFYC rating in this unit, though the potential for impacts depends on the types of activities in the GSENM units and mitigation measures that would be applied during site-specific permitting.

Application of the paleontological resource BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for adverse impacts on paleontological resources. The BMP requires avoidance of areas with unique paleontological resources and allows for sampling in areas of ubiquitous fossils, as well as implementation of measures to minimize impacts on the remaining paleontological resources.

Impacts from Surface-Disturbing Activities

Direct adverse impacts on paleontological resources could result from surface-disturbing activities in PFYC 3 to 5 geologic units, including surface coal mining operations, surface mining, oil and gas development, and development of facilities, roads, and recreation sites. Management that limits ground disturbance by designating ACECs in KEPA, managing for lands with wilderness characteristics, establishing ROW avoidance and exclusion areas, managing for certain recreation outcomes, and applying surface-use stipulations to mineral and renewable energy development in KEPA, or through other means, would reduce the potential for adverse impacts.

Adverse impacts on paleontological resources can occur from surface-disturbing activities that result in the physical damage or destruction of fossils. The potential for direct adverse impacts from surface-disturbing activities is greatest under Alternative D, and smallest under Alternative A, Alternative B, and Alternative C, respectively. Differences between the alternatives are driven by the degree of use restrictions on minerals development, the availability of areas for issuance of new ROW and renewable energy permits, the creation of facilities and infrastructure for transportation and recreation, and the extent and management of special designations in the alternatives. Alternative D would result in the greatest potential for direct adverse impacts from surface-disturbing activities because it contains the fewest acreage of special designations and fewest restrictions on resource uses, followed by Alternative C, Alternative A, and Alternative B, respectively (refer to Table 3-1).

Impacts from Public Access

Long-term, indirect, adverse impacts on paleontological resources could result from public access to PFYC 3 to 5 geologic units, including opening routes for public use and increasing recreation opportunities. Management actions that constrain those uses, such as special designations like ACECs that restrict public access, would reduce the potential for adverse impacts.

An increase in public access would also increase the likelihood of the loss of paleontological resources through vandalism and unlawful collecting. The potential for direct adverse impacts from increased public access is greatest under Alternative D, followed by Alternative C, Alternative A, and Alternative B, respectively. Differences between the alternatives are driven by

the extent of allowable casual collection of paleontological resources, degree of use restrictions in areas open for transportation and recreation, and extent and management of special designations in the alternatives.

Impacts from Collection

Casual collection of paleontological resources and petrified wood can result in the loss of paleontological resources over time. However, allowing for collection provides beneficial effects on public land users interested in the unique paleontological resources in the Planning Area. In general, the potential for adverse impacts associated with collection would be proportional to the acreage open or closed for casual collection under each alternative.

Within KEPA, Alternative D would result in the greatest potential impacts on paleontological resources by allowing casual surface collection of common invertebrate and botanical paleontological resources across KEPA, except in certain areas in Camp Flats and Tibbett Head (Map 12), and where such resources are of critical scientific or recreational value and need to be protected, or where collection is incompatible with other resource protection. Alternative D would also allow casual collection of rocks, minerals, and petrified wood across the entirety of KEPA. Alternatives A and B would result in the least potential impacts on paleontological resources in KEPA by prohibiting casual collection of paleontological resources, mineral resources, and petrified wood across the entirety of KEPA. Alternative C would fall between alternatives B and D by allowing casual collection of minerals, rocks, petrified wood, and common invertebrate and botanical paleontological resources for personal (non-commercial) use across KEPA, except in certain areas identified as closed to collection (Map 11).

Within GSENM, alternatives A and B would both close the entirety of GSENM to casual collection of paleontological resources, minerals, and petrified wood. Alternatives C and D would prohibit casual collection of paleontological resources except in specially designated and posted collection areas including certain areas along Cottonwood Canyon Road and in the Straight Cliffs/Fiftymile Mountain area (Maps 11 and 12). As a result, alternatives C and D would increase potential impacts on paleontological resources by opening these areas to casual collection; however, opening these areas to casual collection would benefit public land users interested in the unique paleontological resources in the Planning Area.

Impacts from Proactive Management

Management that requires proactive inventory of paleontological resources may result in beneficial impacts because inventories can result in the discovery, documentation, recovery, and curation of significant fossils. Beneficial impacts from proactive surveys would occur under all alternatives. Proactive inventories would identify critical or scientifically significant specimens and potential adverse impacts would be mitigated by collection and curation (addressed during implementation-level planning through development of a Paleontological RMP, discussed further below). In addition, natural erosion can uncover previously covered fossils and increase the potential for fossil discoveries if these areas are surveyed for paleontological resources.

Within KEPA, management of ACECs for paleontological values would result in the greatest beneficial impact on paleontological resources under alternatives B and C. The designation of ACECs under these alternatives would subject the least acreage to surface-disturbing activities. Alternatives A and D do not designate ACECs and provide less protection and greater exposure

to direct impacts from surface-disturbing activities, but may result in more identification of paleontological localities due to increased resource use. Alternative B designates 103,568 acres of ACECs for which paleontological resources are a relevant and important value, including portions of the paleontologically sensitive Petrified Wood Resource Area and Naturita, Tropic Shale, Straight Cliffs, Wahweap, and Kaiparowits formations. Alternative C designate 51,557 acres as paleontological ACECs, including portions of the Petrified Wood Resource Area and Wahweap Formation. The potential ACEC designations would generally offer greater protection of paleontological resources than management of these areas under general program management.

All alternatives include an implementation-level decision to develop a Paleontological RMP for GSENM and certain lands within KEPA that contain scientifically significant fossils. The Paleontological RMP would include components outlining the organization and structure of a paleontological resource program that would provide protocols for the inventory, collection, and protection of paleontological resources. The plan would also include protocols for the management of paleontological sites by class, as well as providing for the identification of scientific, educational, and recreational use opportunities while also allowing volunteer/citizen scientist involvement in paleontological management and research endeavors. Potential threats to paleontological resources include increased public access, disturbance, and removal of scientifically significant fossils; however, protocols to monitor trends and conditions of paleontological sites, including prioritization for scientifically important fossils based on threats, would be identified in the Paleontological RMP.

Development and implementation of a Paleontological RMP under all alternatives would increase consistency in inventory and collection protocols, increase potential for research opportunities and scientific understanding of significant fossils, and increase opportunities for public appreciation and involvement through expanded coordination with counties or municipalities and onsite or community-based interpretation for significant sites and specimens. As part of the Paleontological RMP, a Collections Management Strategy for specimens would be developed. The Collections Strategy would provide an overall approach for displaying Planning Area paleontological resources in museums, including offsite and non-local museums.

Impacts on Monument Objects

Several paleontological resources are described as monument objects within the Grand Staircase and Kaiparowits Units of GSENM and are prioritized for conservation and protection (see Appendix E, *Grand Staircase-Escalante National Monument Objects and Resource Values*). All of the alternatives would result in the potential for conservation and protection of paleontological monument objects by requiring proactive paleontological resource inventories. Because casual collection can result in the incremental loss of paleontological resources over time, alternatives A and B would result in the greatest potential for beneficial impacts by prohibiting casual collection of paleontological and mineral resources, including petrified wood, across the entirety of GSENM. Conversely, alternatives C and D would prohibit casual collection within the majority of GSENM, with casual collection allowed in two designated and posted collection areas (Maps 11 and 12).

Monument objects that are not afforded protections under all alternatives include invertebrates from the Straight Cliffs Formation in the Kaiparowits Unit and petrified wood from the

Triassic/Jurassic sediments of Ancient Lake Dixie in the Grand Staircase Unit. Under alternatives C and D, casual collection would be allowed in the two designated and posted collection areas of the Straight Cliffs Formation, and both the Straight Cliffs Formation and Ancient Lake Dixie sediments (Maps 11 and 12). While casual collection would generally be restricted to common invertebrate and botanical fossils in both alternatives C and D, some inadvertent loss of significant specimens could occur. Under all alternatives, the BLM would retain the ability to manage for the protection of paleontological resources under the authority of FLPMA and the Paleontological Resources Preservation Act of 2009 (16 USC 470aaa–aaa-11).

3.5.2.3 Cumulative Effects

The cumulative impacts analysis area for paleontological resources is the Planning Area. The actions included in this analysis are provided in Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*. Past and ongoing looting and vandalism of paleontological resources has contributed to cumulative impacts in the analysis area. Trending increases in visitation and recreation use in the analysis area may further contribute to potential increases in cumulative impacts on paleontological resources by increasing legal and illegal collection and looting and vandalism.

Projects that result in increased development and recreation opportunities in the region would increase the likelihood for cumulative impacts on paleontological resources due to surface disturbance in paleontologically sensitive geologic units and increased public access, which increases the potential for illegal fossil collection; over-collection of fossils (such as petrified wood) in areas open to casual collection; and vandalism. Specific actions that could contribute to cumulative impacts include HITRR improvement projects that could increase and improve access, buried pipelines such as the Lake Powell pipeline and various fiber optic lines, and minerals development projects in the analysis area.

Special designations and restrictions on surface disturbance reduce the potential for cumulative impacts on paleontological resources within the Planning Area and region, as they would restrict the frequency and extent of surface-disturbing activities and recreation uses that could adversely affect paleontological resources. Alternative B would have the greatest likelihood of reducing adverse potential cumulative impacts on paleontological resources, while Alternative D would have the greatest likelihood of increasing adverse potential cumulative impacts.

Increased public access or opportunities for casual collection on BLM-administered surface land may increase the potential for impacts on paleontological resources on adjacent private lands or lands managed by Glen Canyon NRA. Boundaries between BLM-administered surface land and adjacent landowners are often unsigned in remote portions of the Planning Area. Where BLM management is inconsistent or incompatible with management of adjacent areas, confusion by the public may lead to inadvertent casual collection or damage to paleontological resources on these non-BLM lands. Potential impacts from inadvertent casual collection or resource damage would be least likely under alternatives A and B and greatest under alternatives C and D, based on the area available for casual collection under alternatives C and D.

3.6 Soil and Water Resources

3.6.1 Affected Environment

3.6.1.1 Soil Resources

The analysis area for soils is the Planning Area.

The Planning Area contains low to high elevations with rugged table land topography composed of structural benches, mesas, valley floors, valley plains, alluvial fans, stream terraces, hills cuestas, and mountainsides. The dominant soil orders in the Planning Area are Aridisols, Entisols, and Mollisols, which make up approximately 261,000 acres, 840,300 acres, and 5,600 acres, respectively (NRCS 2005). Soils within the Planning Area are predominantly semiarid, young, and poorly developed, and are derived from sedimentary rock. These soils are slow to develop from chemical and biological development processes, and are shallow (fewer than 1.6 feet [0.5 meter] deep to bedrock) due to fast erosion rates, with deeper soils being formed in recent alluvium. Refer to Chapter 2, Section 2.2.9, *Soil Resources* (pages 55–58), and Appendix 1 (*Maps*), Map 8 (page 220), in the AMS (BLM 2018b) for more information on dominant soil orders in the Planning Area.

Slopes in the analysis area range from low slopes (0 to 5 percent) to very steep, high gradient slopes (greater than 30 percent) (Map 14, *Terrain Slope*). Steep and relatively flatter slopes are interspersed throughout the analysis area. Water and wind erosion, particularly in places with steep slopes, are common disturbances to soils as the result of human activities, including past mining, recreation, and grazing that affect protective crusts and vegetation and lead to the exposure of underlying soils (Bryce et al. 2012). Erosion rates were measured by Darling (2016) in the Planning Area, and were determined to be generally high due to the erosion of underlying weak rock eroding stronger but exposed sections of rock.

The analysis area contains sensitive soils that are affected by a number of factors such as drought, permanent saturation, shallowness, and content, which make soils susceptible to impacts and difficult to restore or reclaim (Map 13, *Sensitive Soils*). The Grand Staircase Unit has the fewest acres of sensitive soils (179,437 acres), and KEPA has the most acres of sensitive soils (538,573 acres). The Kaiparowits Unit and Escalante Canyons Unit have 354,753 and 225,091 acres, respectively, of sensitive soils. Refer to Chapter 2, Section 2.2.9, *Soil Resources* (pages 55–58), in the AMS (BLM 2018b) for more information on sensitive soils.

Biological soil crusts are an important component for the analysis area because they support ecosystem health through soil stabilization, hydrologic processes, nutrient cycling, and biological diversity (Miller 2008:251). Biological soil crusts also act as a useful ecological indicator due to their sensitivity to disturbance (Bryce et al. 2012). Soils and vegetation types common throughout the analysis area support biological soil crusts. Biological soil crusts are functionally significant in the analysis area due to their important roles in supporting ecosystem health and the presence of sensitive soils (Miller 2008:259). Refer to Chapter 2, Section 2.2.9, *Soil Resources* (pages 55–58), and Appendix 1 (*Maps*), Maps 10 and 11 (pages 222–223), in the AMS (BLM 2018b) for more information on biological soil crusts.

3.6.1.2 Water Resources

The analysis area for water includes all surface water and groundwater resources within or crossing the boundary of the Planning Area. The analysis area receives an average of

approximately 10 to 20 inches of precipitation annually (Utah Division of Water Resources 2014). There are limited sources of surface water in the analysis area, which is susceptible to both flooding and drought (Wilkowske et al. 2003).

Surface Water

The analysis area overlaps four hydrologic unit code-8 (HUC-8) subbasins, including the Kanab Creek, Paria River, Lower Lake Powell, and Escalante River subbasins. These subbasins include numerous natural creeks and waterbodies, linear conveyances (e.g., canals), and artificial waterbodies, as described in Appendix P, *Water Resources*, Table 1, Subbasins and Surface Waterbodies in the Analysis Area. The Lower Lake Powell subbasin accounts for the largest acreage of the analysis area (1,914,128 acres), while the Paria River subbasin accounts for the smallest acreage (903,979 acres). The Kanab Creek and Escalante River subbasins account for 1,507,353 and 1,295,715 acres of the analysis area, respectively. There are a total of approximately 7,500 miles of streams and washes within the analysis area (USGS 1999), with approximately 96 percent of these being intermittent or ephemeral. All surface water in the analysis area flows into the Colorado River.

The major surface water use in the analysis area is agricultural irrigation, which is supplied by the Wide Hollow Reservoir and Henrievile Creek. The town of Henrievile obtains water from springs and horizontal wells in the area adjacent to Henrievile Creek, approximately 5 miles east of town. Use of these water sources has increased slightly over time, while other water uses, including livestock use, have generally remained the same.

Twelve waterbodies or reaches in the analysis area are on the Utah 303(d) List of Waters for Reporting Year 2016, indicating they did not meet water quality standards (Utah DEQ 2016). Limited monitoring data exist, but the available data suggest water quality problems are generally stable. Refer to Chapter 2, Section 2.2.13, *Water Resources* (pages 88–94), Table 22 (pages 90–91), and Appendix 1 (*Maps*), Map 18 (page 230), in the AMS (BLM 2018b) for more information on impaired waterbodies.

Groundwater

The primary aquifers in the analysis area are the Colorado Plateau aquifers, the Glen Canyon regional aquifer system, and the Mesa Verde, Dakota, Morrison and Entrada-Preuss aquifers, which range in depth from 200 feet (Dakota aquifer) to 2,200 feet (Glen Canyon aquifer) (Freethey 1997). Precipitation and snowmelt are a significant source of recharge to aquifers underlying the analysis area. These aquifers, in addition to 262 springs, sustain part of the base flows of some of the creeks and rivers in the analysis area.

Groundwater quantity and quality is variable in the analysis area, although a formal inventory of groundwater quantity and quality has not yet been completed. There are 1,450 underground wells (active water rights) in the analysis area that, in addition to springs, support domestic, municipal, irrigation, and livestock watering uses. Water sources in the analysis area are considered to be fully appropriated (Utah Division of Water Rights 2011a, 2011b).

Floodplains

Flash flooding can occur in canyons and washes in the analysis area during periods of heavy rainfall, dam or levee failure, or ice jams. While flood hazard maps are not available for the analysis area (FEMA 2017), flash flooding potential is monitored and rated for flood-prone

areas on a twice-daily basis during summer and fall seasons. Refer to Chapter 2, Section 2.2.13, Water Resources (pages 88–94), in the AMS (BLM 2018b) for more information on flooding and flood risk monitoring.

3.6.2 Environmental Consequences

3.6.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on soil and water resources from implementation of the management alternatives. Impacts on soil and water resources would primarily result from the following impact mechanisms:

- Surface-disturbing activities and vegetation removal
- Vegetation treatments, including prescribed and wildland fires
- Effects on soil and water from these impact mechanisms are described in a qualitative fashion because locations and timing of impact-generating activities are largely unknown and therefore provide insufficient information to conduct an overlay analysis or to model watershed runoff and erosion.

This analysis uses the following assumptions:

- The degree of impact attributed to any one disturbance or series of disturbances would be affected by several factors, including location within the watershed; the type, time, and degree of disturbance; existing soil and water conditions; precipitation; and mitigating actions applied to the disturbance.

3.6.2.2 Direct and Indirect Effects

Surface disturbance and vegetation removal from mineral development, vegetation treatments, installation or maintenance of livestock grazing range improvements, ROW and renewable energy development, development and maintenance of routes and trails, OHV use, and recreation are the primary activities likely to have direct and indirect adverse impacts on soil and water resources. Management decisions that would limit potential adverse effects on soil and water from these activities include renewable energy variance and exclusion areas, constraints on mineral development and withdrawals, restrictions on surface disturbance in fragile or sensitive soil areas and in areas with steep slopes, vegetative cover requirements, and maintenance and protection of existing water resources.

Despite short-term adverse impacts, surface-disturbing and vegetation removal activities associated with mechanical vegetation treatments and prescribed fires are ultimately expected to have long-term beneficial impacts by maintaining native plant communities, increasing vegetative cover, and enhancing fire resilience, which can indirectly reduce soil erosion and sedimentation.

Impacts on soils and water from livestock use are highly variable and dependent on site characteristics and grazing practices.

Impacts from Surface-Disturbing Activities and Vegetation Removal

Surface-disturbing activities result in soil loss, decreased soil productivity, soil compaction, and other changes in the physical and chemical properties of soils. These factors can decrease soil reclamation potential, disrupt or damage biological soil crusts, and create opportunities for the

establishment and spread of noxious weeds that provide less vegetative cover than native species. Decreased vegetative cover and soil compaction would also reduce water infiltration, leading to an increase in surface water runoff, soil erosion, and sedimentation of adjacent waterways.

Surface-disturbing activities can also change the physical characteristics of streams and other surface waterbodies through direct disturbance of stream channels or by increasing runoff from the surrounding watershed. These changes contribute to stream bank erosion, increased turbidity, and degradation of water quality, potentially leading to new surface water impairments or inhibiting resolution of existing impairments.

The potential for direct and indirect impacts from surface disturbance and vegetation removal would be greatest under Alternative D, followed by Alternative C, then Alternative A, with Alternative B having the least potential impacts on soil and water resources. Alternative B would prohibit surface-disturbing activities in fragile or sensitive soil areas. Alternatives C and D would allow surface disturbing-activities in drinking water source protection zones and fragile or sensitive soils (only after development of a soil health and restoration plan outlining specific mitigation measures, subject to BLM approval). Alternative D would generally allow the most surface development among the alternatives and the least amount of constraints on resource uses, thereby increasing potential impacts on soils and water compared to the other alternatives. Alternative B would generally allow the least surface disturbance and most constraints on resource uses, decreasing potential impacts on soils and water compared to the other alternatives.

All the alternatives would prohibit surface-disturbing activities on slopes greater than 30 percent, although Alternative D would require stabilization and runoff measures only on slopes greater than 15 percent, while alternatives B and C would require stabilization and runoff measures on slopes greater than 5 and 10 percent, respectively (no management action for these measures is included in Alternative A). For reclamation activities, Alternative D would require the least amount of vegetative cover (30 percent), compared to the 80 and 50 percent coverages required under alternatives B and C, respectively (Alternative A would does not include vegetative cover requirements). The BLM may grant exceptions for this requirement under alternatives C and D, allowing for more flexibility, but less stringent reclamation standards and potentially fewer long-term beneficial impacts than Alternative B. Prohibiting surface-disturbing activities on fragile soils and steep slopes, requiring soil stabilization measures, and maintaining vegetative cover decrease the potential for adverse impacts from soil loss and sedimentation under Alternative B compared to the other alternatives. Under Alternative B, prohibiting surface disturbance in drinking water source zones would limit the potential for contamination of groundwater and connected surface waters used by public water systems. Erosion and sedimentation associated with BLM management and activities in the Planning Area could migrate downstream to NPS unit water resources, such as Lake Powell.

Construction of certain structural range improvements, such as water developments, could result in localized surface disturbance and vegetation removal, but may improve livestock distribution in the long term in a manner that minimizes trampling and concentrated grazing on fragile soils and in streams and riparian areas. Alternatives C and D could have the greatest short-term adverse impacts from installation of range improvements, but allow a wider range of techniques to improve livestock distribution compared to Alternative B. Overall, the effects of livestock grazing management on soils and water are highly variable and dependent upon site

characteristics and grazing practices. For example, improper livestock grazing can increase the potential for wind and water erosion by reducing vegetative cover, but can also have beneficial effects on soil stability by increasing soil organic matter. Improper livestock grazing, especially near riparian or water sources, can also result in impacts on water quality from transport of E. coli into downstream water resources, including water sources outside of the Planning Area in Glen Canyon NRA and Lake Powell. Transport of E. coli into water resources can result in human health and safety concerns when these water sources are used for drinking water, especially in backcountry situations (e.g., Coyote Creek, Escalante River, Paria River).

None of the alternatives would authorize water developments that would increase livestock numbers.

All alternatives allow for the development and maintenance of trails and routes in limited circumstances and in accordance with the Travel Management Plan (TMP). Surface disturbance and vegetation removal from trail and route development, and ongoing erosion from existing trail and route surfaces, would have adverse effects on soil and water resources under all alternatives; these effects would be addressed during the TMP development process.

Direct and indirect, adverse impacts on soil and water resources would typically be greatest in KEPA under Alternative D and Alternative C. KEPA management under these alternatives allows for greater levels of development than Alternative B (e.g., greater potential for minerals development and ROW permits), which can result in the removal of vegetative cover and the potential for soil compaction, reduced water infiltration, increased runoff, and sedimentation of receiving waterbodies. In general, impacts on soil and water across the three GSENM units would be similar due to their similar management.

Application of soil and water BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect impacts on soil and water. For example, locating development on stable terrain; avoiding or minimizing development in areas with sensitive soils, biological soil crusts, and open water sources; improving or retaining vegetation coverage; and implementing barriers would reduce the potential for increased runoff, erosion, and sedimentation.

Impacts from Vegetation Treatment

Direct adverse impacts on soil and water resources could result from surface disturbance and vegetation removal that occur when conducting mechanical vegetation treatments and prescribed fires. These impacts would be the same as those described in the previous section, but would typically be short term in nature due to the localized and limited extent of disturbances, use of selective vegetation removal and trimming techniques, and the low intensity of prescribed fires. Vegetation treatments and prescribed fires are anticipated to have long-term beneficial impacts from maintaining native plant communities, increasing vegetative cover, and enhancing fire resilience.

Use of chemical vegetation treatments would have similar long-term beneficial impacts as mechanical and prescribed fire treatments, but without short-term adverse impacts from surface disturbance associated with mechanical removal and thinning. However, herbicides could be carried through runoff to surface waterbodies or could infiltrate the soil and come in contact with groundwater resources. Certain herbicides contain chemicals that could contaminate drinking water supplies or have other adverse effects on water quality. The

duration of these impacts would vary based on the concentration and residence time of contaminants in affected water sources and sediments.

Impacts on soils and water associated with vegetation treatments vary across the alternatives based on allowable vegetation treatment methods and tools. Alternative B allows only non-intensive vegetation treatments in limited circumstances and requires seeding with native species. Alternative C would allow the full range of vegetation treatments and tools, except chaining. Alternative D would allow the full range of vegetation treatments and tools, including chaining, and treatments would be prioritized in areas where removal of woodland products would improve rangeland health, wildlife habitat, and forage. As a result, Alternative D would increase potential impacts on soils and water associated with vegetation treatments, followed by Alternative C, with Alternative B having the least potential for impacts. Alternative D would also allow the use of nonnative species where necessary to optimize land health, forage, and productivity in nonstructural range improvements and Alternative C would allow the use of desirable nonnative species where the probability of success or adapted seed availability is low, or if desirable nonnative species are needed to support ecological objectives. Use of nonnative species could increase the potential for the spread and establishment of these species, which could affect native vegetation communities and soil/plant interactions. Application of soil and water BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect impacts on soil and water. For example, chemical vegetation treatments would be restricted to control noxious weed species and would only be applied by certified employees or contractors, limiting the potential to inadvertently treat or remove desirable plant communities and vegetation.

Impacts on Monument Objects

Biological soil crusts are monument objects identified as “Biological and Ecological Resources and Processes; cryptobiotic soil crusts” within the Grand Staircase, Kaiparowits, and Escalante Canyons Units of GSENM, and are prioritized for conservation, protection, and restoration (refer to Appendix E, *Grand Staircase-Escalante National Monument Objects and Resource Values*). In general, impacts on soil crusts across the three GSENM units would be similar due to their similar management. Disturbance of biological soil crusts can result in impacts by altering runoff and infiltration rates, and increasing the potential for water and wind erosion. In general, alternatives that increase the potential for surface disturbance and resource use would increase the potential for impacts on biological soil crust monument objects. As a result, Alternative D would have the greatest potential to affect biological soil crusts, followed by Alternative C, then Alternative B, with Alternative A having the least potential effects. However, all alternatives generally limit the extent of surface disturbance in GSENM (e.g., ROW exclusion, withdrawn from minerals development), and thus impacts on biological soil crust monument objects are expected to be minimal.

In addition, application of soil and water BMPs identified in Appendix G, *Best Management Practices*, would further reduce the potential for direct and indirect impacts on biological soil crusts. Under all alternatives, the potential effects of surface-disturbing activities on biological soil crusts will be considered during site-specific permitting and steps taken to avoid impacts on their function or additional stipulations and mitigation could be applied. Unlike alternatives A, C, and D, Alternative B provides additional protection of soil crusts by implementing adaptive management strategies for livestock grazing activities in pastures containing more than 50

percent of soils with moderate soil degradation susceptibility, including changing the season of use for grazing as appropriate for biological soil crusts.

3.6.2.3 Cumulative Effects

The cumulative impacts analysis area for soil is the Planning Area and directly adjacent areas from which sedimentation and noxious weed dispersion could affect the Planning Area. The cumulative impacts analysis area for water includes the extent of surface water features (e.g., streams) and groundwater resources (i.e., groundwater basins and aquifers) that intersect the Planning Area. Soil and water resources in the cumulative impacts analysis area have historically been altered by water and wind erosion and drought. These areas encompass the range from which soil and water resources may experience direct or indirect effects from management actions and reasonably foreseeable future actions.

Human activities, including past mining, recreation, and grazing, have also affected soil and water through the damage or removal of protective biological soil crusts and vegetation that exposes underlying soils and leads to erosion and sedimentation into waterbodies. However, past and present development in most portions of the cumulative impacts analysis areas have been limited by the BLM's designation of WSAs, designation of GSENM, and *Kane County Land Use Ordinance, Chapter 27, Escalante Region Multiple Use/Multiple Functions Grazing Zone* (last amended September 22, 2014), which establishes areas that are open and generally undeveloped with limited human habitation (Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*). Reasonably foreseeable actions that could result in surface disturbance and associated contributions to cumulative impacts include buried pipelines (e.g., Lake Powell pipeline), vegetation treatments (e.g., Upper Paria Watershed vegetation treatments), and minerals development in the analysis area.

The potential for adverse impacts on soil and water resources is limited within GSENM due to general limitations on surface disturbance and resource use and cumulative impacts would be similar across all alternatives and the GSENM units. Based on the anticipated levels of development and associated surface disturbance, Alternative B would contribute the least to cumulative impacts in the analysis area and Alternative D would contribute the most to cumulative impacts. Erosion and sedimentation associated with BLM management and activities in the analysis area could migrate downstream to NPS unit water resources, such as Lake Powell.

3.7 Vegetation and Fire and Fuels Management

3.7.1 Vegetation Affected Environment

The analysis area for upland and riparian vegetation, noxious weeds, and nonnative invasive plants is the Planning Area (Map 76, Vegetation Communities). The Planning Area occurs within the Colorado Plateau ecoregion. This ecoregion has experienced extensive fragmentation and degradation of its native vegetation cover over the past 50 years due to various activities including oil and gas leasing, mining, recreation, livestock grazing, off-road vehicle usage, and other development.

Existing vegetation types evolve from site-specific topography, soil type, and climactic conditions. Vegetation types in the Planning Area are described using the National Vegetation Classification System macrogroups identified in Table 3.7-1 below. Of the vegetation types

present within the Planning Area, ten are upland types and two are riparian and/or wetland types.

Table 3.7-1. Acreage of Vegetation Types within the Planning Area

Vegetation Type ⁽¹⁾	Grand Staircase Unit (acres)	Kaiparowits Unit (acres)	Escalante Canyons Unit (acres)	KEPA (acres)
Rocky Mountain Two-Needle Pinyon-Juniper Woodland	138,817	326,832	65,004	349,983
Intermountain Basin Cliff, Scree, and Rock Vegetation	37,281	115,641	124,758	179,136
Great Basin and Intermountain Dry Shrubland and Grassland	5,038	19,810	39,654	187,484
Great Basin and Intermountain Tall Sagebrush Shrubland and Steppe	27,291	50,661	9,787	87,994
Great Basin Saltbrush Scrub	439	20,547	799	44,185
Cool Semi-Desert Alkali-Saline Wetland ⁽²⁾	103	3,547	60	8,055
Northern Rocky Mountain Lower Montane and Foothill Forest	581	7,363	4	4,801
Rocky Mountain and Great Basin Flooded and Swamp Forest ⁽²⁾	509	1,163	2,617	855
Recently Disturbed or Modified	751	984	3	5,536
Rocky Mountain Cliff, Scree and Rock Vegetation	103	4,013	73	1,656
Southern Rocky Mountain Montane Grassland and Shrubland	479	1,747	71	931

Source: Montana Natural Heritage Program 2014

¹Vegetation types are described using the National Vegetation Classification System macrogroups.

²Riparian or wetland vegetation type

KEPA – Kanab-Escalante Planning Area

Noxious weeds are plant species that are harmful to the local vegetation community and have been designated as noxious by a Federal, State, or local authority. Nonnative, invasive plants are not native to the area where they are growing and have the potential to become a dominant or codominant species that out-competes other native species if they are not controlled.

Invasive plants are not officially designated. Both noxious weeds and invasive plants are found throughout the Planning Area. Refer to Chapter 2, Section 2.2.11.3, *Noxious Weeds and Nonnative Invasive Plants* (pages 78–82), and Table 19 (page 80) in the AMS (BLM 2018b) for more information on invasive plants and noxious weed occurrence in the Planning Area.

The BLM completed evaluations of three ecosystem attributes (soil/site stability, hydrologic function, and biotic integrity) at 500 locations in and adjacent to the Planning Area in 2006, 2013, and 2014. Refer to Chapter 2, Section 2.2.11.1, *Upland Vegetation* (pages 68–74), in the AMS (BLM 2018b) for a description of ecological sites and more information on the results of these evaluations.

The BLM conducted proper functioning condition (PFC) assessments, which is a qualitative method for assessing condition of riparian-wetland areas, on 192 flowing waters (e.g., creeks, streams, rivers) and 142 still waters (e.g., ponds, lakes, ephemeral pools) throughout the

Planning Area between 2000 and 2013. Refer to Chapter 2, Section 2.2.11.2, *Riparian Vegetation* (pages 74–78), and Appendix 7, *Vegetation* (pages 315–326), in the AMS (BLM 2018b) for more information on the PFC method and on results of these assessments.

The BLM inventoried more than 4,600 acres in the Planning Area to assess the spread of invasive plants and noxious weeds. The most prevalent invasive plant cover types in the inventoried area were tamarisk, Russian olive, yellow clover, and cheatgrass. Refer to Chapter 2, Section 2.2.11.3, *Noxious Weeds and Nonnative Invasive Plants* (pages 78–82), in the AMS (BLM 2018b) for more information on results of these inventories.

Upland and riparian vegetation communities in the Colorado Plateau ecoregion and within the Planning Area have historically been degraded by invasive species and the spread of uncharacteristic native vegetation (e.g., pinyon-juniper expansion). The greatest effects from disturbances on upland vegetation have occurred in the big sagebrush shrubland community, and the BLM anticipates that climate change may exacerbate these effects in the future. Riparian species have been particularly affected by livestock grazing; however, assessments have indicated that BLM management actions to correct livestock grazing issues in riparian areas have improved rangeland health, and that the condition of riparian and wetland vegetation is improving on allotments assessed (Stager's Environmental Consulting 2014). The BLM expects that increases in ground disturbance, human visitation, and routine monument operations will continue to result in noxious weed and invasive plant establishment in the Planning Area; however, focused efforts to control noxious and invasive species have limited the spread and reduced the size of invasive plant populations in the vicinity of the Planning Area.

3.7.2 Vegetation Environmental Consequences

3.7.2.1 Vegetation Methods and Assumptions

This section describes direct, indirect, and cumulative effects on vegetation and vegetation community health from implementation of the management alternatives. Impacts on vegetation would primarily result from the following impact mechanisms:

- Surface disturbance and vegetation removal
- Spread of noxious weeds, invasive plant species, and pests and disease
- Vegetation treatments (including prescribed fire) and habitat restoration activities

Effects on vegetation and vegetation community health from these impact mechanisms are generally described in a qualitative fashion, with acreages provided where appropriate to draw distinctions among the alternatives.

This analysis uses the following assumptions:

- The degree of impact attributed to any one disturbance or series of disturbances would depend on the location of the disturbance within the watershed; the type, time, and degree of disturbance; existing vegetation conditions; precipitation; and mitigating actions applied to the disturbance.
- Prescribed fire would result in short-term, adverse impacts on vegetation; however, vegetation communities would generally benefit from prescribed fire's long-term effects of increasing age diversity and reducing the potential for stand-replacement wildfires.

3.7.2.2 Direct and Indirect Effects

Management of forestry and woodland products, lands and realty, livestock grazing range improvements, minerals development, recreation, renewable energy development, and trails and travel would result in direct adverse impacts on vegetation through surface disturbance and vegetation damage/removal. In contrast, management designed to improve land health, such as fuels treatments, vegetation treatments, fish and wildlife habitat management, and soils and watershed enhancement activities, would cause surface disturbance and vegetation removal in the short term, but would result in long-term, direct and indirect beneficial impacts on vegetation resources. These long-term, beneficial impacts would generally be associated with controlling the spread and establishment of invasive species, allowing for the persistence of desired native vegetative communities with a diversity of species across the landscape, and enhancing and restoring ecological processes and functions. Management decisions that limit the potential adverse effects on vegetation from resource uses by instituting constraints on those uses include special designations (e.g., ACECs that limit surface disturbance for the protection of ACEC values), certain recreation management areas (e.g., SRMAs and RMZs that limit surface disturbance to meet recreation objectives), lands with wilderness characteristics (e.g., limits on surface disturbance and activity to preserve naturalness and outstanding opportunities for solitude), and resource-/area-specific protective closures (e.g., limitations in relict plant communities, limitations on sensitive soils).

Impacts from Surface-Disturbing Activities and Vegetation Removal

Short-term, direct, adverse impacts on vegetation could result from the direct removal of vegetation, including harvest of live plant material, harvest of seeds, and the consumption of plant materials by livestock and wildlife. Long-term, direct, adverse impacts would result from the permanent loss of desirable vegetation from the development of permanent features such as utility ROWs, renewable energy facilities, mineral development, roads, and recreation sites. Surface disturbance and vegetation removal can indirectly increase erosion and sedimentation in the watershed. Erosion and sedimentation result in loss of soil to support vegetation and can have pronounced effects in riparian and wetland communities where physical or chemical alterations from sediment deposition can shift vegetation community composition.

Indirect, adverse impacts associated with resource development activities could include increased spread and establishment of nonnative, invasive species that out-compete desired vegetation, increased degradation of suitable native plant habitat from soil compaction and soil disturbances by livestock and vehicle use, human trampling, and other land management activities. Long-term, indirect impacts that create adverse conditions for vegetation could result from the maintenance of roads, trails, and ROWs; unmanaged or poorly managed livestock grazing allotments; long periods of drought; and high-intensity/high-frequency wildland fires.

Management actions that limit surface disturbance by establishing ROW avoidance and exclusion areas, managing areas as VRM Classes I or II, applying surface-use stipulations to mineral and renewable energy development, or through other means would reduce the potential for adverse impacts. Long-term, beneficial impacts could result from vegetation treatments, habitat restoration activities, and wildland fire and fuels management actions that help to maintain, enhance, or restore overall health, composition, diversity, and resiliency in vegetation communities.

In general, Alternative D would result in the greatest potential for vegetation impacts, followed by alternatives C and B, with Alternative A having the least potential for impacts. Differences between the alternatives are driven by the degree of use restrictions on mineral development, ROW avoidance and exclusion acreages, development of range improvements, areas available for livestock grazing and allocated AUMs, the creation of facilities and infrastructure for OHV use and recreation, and the extent and management of special designations in the alternatives. Alternative D would generally increase the potential for impacts on vegetation because it contains the fewest acreage of special designations (e.g., no ACECs, no lands managed for wilderness characteristics), the fewest constraints and restrictions on resource uses (e.g., minerals development), the greatest area available for livestock grazing, and the fewest resource-specific management decisions for protection of soils and vegetation. Under Alternative B, surface-disturbing activities would be prohibited during sensitive big game seasons, within fragile or sensitive soil areas, and within Drinking Water Source Protection Zones, which would reduce potential impacts on vegetation in these areas compared to the other alternatives (see Table 3-1). In general, impacts from surface-disturbing activity and vegetation removal across the three GSENM units would be similar based on the similar management in the three units.

Application of vegetation BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect adverse impacts on vegetation. For example, requiring equipment to be cleaned prior to operating on BLM-administered surface lands and requiring all seed and vegetation materials to be certified as weed free would reduce potential impacts on vegetation from the establishment and spread of noxious weeds. Similarly, applying BMPs for reclamation and restoration would improve the potential for reclamation success, thereby reducing long-term, adverse impacts on vegetation.

Impacts from the Spread of Noxious Weeds, Invasive Plant Species, and Pests and Diseases

Control of noxious weeds, invasive plant species, and pests and diseases are primary concerns when managing for the health of vegetation communities. Management that limits the spread of noxious weeds, invasive plant species, and pests and diseases, or that provides for their control/eradication, would benefit vegetation community health. Adverse impacts would result from management actions, resource uses, and permitted activities that contribute to the introduction or spread of these species, or that limit invasive species control activities in the Planning Area. Introduction and spread of noxious weed and invasive plant seeds or vegetative materials can occur as a result of reclamation and seeding projects, wildlife use, livestock movement, OHV travel, wind, or water from an area of infestation to an area not previously infested.

Although all alternatives would allow approved weed control methods to control noxious weeds and invasive species, the management alternatives take differing approaches to managing the spread of noxious weeds, invasive plant species, and pests and diseases. Alternative B only allows vegetation treatments in limited circumstances and emphasizes natural processes and the use of native species during restoration. Alternative A would apply a similar approach to Alternative B, but would allow the use of machinery to control areas of noxious weeds and invasive plant species presenting a significant threat to resources. These approaches could limit the areas where vegetation treatments could occur to control invasive species. Limiting the ability to implement the full range of available management to treat noxious weeds,

invasive plant species, and pests would reduce short-term surface disturbance of vegetation communities during treatment, but could result in long-term, adverse impacts if infestations spread. Alternatives C and D allow a greater range of vegetation treatment options, increasing short-term, adverse impacts from surface disturbance but increasing long-term, beneficial impacts. Although all alternatives prioritize the use of native species, potential adverse impacts related to the spread of invasive species from livestock grazing would be greatest under Alternative D because it allows the use of nonnative species where necessary to optimize land health, forage, and productivity in nonstructural range improvements. Alternative C would result in similar but slightly fewer adverse impacts by allowing the use of nonnative seeds where the probability of success or adapted seed availability is low, as long as ecological objectives are supported. Alternatives A and B would result in the lowest potential for the spread of invasive species from livestock grazing activities by prohibiting the use of nonnative plants to increase forage.

Impacts of Vegetation Treatments (Including Prescribed Fire) and Habitat Restoration Activities

Vegetation, watershed, and habitat management that restores, maintains, and/or enhances vegetation communities would result in long-term, beneficial impacts. Such management may include developments or maintenance of existing watershed improvement projects, habitat improvement projects for wildlife, requirements for restoring/reclaiming disturbed areas, and upland vegetation treatments to remove areas of pinyon-juniper encroachment. This management may also include appropriate use of prescribed fire and fuel treatments to reduce potential for high-intensity fires that damage the vegetation communities and allow noxious weed and invasive species spread. Short-term, adverse impacts may also occur during certain vegetation treatments where they result in substantial surface disturbance. For instance, fuel reduction treatments and prescribed fire would result in short-term disturbances to forest and woodland communities, but could have long-term, beneficial impacts on species composition and diversity.

Long-term, indirect, beneficial impacts could also result from management under other program areas intended to maintain or improve vegetation health, such as proper livestock management techniques and restrictions on grazing in riparian areas or requirements for timely restoration of decommissioned roads and other disturbed areas.

Indirect, adverse impacts can occur from management that prevents the BLM from addressing problematic conditions (e.g., insect epidemics or fuel buildup) or prevent natural processes (e.g., stand regeneration, insect pollination). These factors can adversely affect structure, species composition/diversity, vigor, health, or vegetation community type, causing a decline in abundance or distribution of certain vegetation communities.

Alternatives D, C, and A (in order of most to least permissive) permit a broader range of vegetation and habitat management techniques than Alternative B, resulting in a greater potential for short-term, adverse and long-term, beneficial impacts on vegetation communities and health. All alternatives would allow habitat treatments that benefit wildlife species and would actively manage big-game habitat. Vegetation treatments under all alternatives would result in some short-term disturbance to existing vegetation; however, vegetation treatments could enhance vegetation in the long term. Alternatives A and B also limit vegetation restoration activities to native species, resulting in potential long-term benefits to native

vegetation community enhancement, but eliminating potential short-term benefits from the ability to use desirable nonnative species to accelerate restoration activities. In contrast, Alternative D would allow the use of nonnative species where necessary to optimize land health, forage, and productivity in nonstructural range improvements and Alternative C would allow the use of desirable nonnative species where the probability of success or adapted seed availability is low, or if desirable nonnative species are needed to support ecological objectives. Use of nonnative species could increase the potential for the spread and establishment of these species, which could affect native vegetation communities.

Presidential Proclamation 9682 clarified that the BLM may authorize ecological restoration and active vegetation management activities in the GSENM units. In general, impacts on vegetation communities and health across the three GSENM units would be similar based on the similar management in the three units.

Impacts on Monument Objects

Several vegetation resources are described as “Biological and Ecological Resources and Processes” monument objects within the Grand Staircase, Kaiparowits, and Escalante Canyons Units of GSENM, and are prioritized for conservation, protection, and restoration (see Appendix E, *Grand Staircase-Escalante National Monument Objects and Resource Values*). Alternatives A and B would result in the greatest potential for conservation, protection, and restoration of the vegetation monument objects by decreasing resource use and development potential and providing resource-specific protective management. The beneficial direct and indirect impacts and protective restrictions described above under alternatives A and B would also result in the protection of the diversity of unique and endemic vegetation communities in GSENM, while also preserving intact ecological values. Under all alternatives, BMPs would be implemented to avoid surface-disturbing activities or placement of permanent facilities in areas where there are known populations of endemic plant species. Surveys for endemic plant species may also be required during site-specific permitting in areas where there are known or likely occurrences of endemic plants.

Unique relict plant communities and hanging gardens would be protected under all alternatives from disturbance associated with vegetation restoration methods and new water developments; however, the most protection would be provided under alternatives A and B, which place the greatest amount of restrictions on activities in these areas, followed by Alternative C and then Alternative D. Alternative B would prohibit surface-disturbing activities and permanent facilities within 0.5 mile of riparian and wetland areas, offering greater protection to riparian areas, where hanging gardens occur, compared to alternatives A, C, and D. Alternatives C and D would provide the least protection to riparian areas by allowing surface-disturbing activities that occur at least 330 feet from riparian areas and allowing larger group sizes and pack animals. All alternatives would generally limit the extent of surface disturbance in GSENM (e.g., ROW exclusion, withdrawn from minerals development), and thus impacts on biological and ecological resource objects monument objects are expected to be minimal.

Smaller group size limits could also reduce potential impacts (e.g., trampling, collection) on biological and ecological resource objects, compared to alternatives with larger group sizes. Within WSAs, Alternative B would provide the greatest protection by limiting group size to 8 people, compared to alternatives C, D, and A, which would limit group sizes to 12, 25, and 12–25 people in WSAs, respectively.

3.7.2.3 Cumulative Effects

The cumulative impacts analysis area for vegetation is the Planning Area and areas directly adjacent to the Planning Area (e.g., NPS units) where noxious weeds, invasive species, and pests could spread. Vegetation communities in the Planning Area have historically been altered by the spread of invasive species and pinyon-juniper expansion. Livestock grazing has also had impacts on vegetation, such as changes in plant species composition (Milchunas 2006). Other common adverse cumulative impacts on vegetation and changes in fire regime in the Planning Area include increased trampling due to human visitation and proliferation of OHV use.

Trending increases in visitation and recreation use in the analysis area are anticipated to increase potential trampling and OHV use and associated contributions to cumulative impacts.

Focused efforts in the analysis area have limited the spread and reduced the size of noxious weed and invasive species populations in some areas. For example, Glen Canyon NRA regularly conducts invasive vegetation management projects, including mechanical removal of invasive species and native plant restoration (*Appendix N, Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*). Past, present, and reasonably foreseeable vegetation treatment projects that could contribute to cumulative impacts include Upper Paria Watershed vegetation treatments, Skutumpah vegetation treatments, and other seeding and vegetation restoration projects in the analysis area. Vegetation conditions in areas directly adjacent to the Planning Area could be improved through grazing management, vegetation treatments, range improvements, and weed prevention and control measures. Among the alternatives, Alternative B would contribute the least to cumulative vegetation impacts and Alternative D would contribute the most to cumulative vegetation impacts.

BLM management for vegetation treatment and restoration may result in incompatible management between BLM-administered surface land and adjacent lands. In particular, management to allow the use nonnative species for restoration activities under alternatives C and D is inconsistent with management in the adjacent Glen Canyon NRA, which only allows restoration with native species. As a result, use of nonnative species on BLM-administered surface land in certain circumstances under alternatives C and D could result in adverse impacts on NPS-managed vegetation resources in lands adjacent to the Planning Area.

3.7.3 Fire and Fuels Management Affected Environment

The analysis area for fire and fuels management is the Planning Area. The BLM's fire policy requires that current and desired resource conditions be described in terms of fire regimes, the frequency with which fires naturally occur in a particular ecosystem before Euro-American settlement and fire suppression began, and Fire Regime Condition Classes (FRCCs), the classification of the amount of departure of an area or landscape from historic to present conditions. This departure from the natural state can be a result of changes in one or more ecosystem components such as fuel composition, fire frequency, and/or other ecological disturbances (BLM 2018b).

The Planning Area contains lands in Fire Regimes I (low- to mixed-severity fires with a frequency interval of 0–35 years), II (high-severity fires with a frequency interval of 0–35 years), and V (high-severity fires with a frequency interval of 200+ years), but no lands in Fire Regime III (mixed-severity fires with a frequency interval of 35–100+ years) and only a limited area (104 acres) in Fire Regime IV (high-severity fires with a frequency interval of 35–100+ years). The fire regime category is largely driven by vegetation types found within the Planning Area

(sagebrush, salt desert scrub, pinyon-juniper and oak). Refer to Appendix 3, *Fire and Fuels* (pages 257–262), in the AMS (BLM 2018b) for additional information on vegetation types associated with fire and fuels. The dominance of Fire Regimes I, II and V, along with the types of vegetation found within the Planning Area, is predictive of future mixed-severity and high-severity wildfire.

Approximately 94 to 97 percent of the Planning Area is in FRCC 3, indicating that fire regimes are substantially altered from their historical range. The remaining portions of the Planning Area are in FRCC 2, indicating lands that have been moderately altered by either decreased or increased fire frequency. The Escalante Canyons Unit and KEPA have the largest number of acres in FRCC 2 (5 percent) likely due to recent fires and proactive vegetation treatments. Refer to Chapter 2, Section 2.2.4, *Fire and Fuels* (pages 31–39), in the AMS (BLM 2018b) for acreages associated with each administrative unit.

In the Planning Area, there is potential for future wildfires. Fire frequency and fire severity are expected to be higher than historical levels, as reflected in the FRCC 2 and FRCC 3 designations. The invasion of annual grasses and conversion of conifer woodlands into shrub- and grassland and the increased live and dead fuel loads within conifer stands are the primary factors for this potential trend. Increased recreational and backcountry use in the Planning Area could also increase the risk of human-caused wildfires. KEPA is likely the most at risk for more frequent wildfires, based on its vegetation conditions (BLM 2018b). Warming and prolonged drought associated with global climate change (Refer to Chapter 2, Section 2.2.2, *Climate Change* [pages 13–15], in the AMS [BLM 2018b]) may exacerbate both fire frequency and fire severity.

Due to the low number of past wildfires within the Planning Area, active emergency stabilization and rehabilitation program efforts have not been utilized in these areas. However, the number of fuels management projects within the Planning Area has increased in recent years, especially within KEPA. Treatment types have been primarily mechanical (e.g., mowing and mechanical mulching), with the largest numbers of treatments occurring within KEPA. There are no proactive treatment records for the Kaiparowits or Escalante Canyons Units. Prescribed fire has only been utilized on 393 acres in the Grand Staircase Unit and 880 acres in KEPA over the past 20 years (BLM 2018b).

3.7.4 Fire and Fuels Environmental Consequences

3.7.4.1 Fire and Fuels Methods and Assumptions

This section describes direct, indirect, and cumulative effects on fire and fuels management from implementation of the management alternatives. Impacts on fire and fuels management were determined by assessing potential changes in the incidence of ignition, fire size or intensity, or the ability to effectively suppress wildfire. Actions that would contribute to an increase in the incidence of wildland fires or that would limit the ability to effectively fight wildland fires are considered adverse impacts on fire and fuels management. For example, management actions limiting available fire suppression tactics, thereby resulting in larger burn areas or more intense fires, would be considered an adverse impact. Conversely, actions contributing to a decrease in the incidence of resource-damaging wildland fires or enhancing the ability to fight fires are considered beneficial impacts.

Impacts on fire and fuels management, including wildland fire suppression costs, would primarily result from the following impact mechanism:

- Management actions affecting wildfire suppression and management

This analysis uses the following assumptions:

- Fire is an important, functional, and natural disturbance in many of the ecological systems found in the Planning Area; excluding fire may result in accumulation of vegetative fuels, leading to fires with uncharacteristic behavior and greater impacts.
- Past management, such as wildfire suppression and improper livestock grazing, have contributed to current fire regimes and FRCCs.
- Wildland fires that do not threaten human life, private properties, or important resources can be used as a tool to reduce fuel loads, improve plant communities, and enhance wildlife habitats.
- Fire and fuels management strategies and methods are intended to support protection, maintenance, and enhancement of objectives for vegetation, wildlife habitat, and other resources, as well as the protection of private property and resources next to BLM-administered surface lands. Restricting treatment strategies and methods would limit the ability to reduce hazardous vegetative fuels.
- As under current conditions, the majority of fires that start in the Planning Area would continue to occur as a result of natural lightning ignitions.

3.7.4.2 Direct and Indirect Effects

Management actions that restrict fire and fuels management would be considered direct impacts. All alternatives have the potential to affect wildfire suppression and management, which could also affect protection of other resources. For example, fires burning more acreage for longer periods emit more particulate matter into the air, thereby adversely affecting air quality. In addition, fire can result in both adverse and beneficial effects on rangeland health, wildlife habitat quality and quantity, and plant community health. Impacts on other resources from fire management are addressed under the appropriate resource sections. Potential changes in wildland fires (including their size, intensity, or destructive nature), fire suppression costs, and fuel loading due to management actions under the alternatives would be considered indirect impacts on fire and fuels management.

Impacts from Management Actions Affecting Wildland Fire Management

Management can restrict the use of heavy equipment in certain strategic locations, which would limit the ability to fight wildfires that threaten critical resource values and special status species habitat. Restricting the use of heavy equipment to suppress fires may result in long-term, adverse, direct impacts on the management and associated suppression costs of wildland fires by increasing the need for non-heavy equipment fire suppression resources, such as hand crews, over a longer period of time. This and similar limitations may allow fires that are detrimental to landscapes to grow larger and result in more long-term, adverse, indirect impacts in terms of acres burned.

Livestock grazing management would result in short-term and long-term, indirect impacts on fire and fuels management. Livestock grazing would primarily affect the distribution, amount, height, and vigor of herbaceous species such as perennial grasses, which can determine fire

characteristics. Grazing would be beneficial to fire-suppression efforts by reducing fuels. A decrease in fire spread may result in an accumulation of larger fuel sources such as shrub vegetation between fire events, which may contribute to larger fires in the long term. Livestock grazing and associated vegetation effects may also reduce flame length, fire-line intensity, and rate of spread, which would result in short-term, beneficial, indirect impacts on suppression activities. Fire-line intensity and flame length are important measures of potential suppression success.

Trails and travel management would result in both adverse and beneficial impacts on management of wildland fires. Travel designations provide access throughout the Planning Area, which may result in long-term, adverse, indirect impacts by increasing the incidence of human-caused fires. Increased access may also increase the potential for fire in more remote locations that are more difficult to respond to and control, thereby increasing suppression costs. Alternatively, the presence of OHV routes may result in long-term, beneficial, indirect impacts by increasing access, reducing response time, providing management flexibility, and reducing suppression cost.

Recreational activities can result in adverse impacts on wildland fire suppression due to the increased likelihood for wildfire ignitions in SRMAs and ERMAs, where both concentrated and dispersed recreational uses increase the likelihood for unintended ignitions. This impact would be similar across all alternatives but may be slightly increased under alternatives B and C due to the increased acreage of SRMAs and RMZs under these alternatives. Overall, trending increases in visitation and recreation use in the Planning Area would increase potential for unintended ignitions under all alternatives.

Utility corridors and authorization of ROWs (e.g., roads) may result in long-term, beneficial, indirect impacts on fire and fuels management by removing or reducing built-up fuels and by serving as fuel breaks and fire lines. Utility corridors and access roads authorized through ROW designations may also result in long-term, beneficial, indirect impacts by providing access for fire suppression resources and other fire and fuels management activities. The designation of ROWs and increased incidence of human presence associated with ROW construction and use can also result in a short-term, adverse, indirect impact by increasing the potential for fires in the Planning Area.

Slopes, soil types, distance from riparian areas, and other factors associated with these resources all affect the options available for wildland fire and fuels management. Short- and long-term, adverse, direct impacts would result from limited or restricted access of wildfire suppression equipment and personnel in resource areas managed with restrictions for surface-disturbing activities or areas identified as having fragile soils. Long-term, adverse, indirect impacts associated with restrictions on surface-disturbing activities and fragile soils include further increases in high-severity fires due to fuel loading, increased departures from historical fire regimes, reduced fire management options, and increases in fire suppression costs.

While WSA management could result in some long-term, adverse, direct impacts on fire suppression by limiting potential suppression actions and access in these areas, fires may be contained within roads surrounding the designated areas. Due to the relatively similar acreage and management of WSAs across the alternatives, impacts would be expected to be similar across the alternatives. ACEC designations in KEPA may limit fire suppression actions if roads are closed and reclaimed to protect the identified relevance and importance (R&I) values of the ACEC. The reduction in roads to access wildfires may restrict suppression tactics and allow fires

to grow larger and more costly and potentially cause additional resource damage and threat to health and human safety, especially in wildland-urban interface areas. These impacts would be greatest under Alternative B and Alternative C, which designate the greatest area of ACECs in KEPA.

In general, the potential impacts affecting wildfire suppression, management, and cost associated with special designations and resource protection described above would be greatest in Alternative B, followed by Alternative A, then Alternative C, with Alternative D having the least effects due to the least amount of special designations and least-restrictive resource-specific protective measures. Potential for increased ignition sources, access for wildfire suppression, and other impacts associated with increased access and resource use would generally be greatest under Alternative D, followed by Alternative C, then Alternative B, with Alternative A having the least potential for effects due to the least amount of anticipated development (e.g., ROWs, mineral development).

Resource management actions that place limits on surface disturbance and road development within GSENM boundaries could have adverse impacts on suppression tactics and wildfire management. In general, impacts on fire and fuels management across the three GSENM units would be similar based on the similar management in the three units. Application of fire and fuels BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect, adverse impacts on resources within both GSENM and KEPA.

All action alternatives include an implementation-level decision to modify the existing Fire Management Plan (FMP) to be consistent with the decisions in these RMPs. Revision of the FMP would ensure that that FMP is consistent with the fire management and suppression decisions in these RMPs. The FMP revision would address a spectrum of management strategies including wildfire suppression, wildland fire use, prescribed fire, non-fire fuel treatments, and emergency stabilization and rehabilitation. The revised FMP would result in long-term, beneficial, indirect impacts by creating a document that provides for clear fire management direction that is compliant with national and interagency direction and the management decisions described in the RODs for the RMPs. The revised FMP would further the ultimate goals of improving firefighter and public safety, reducing fuel loads, and maintaining the ecological functions of landscapes within GSENM and KEPA.

3.7.4.3 Cumulative Effects

Rather than following administrative boundaries, wildland fires burn based on fuel availability, weather, and topography. Because of the continuous nature of vegetative fuels and fire occurrence in the Planning Area, fire management activities could affect fire management and resources outside of the Planning Area. For example, there is potential for fires that start or burn on BLM-administered surface lands to spread to adjacent NPS, U.S. Forest Service, private, and State lands. As a result, the cumulative impact analysis area for fire and fuels management is the level four hydrologic subbasins within and immediately adjacent to the Planning Area. Past and present management plans that affect resource uses and fire management in the analysis area (e.g., Kate County Comprehensive Plan) and natural events (e.g., fire, drought) have altered the condition of vegetation and natural fire regimes across the landscape. Examples include increases in human population, fire-suppression activities, vegetation treatments, improper livestock grazing, noxious and invasive weed spread, drought,

and insect and disease outbreaks. Refer to Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*, for more information.

Urban development and recreation in the cumulative impact analysis area are expected to increase over time, creating additional potential ignition sources and increasing the probability of wildland fire occurrence. The wildland-urban interface is a high-priority suppression area, and suppression in the wildland-urban interface can be more dangerous, time-consuming, and expensive than suppression in undeveloped areas. Additional wildland-urban interface areas resulting from residential expansion would increase the need for hazardous fuels reduction projects and associated funding in order to reduce the risk of wildland fires burning from BLM-administered surface lands onto the wildland-urban interface. Additional fire-suppression resources could also be needed, including Federal, State, and local agency resources.

Increasing access and development on both BLM-administered surface lands and adjacent lands increases the probability of human-caused ignitions and can require costly suppression efforts to protect life, property, and infrastructure. Coal and other mineral development creates safety issues during wildland fires, including evacuations, unknown hazardous and flammable materials such as fuels, and lubricating fluids associated with equipment and onsite storage facilities. These issues can add to the suppression costs and complexity in mineral development areas.

Changing land use patterns and increased recreation and visitation would also modify vegetative communities and introduce new vectors for the spread of noxious weeds and nonnative vegetation species. These introduced species could eventually alter the fire regime of certain areas and increase the frequency, size, and intensity of wildland fires. However, a variety of past, present, and reasonably foreseeable plans would decrease the potential for these impacts, such as the Programmatic Noxious Weed and Invasive Plant Management Plan.

Generally, alternatives B and C would limit the amount of human access, vegetation treatments, grazing, and surface disturbance, thereby reducing the incidence of wildland fires but also limiting the ability to effectively fight and manage wildland fires as compared to Alternative D. In general, the effects of alternatives B and C, when combined with other land uses and past, present, and reasonably foreseeable future actions, would generally increase potential adverse cumulative impacts on fire and fuels management and suppression, but could decrease the number of unintended ignitions due to increased access and development.

Conversely, Alternative D would increase access, vegetation treatments, grazing, and surface disturbance compared to the other alternatives. The effects of Alternative D, when combined with other land uses and past, present, and reasonably foreseeable future actions, would generally result in beneficial cumulative impacts on fire and fuels management and suppression, but could increase the number of unintended ignitions due to increased access and development.

3.8 Visual Resources, Dark Night Skies, and Natural Soundscapes

3.8.1 Visual Resource Affected Environment

The analysis area for visual resources is the Planning Area.

The BLM VRM system consists of three components: the visual resource inventory (VRI), the establishment of management classes and corresponding objectives through the land use planning process, and the analysis of projects to determine conformance with VRM objectives. An updated VRI for lands in the Planning Area began in 2012 and was finalized in April 2018 (Map 24, Visual Resource Inventory as Inventoried; Map 25, Visual Resource Inventory Scenic Quality Rating; and Map 26, Visual Resource Inventory Sensitivity Level Rating). Refer to Chapter 2, Section 2.2.12, *Visual Resources* (pages 82–88), and Appendix 1 (*Maps*), Maps 15 through 17 (pages 227–229), in the AMS (BLM 2018b) for more information on VRI components and VRM Class objectives.

Although VRI classes use the same numerical scale (i.e., Class I through IV) as VRM classes, they are defined differently. VRI classes are the categories the BLM uses to classify the current visual character of a landscape and are a way to communicate the degree of scenic quality, how sensitive the public is to it changing, and how visible it is from commonly used locations like roads and viewpoints. Areas where a previous management decision has been made to maintain a natural landscape are assigned VRI Class I (i.e., WSAs). For the remaining VRI classes, Class II indicates high scenic quality or moderate scenic quality in the foreground/middleground that is highly sensitive, while VRM Class IV indicates lower scenic quality or areas that are in the background or seldomly seen.

Approximately 47 percent of the lands in the Planning Area are VRI Class I, 30 percent are VRI Class II, 13 percent are VRI Class III, and 10 percent are VRI Class IV (Table 3.8-1) (BLM 2018b).

Table 3.8-1. VRI Class Acres by Administrative Unit

VRI Class	Grand Staircase Unit (acres)	Kaiparowits Unit (acres)	Escalante Canyon Unit (acres)	KEPA (acres)	Total Acres VRI Class
I	74,739	411,890	184,822	209,829	881,280
II	176,347	294,419	229,629	459,666	1,160,061
III	22,368	72,758	13,556	277,752	386,433
IV	13,186	183,857	0	137,147	334,190
Total	211,901	551,034	243,185	874,565	1,880,685

Source: BLM 2018b

VRI – visual resource inventory, KEPA – Kanab-Escalante Planning Area

The majority of the lands in the Planning Area exhibit the qualities of a highly intact, natural landscape, as well as rugged, relatively undisturbed visual conditions, distinct (or memorable) natural attributes, and general inaccessibility. Approximately 46 percent of the Planning Area is rated as having high (Class A) scenic quality with approximately 53 percent of the Planning Area having Class B (above average) scenic quality. One scenic quality rating unit (the Upper Escalante Canyons Unit that includes the upper reaches of the Escalante River, Calf Creek, and the lower reaches of Death Hollow) is one of the highest-scoring units across BLM-administered surface lands. The high scenic quality in the Planning Area is a result of the area's extraordinary topography, geology, abundance of canyons and waterways, varieties of vegetation, and cultural history features. Diverse vistas and canyons, rare and unusual geological formations, and colorful and highly contrasting sandstones also contribute to the Planning Area's high visual quality. These attributes have made the area an internationally recognized, world-famous scenic destination. Less than 10 percent of the Planning Area contains prominent

modifications such as utility infrastructure or vegetation treatments that create disharmony with the natural, characteristic landscape. Sparse population and a large contiguous tract of BLM-administered surface lands with few private inholdings have resulted in a stable trend for maintaining scenic quality since the designation of GSENM in 1996.

Lands within the Planning Area also contain a high level of visual sensitivity (60 percent of the Planning Area), drawing an increasing number of visitors each year who come to the area to recreate and sightsee. Additionally, 48 percent of the Planning Area is located within the foreground/middleground visual distance zone area, with 49 percent of the Planning Area occurring within the seldom-seen visual distance zone (BLM 2018b). The seldom-seen areas influence the assignment of lower VRI classes in many locations within the Planning Area.

3.8.2 Dark Night Sky Resource Affected Environment

In 2016, an inventory using satellite imagery and on-ground readings revealed that the Planning Area is one of the most naturally dark outdoor spaces left in the lower 48 United States. The night skies over 90 percent of the Planning Area qualify under the descriptive term “pristine.” In such conditions, only natural sources of light, such as starlight, airglow, aurora, and zodiacal light, are visible to the human eye. According to *The New World Atlas of Artificial Night Sky Brightness* (Falchi et al. 2016), only 30.4 percent of the land area of the United States experiences this degree of natural darkness on a regular basis, much of which is in the state of Alaska. Additional inventories that same year documented that fewer than 30 fixed artificial light sources exist in the Planning Area. The “pristine” night skies in the Planning Area are a rarity (BLM 2018b).

The Planning Area is surrounded by areas with designations protecting night skies at a variety of scales. Several NPS units surrounding the Planning Area also hold International Dark Sky designations, such as “Dark Sky Sanctuary” at Rainbow Bridge National Monument, and several are actively pursuing “Dark Sky Park” designations (such as Glen Canyon). Gateway communities to areas with dark night skies are seeing increasing visitation and economic development opportunities associated with astrotourism, such as dark sky festivals hosted by National Parks in the region. Such activities are currently hosted in the Bryce area to the west, in the Torrey area to the northwest, and in the Page, Arizona area to the southeast (BLM 2018b).

3.8.3 Natural Soundscapes Affected Environment

The analysis area for natural soundscapes is the Planning Area plus a 3-mile buffer. Although noise can and does extend beyond 3 miles, the 3-mile distance was chosen because it is the likely distance to which noise emanating from most surface-disturbing activities would attenuate to an acceptable level for sensitive receptors. The soundscapes of the Planning Area offer an array of natural sounds, as well as an environment relatively free of human-caused sound. Natural sounds are intrinsic to resource conditions and visitor experience. Human-caused sound (intrusive sound) can be disruptive to visitors and wildlife. Natural soundscape resources are increasingly of public concern and noted during scoping for planning efforts and review of proposed projects on BLM-administered surface lands.

Protection of ambient soundscapes has received growing attention over the past four decades, with legislation dating back to the Noise Control Act of 1972. Subsequent nationwide legislation has described the importance of the acoustical environment for resource protection

and visitor experience in protected natural areas. Because of the abundant noise found in urban and suburban areas, the majority of visitors to protected natural areas come seeking respite from ambient stressors such as noise. Natural quiet is important for visitors, ecosystem health, and the welfare of non-human species who reside in protected natural areas.

Since 2014, Southern Utah University has documented the acoustic baseline using sound level meters and digital audio recorders situated in various locations across the Planning Area based on acoustic/biological/geographic zones, visitor use areas, and WSAs. The highest percentages of human-caused noise in the Planning Area are created by high-altitude jets and visitors at popular recreation sites. Several monitored sites were found to be within the range of the quietest locations monitored in the lower 48 United States, based on exceedingly low decibel levels. Recorded decibel levels were approaching the noise floor at several monitored locations, requiring extremely sensitive acoustic equipment to accurately document the sound level. One such location was at the Dry Forks site. As a comparison, the natural quiet in the Planning Area was recorded at 5.7 A-weighted decibels (dBA) whereas two very quiet national parks, Great Sand Dunes National Park (8.7 dBA) and Haleakala National Park (10 dBA), had higher decibel readings.

3.8.4 Environmental Consequences

3.8.4.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on visual and dark night sky and soundscape resources on BLM-administered surface lands from the implementation of the management alternatives. The BLM will manage the Planning Area using management specific to each program area (e.g., recreation, mineral, or livestock grazing). Impacts on visual resources are assessed by comparing the existing VRI class and the proposed VRM class of an area and examining how other resources and resource use management actions may affect visual resources with a focus on potential change in scenic quality or landscape character. Sensitivity levels within the Planning Area are predominantly moderate to high, with isolated areas of low sensitivity. If current trends are considered, an increase in overall sensitivity to change in the visual landscape is likely if management actions affect the overall landscape character. In addition, due to the complex topography and remoteness of the majority of the Planning Area, the landscape includes a mix of foreground/middleground and seldom-seen distance zones. Changes in visual distance zones could occur as a result of management actions related to additional development, thus creating more visible areas to the public where changes in landscape character are more discernable. As such, the impact analysis focuses on the potential for change in the VRI classification due to a potential change in scenic quality. Under all of the alternatives, there is no anticipated improvement associated with scenic quality.

Impacts on visual resources would primarily result from the following impact mechanism:

- Impacts on VRI classes from proposed program management actions allowed with the various VRM class designations
- Impacts on night sky resources would primarily result from the following impact mechanism:
 - Contributions that increase light pollution

- Impacts on soundscape resources would primarily result from the following impact mechanism:
- Contributions that increase ambient noise levels or affect the enjoyment of the natural environment
- For this analysis, effects on visual, dark night sky, and soundscape resources from these impact mechanisms are generally described in a qualitative fashion, with acreages provided where appropriate to draw distinctions among the alternatives.

This analysis uses the following assumptions.

Visual Resources

- VRM class objectives apply to all program areas and would be adhered to through project design, avoidance, or mitigation.
- Visual design considerations will be incorporated into all surface-disturbing projects regardless of size, potential impact, or VRM class.
- Visitors to BLM-administered surface lands or residents living near BLM-administered surface lands are sensitive to changes in visual quality.
- Scenic resources would become increasingly important to residents of and visitors to the area.
- Activities that cause the most contrast and thus are the most noticeable to the casual viewer would be considered to have the greatest effect on scenic quality. The severity of a visual effect depends on a variety of factors, including the size and scale of a project, vegetation and landform manipulation, and the overall visibility of disturbed areas. The more protection that is associated with the management of other resources and special designations, the greater the benefit to visual resources of the surrounding viewsheds.
- Visual contrast ratings would be required for proposed projects in high scenic quality and highly sensitive areas or high-impact projects, but may be used for other projects where it would be the most effective design and assessment tool.
- Projects would be designed to meet VRM class objectives. If a project could not be designed to meet VRM objectives, it would be not be approved or a plan amendment would be necessary.

Dark Night Skies

- Visitors to BLM-administered surface lands or residents living near BLM-administered surface lands appreciate and value night skies that are unimpaired by light pollution.
- Management of dark night skies requires collaboration with Federal, State, county, tribal, and local agencies and provides an opportunity for communication, coordination, and project planning with partner agencies.
- The quality of dark night skies is dependent on the weather, the clarity of the air, and the amount of light pollution present.
- An increase in management associated with the emittance of artificial light activities (e.g., transportation networks, mining and recreation facilities) would increase the level of light pollution in the Planning Area.

Natural Soundscapes

- Visitors to BLM-administered surface lands or residents living near BLM-administered surface lands appreciate and value undisturbed natural soundscapes.
- Future development of a soundscape management plan will identify noise monitoring metrics and procedures as well as management objectives to evaluate the level of impact associated with proposed future actions.
- Soundscape management activities require collaboration with Federal, State, county, tribal, and local agencies, and a soundscape management plan provides a basis for communication, coordination, and project planning with partner agencies.
- An increase in management activities associated with surface-disturbing activities (e.g., mineral extraction) as well as increased OHV use resulting from increased transportation routes would increase the level of ambient noise in the Planning Area.

3.8.4.2 Direct and Indirect Effects

Impacts on visual resources are assessed by analyzing the impact of proposed actions on the existing visual resource conditions, expressed through the VRI classification of an area. In addition, the allowable level of change to the visual landscape is assessed by comparing the existing visual resource conditions, expressed through the VRI classification of an area, to the proposed VRM classification of the same area. The VRM class objectives provide criteria for determining the level of disturbance that an area can support, while still meeting visual resource objectives.

Impacts from Proposed VRM Classes

Applying VRM Class I and II objectives to any VRI classification would preserve or retain the existing character of the landscape. In other words, the inventoried scenic values would be expected to remain the same. At a landscape level, the more VRI Class II areas that are managed as VRM Class II, the more protection would be afforded to areas with generally high scenic quality. Conversely, lands classified as VRI Class II would see a greater potential for direct and indirect adverse impacts from areas designated as VRM Class III or IV than lands classified as VRI Class III or IV because the significance of the impact or the change in landscape character could be much greater in a VRI Class II versus a VRI Class IV. Because lands classified as VRI Class I are considered special areas (e.g., WSAs), these lands are always designated VRM Class I to prevent long-term visual impacts.

The results of the VRI completed in 2018 are presented above in Table 3.8-1. Table 3.8-2 and Table 3.8-3 identify how VRM class designations would be applied to the three GSENM units and KEPA with VRI classes for each alternative. The differences in visual resource impacts between the alternatives from the proposed VRM designations as well as from resource management actions are discussed below.

Table 3.8-2. Summary of VRI Class by Proposed VRM Class – Grand Staircase, Kaiparowits, and Escalante Canyons Units

VRM Class	VRM Acres	VRI Class I		VRI Class II		VRI Class III		VRI Class IV	
		Acres	%	Acres	%	Acres	%	Acres	%
Alternative A									
VRM Class I	715,793	671,435	76	33,062	6	1,920	<1	9,376	5

VRM Class	VRM Acres	VRI Class I		VRI Class II		VRI Class III		VRI Class IV	
		Acres	%	Acres	%	Acres	%	Acres	%
VRM Class II	209,741	0	0	161,495	29	29,432	13	18,814	9
VRM Class III	77,800	0	0	23,471	4	4,347	2	49,983	25
VRM Class IV	0	0	0	0	0	0	0	0	0
Alternative B									
VRM Class I	847,984	671,435	76	99,115	18	15,524	7	61,910	31
VRM Class II	123,369	0	0	119,162	22	3,182	1	1,025	<1
VRM Class III	32,262	0	0	0	0	17,024	7	15,238	8
VRM Class IV	0	0	0	0	0	0	0	0	0
Alternative C									
VRM Class I	671,435	671,435	76	0	0	0	0	0	0
VRM Class II	236,097	0	0	218,276	40	7,514	3	10,307	5
VRM Class III	28,216	0	0	0	0	28,216	12	0	0
VRM Class IV	67,866	0	0	0	0	0	0	67,866	34
Alternative D (Preferred Alternative)									
VRM Class I	669,076	671,435	76	0	0	0	0	0	0
VRM Class II	214,134	1,145	<1	212,045	39	944	<1	1,297	<1
VRM Class III	40,544	1,202	<1	4,109	<1	33,936	14	1,297	<1
VRM Class IV	79,860	13	<1	2,122	<1	849	<1	76,876	39

Source: BLM 2018e

VRI – visual resource inventory, VRM – Visual Resource Management

Table 3.8-3. Summary of VRI Class by Proposed VRM Class – KEPA

VRM Class	VRM Acres	VRI Class I		VRI Class II		VRI Class III		VRI Class IV	
		Acres	%	Acres	%	Acres	%	Acres	%
Alternative A									
VRM Class I	221,723	209,707	24	4,079	1	7,158	3	778	<1
VRM Class II	359,676	0	0	222,399	40	110,357	47	26,921	14
VRM Class III	279,324	0	0	104,806	19	81,977	35	92,541	47
VRM Class IV	0	0	0	0	0	0	0	0	0
Alternative B									
VRM Class I	568,654	209,707	24	206,419	38	103,333	44	49,196	25
VRM Class II	209,713	0	0	125,669	23	53,687	23	30,357	15
VRM Class III	43,024	0	0	0	0	43,024	18	0	0
VRM Class IV	40,830	0	0	0	0	0	0	40,830	2
Alternative C									
VRM Class I	209,707	207,707	24	0	0	0	0	0	0
VRM Class II	415,211	0	0	328,604	60	68,572	29	18,035	9
VRM Class III	134,955	0	0	3,484	<1	131,472	56	0	0
VRM Class IV	102,348	0	0	0	0	0	0	102,348	52
Alternative D (Preferred Alternative)									
VRM Class I	207,723	207,723	24	0	0	0	0	0	0

VRM Class	VRM Acres	VRI Class I		VRI Class II		VRI Class III		VRI Class IV	
		Acres	%	Acres	%	Acres	%	Acres	%
VRM Class II	222,531	2	<1	204,445	35	18,084	8	0	<1
VRM Class III	287,963	1,909	<1	119,701	21	165,096	70	1,257	<1
VRM Class IV	144,004	73	<1	7,941	1	16,864	7	119,126	60

Source: BLM 2018e

VRI – visual resource inventory, VRM – Visual Resource Management, KEPA – Kanab-Escalante Planning Area

Impacts from Proposed VRM Designations

VRM is considered protective of existing visual resources when it assigns VRM Class I and II objectives to inventoried Class II, III, or IV lands. With this understanding, Table 3.8-2 and Table 3.8-3 lead to the following impact conclusions: in the Grand Staircase, Kaiparowits, and Escalante Canyons Units, Alternative B is the most protective of visual resources, followed by alternatives A, C, and D, respectively. In KEPA, Alternative B is the most protective of visual resources, followed by alternatives C, A, and D, respectively.

Impacts from Management of Other Program Areas Impacts from Management of Program Actions

Management for vegetation, forestry and woodland products, lands and realty, livestock grazing, range improvements, minerals development, recreation, and renewable energy development would result in direct and indirect adverse impacts on visual resources. Impacts would occur from changes in vegetation, potential increases in surface-disturbing activities or development, and allowance of infrastructure development, which could all contribute to potential changes in VRI Classes II, III, and IV. In comparison, special designations, such as WSAs that limit surface disturbance, would help retain their VRI Class I rating by instituting constraints on resource uses that would cause long-term direct and indirect, adverse impacts.

Long-term direct and indirect adverse impacts on inventoried visual values (scenic quality, sensitivity, and visual distance zones) would result from the development of permanent features such as utilities infrastructure, minerals facilities, renewable energy facilities, surface coal mining operations and surface mineral extraction, roads, recreation sites, and range improvements. Short- and long-term, indirect, adverse impacts that could result from resource uses and activities including route proliferation associated with cross-country OHV travel or the development of roads and oil and gas infrastructure, surface mineral extraction, prescribed fire, commercial timber harvests, and structural and non-structural range improvements.

Projects designed or implemented to meet VRM Class II objectives would reduce the potential for adverse impacts. In comparison, projects in VRM Class IV areas that generally create significant contrasts (e.g., coal mines, wind farms, or high-voltage transmission lines), even when they implement BMPs, would cause adverse impacts on visual resources due to limited opportunities for reducing contrast for large-scale projects. The potential for impacts on inventoried visual values are driven by the range of restrictions to mineral development, ROWs, renewable energy permits, structural and non-structural range improvements, recreation facilities, and open OHV areas, as well as the extent and management of special designations in KEPA.

Alternative D would increase the potential for direct and indirect adverse impacts from changes to inventoried visual values to the greatest extent of any alternative, followed by alternatives C, A, and B, respectively. Alternative D contains the fewest special designations and restrictions on resource uses and activities in KEPA, followed by alternatives C, A, and B, respectively.

Alternatives B and A, respectively, include the largest acreage of VRM Class I and II and special designations, as well as the most extensive restrictions on resource uses and activities in KEPA. This combination would reduce potential adverse impacts on visual resources compared to alternatives C and D. In general, impacts from changes to VRI class across the three GSENM units would be similar based on the similar restrictive management in the three units under all alternatives.

Application of visual resource BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect adverse impacts on inventoried visual values. For example, the visual resource contrast rating system would be used to analyze potential visual impacts of proposed actions and identify design features to reduce impacts. Projects would be designed to avoid and mitigate impacts and conform to the assigned VRM class.

Impacts on Monument Objects

Visual resources described as “striking scenery” or “scenic” in association with geologic features are identified as monument objects within the Grand Staircase, Kaiparowits, and Escalante Canyons Units, and are prioritized for conservation, protection, and restoration (see Appendix E, *Grand Staircase-Escalante National Monument Objects and Resource Values*). All alternatives manage the large majority of the GSENM units as VRM Class I and II, and the BLM anticipates that monument object scenic values would generally be protected under all alternatives. Alternatives B and A, respectively, could increase the potential for protection of the scenic values compared to the other alternatives through restrictions on resource uses and activities and fewer acres of VRM Class III and IV.

Contributions that Increase Dark Night Sky Pollution

The potential for impacts on dark night skies is driven by the degree of use restrictions on minerals development, the availability of areas for issuance of new ROW and renewable energy permits, creation of facilities and infrastructure for OHV use and recreation (all of which can increase light pollution), and the extent and management of special designations (which may limit future development and associated light pollution).

In KEPA, Alternative D would increase the potential for dark night sky pollution compared to the other alternatives, followed by alternatives C, A, and B, respectively. Alternative D contains the fewest special designations and restrictions on resource uses that could increase light pollution in KEPA, followed by alternatives C, A, and B, respectively. In general, impacts that would increase dark night sky pollution across the three GSENM units would be similar based on the similar management in the three units.

Impacts on Natural Soundscapes

The potential for impacts on natural soundscapes is driven by the degree to which the BLM authorizes activities that would result in an increase of intrusive sounds, including certain surface-disturbing activities (e.g., minerals development), and surface uses (e.g., OHV use). In KEPA, Alternative D would increase the potential for new intrusive sounds compared to the

other alternatives, followed by alternatives C, A, and B, respectively. Alternative D contains the largest area available for OHV use and the fewest restrictions on resource uses in KEPA, followed by alternatives C, A, and B, respectively. Alternatives B and A, respectively, include the largest acreage of protective restrictions due to the management of other resources and special designations in KEPA, and would support preservation of natural soundscapes to a greater extent than alternatives C and D. In general, the potential for adverse impacts on natural soundscapes across the three GSENM units would be similar based on the similar management within the three units.

Impacts on Scenery, Night Skies, and Natural Soundscape from Proactive Management

All action alternatives would include an implementation-level decision to develop interpretive materials and programs to educate and engage the public about night sky, scenic, and natural soundscape resources in the Planning Area. Interpretive materials and programs related to night skies, scenery, and natural soundscapes would increase public understanding and appreciation for these unique resources in the Planning Area. Interpretive materials would likely include brochures, maps, and other handout materials, but could also include interpretive signs. Interpretive signs may be located in areas of particularly unique scenery, night skies, or soundscapes. These signs would generally be small and are not anticipated to result in impacts on other resources or resource uses.

All action alternatives also include an implementation-level decision to inventory and monitor night skies and natural soundscapes in partnership with local communities, universities, and other stakeholders. Inventory and monitoring of night skies and natural soundscapes could provide information to inform appropriate analysis and mitigation during activity and implementation-level decisionmaking, which could reduce potential impacts on night skies and natural soundscapes. In general, inventory and monitoring may include placement of monitors and other short-term activity that is not anticipated to result in impacts on other resources and resource uses.

3.8.4.3 Cumulative Effects

Visual Resources

The cumulative impact analysis area for visual resources and dark night sky resources is the viewshed within a 15-mile distance of the Planning Area. Although views can and do extend beyond 15 miles, the 15-mile distance was chosen because it defines the background distance zone (BLM Handbook H-8410-1) and is near the limit of visibility of skylined energy development facilities, such as transmission towers and wind turbines, that may be readily noticeable to casual observers. Beyond that distance, development in the Planning Area would have negligible, if any, contributions to cumulative visual resources impacts.

Past, present, and reasonably foreseeable future actions and conditions (Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*) in the cumulative impact analysis area that have and would likely continue to adversely affect visual resources are residential, commercial, and industrial developments; mineral developments; vegetation treatments; cross-country OHV travel; range improvements; recreational developments; ROWs; and road construction due to overall changes in landscape character and level of contrast. Utility-scale renewable energy development and other long-term

and large-scale facilities could have widespread and long-term, adverse effects on visual resources due to the relative scale and level of contrast that these projects would create against the existing environment. Buried pipelines such as the Lake Powell pipeline and various other buried pipeline projects would result in surface disturbance and linear scarring that would contribute to cumulative impacts until the disturbed area is fully reclaimed.

Management of resource development and VRM on BLM-administered surface land may also be incompatible with VRM on adjacent lands. Alternative D and Alternative C manage KEPA land adjacent to Glen Canyon NRA and within the viewsheds of Capitol Reef and Bryce Canyon National Parks as VRM Class III and IV (Map 22 and Map 23), which could result in adverse impacts on these lands. Alternatives D and C place fewer restrictions on minerals, ROWs, and other development activities and manage large portions of KEPA as VRM Class III and IV in the Circle Cliffs area (northeast portion of the Planning Area), in the area north of Big Water (southcentral portion of the Planning Area), and in the western boundary of the Planning Area. Managing these areas as VRM Class III and IV, and the potential for development in these areas (e.g., mineral development), could result in new, adverse visual contrast that could adversely affect viewers and viewsheds from NPS lands. In general, potential impacts on viewsheds in lands adjacent to the Planning Area would be greatest for lands that are higher in elevation than the Planning Area, such as Bryce Canyon National Park.

Dark Night Skies

Past, present, and reasonably foreseeable future actions and conditions in the cumulative impact analysis area that have the potential to adversely affect night skies include artificial lighting associated with residential, commercial, and industrial developments; mineral developments; recreational developments; ROWs; and renewable energy development. Increased development of cities and towns around the Planning Area has resulted in, and is expected to continue to result in, the incremental expansion of residential and commercial development closer to BLM-administered surface lands. Continued growth and development of lands adjacent to BLM-administered surface lands could also increase demand for energy resources, building materials, utilities, and minerals, all of which could spur development that would adversely affect night skies by increasing the amount of artificial light associated with this type of development. These adverse impacts could be partially be countered by the adoption of night sky protection ordinances and/or International Dark Sky Designations that several of the local communities have or are seeking.

Similar to visual resource impacts, BLM management in the Planning Area and the potential for development in certain portions of the Planning Area could increase light sources and associated light pollution that degrade dark night skies for viewers in adjacent lands. Alternatives D and C would generally increase development potential in KEPA that could degrade night skies for viewers within and adjacent to the Planning Area. Alternative B, which includes additional constraints on development and a greater acreage of VRM Class I and II areas, could reduce potential impacts on night skies compared to the other action alternatives.

Natural Soundscapes

Past, present, and reasonably foreseeable future actions and conditions in the cumulative impact analysis areas that have and would likely continue to adversely affect natural soundscapes are associated with intrusive sounds such as airplanes, recreational visitors, recreational activities such as OHV riding and target shooting, vehicle travel, mineral

3.9 Wild Horses

development, ROW development, community development and expansion, and road construction. Energy development, which depends on a variety of external factors such as type, location, scale, and operational processes, could have widespread and long-term, adverse effects on natural soundscape resources.

Similar to visual resource and night sky impacts, BLM management in the Planning Area and the potential for development in certain portions of the Planning Area could increase development potential and human activity that affects the natural soundscape both within and adjacent to the Planning Area. Alternatives D and C would generally increase development potential and human activity in KEPA that could generate new noise sources and degrade the natural soundscape. Alternative B, which includes additional constraints on development, could reduce the potential for new noise sources that would affect the natural soundscape, compared to the other alternatives.

3.9 Wild Horses

3.9.1 Affected Environment

The analysis for wild horses is the Planning Area and herd areas (HAs) that intersect it (Map 28, Wild Horses Herd Areas).

The BLM is responsible for the protection, management, and control of wild horses and burros under the Wild Free-Roaming Horses and Burros Act of 1971, as amended through the designation of Herd Management Areas for the long-term maintenance of wild horse and burro herds. The Planning Area does not contain or overlap any of Herd Management Areas; however, it does overlap two HAs. An HA is an area of public land that was used by wild horses and burros at the time the Wild Free-Roaming Horses and Burros Act was passed (December 1971). Although not managed for wild horses and burros, some horses and burros still occupy HAs.

The Moody-Wagon Box Mesa HA is located in the northeastern portion of the Planning Area. The Harvey's Fear HA is located in the southeastern portion of the Planning Area southwest of Fiftymile Mountain. Table 3.9-1 depicts acreage of heard areas in the Planning Area. Because neither of the HAs are herd management areas, the appropriate management levels are zero. There are no wild horses in the Moody-Wagon Box Mesa HA. The Harvey's Fear HA area is generally isolated, which prevents the herd from exposure to other horses and reduces genetic variability in the herds.

Table 3.9-1. Acreage of Herd Areas in the Planning Area

Herd Area	GSENM Grand Staircase Unit	GSENM Escalante Canyons Unit	GSENM Kaiparowits Unit	KEPA
Harvey's Fear	0	0	2,999	2,645
Moody-Wagon Box Mesa	0	7,977	0	45,628
Total	0	7,977	2,999	48,273

Source: BLM 2018f

GSENM – Grand Staircase-Escalante National Monument, KEPA – Kanab-Escalante Planning Area

3.9.2 Environmental Consequences

3.9.2.1 Methods and Assumptions

In general, there are no expected direct, indirect, or cumulative impacts on wild horses.

Potential impacts on wild horses are limited based on the following factors:

- The remote location of Harvey's Fear HA within a WSA limits exposure to and potential effects from human activities.
- The small population of Harvey's Fear HA is limited primarily by predation, natural death, and available resources. The Moody-Wagon Box Mesa HA does not currently support any wild horses.
- The BLM does not currently manage wild horse populations in the HA and no new management decisions with potential to affect wild horse populations in the HAs are proposed under any alternative.

This analysis uses the following assumptions:

- The non-impairment requirement as established in BLM Manual 6330, Management of Wilderness Study Areas, would be enforced.
- The remote location of Harvey's Fear HA has resulted in the herd having no contact with other horses and becoming genetically unviable.
- The BLM has no future plans to manage the HAs as herd management areas.

3.9.2.2 Direct and Indirect Effects

In general, there are no expected direct or indirect impacts on wild horses or the HAs that intersect the Planning Area. The Moody-Wagon Box Mesa HA does not currently support any wild horses; therefore, there would be no impacts. Because Harvey's Fear HA is located within a WSA, extremely remote, and has an appropriate management level of zero horses, management decisions would generally not affect wild horses in this HA.

To adequately manage wild horse populations, all of the action alternatives include an implementation-level decision to conduct population surveys of wild horses within Planning Area HAs every 3 to 4 years. These surveys would provide useful data and updated estimates of wild horse populations that would help inform future BLM decisions for herd management in the Planning Area, including objectives to manage wild horse populations toward natural ecological balance, if needed. Population surveys of wild horses are not anticipated to result in impacts on other resources and resource uses.

3.9.2.3 Cumulative Effects

The cumulative impact analysis area for wild horses is the full extent of the Harvey's Fear HA and Moody-Wagon Box Mesa HA that intersect the Planning Area. Because there are no anticipated direct or indirect effects on wild horses, management decisions would not contribute to cumulative effects.

3.10 Forestry and Woodland Products

3.10.1 Affected Environment

The analysis area for forestry and woodland products is the Planning Area (Map 29, Forestry Products). Pinyon-juniper woodlands have expanded into vegetation types that were historically mostly tree free; as a result, these woodland stands are the target of forestry management and fuelwood harvesting. As discussed in Section 3.7, *Vegetation and Fire and Fuels Management*, of this document many of the Planning Area's forested stands are in poor condition and are at risk of loss, indicating a need for restoration work to sustain the stands in a healthy condition.

The greatest demand on the woodland resource is for fuelwood harvesting (i.e., individuals cutting firewood for personal use). Currently, pinyon pine and juniper are the preferred species for fuelwood. Fuelwood harvesting, post cutting, and Christmas tree cutting are allowed by permit only in the Buckskin Mountain (19,437 acres) and Rock Springs Bench (4,553 acres) fuelwood designated areas of KEPA (Map 29, Forestry Products), which provide a total of 23,990 acres of land available for forest and woodland product harvest in the Planning Area. In 2017, 390 cords of fuelwood, 38 cedar posts, and 8 Christmas trees were harvested from these designated areas. Refer to Chapter 2, Section 2.3.1, *Forestry and Woodland Products* (pages 95–98), Table 23 (page 95), in the AMS (BLM 2018b) for more information on woodland product harvests between 2015 and 2018.

There are no designated fuelwood areas located in the Grand Staircase, Kaiparowits, and Escalante Canyon units of GSENM; however, since 2005, GSENM has had a “stewardship” program, under which the BLM (nationally) has actively promoted the utilization of biomass and the creation of a biomass industry. GSENM awarded 14 stewardship contracts for land treatments on approximately 1,757 acres with a biomass volume of approximately 4,800 tons between 2005 and 2013. Stewardship program projects address a variety of land management objectives including, but not limited to, forest health, wildlife habitat improvement, wildland fuels reduction, livestock grazing, public recreation, and VRM.

In the Buckskin Mountain Fuelwood Area, GSENM and the BLM partnered with UDWR and the Utah Watershed Restoration Initiative to treat (i.e., hand thin with chainsaws) approximately 6,268 acres of pinyon-juniper trees with a biomass volume of approximately 13,000 tons between 2008 and 2013. No acres have been treated within the Rock Springs Bench designated fuelwood area. Refer to Chapter 2, Section 2.3.1, *Forestry and Woodland Products* (pages 95–98), Tables 24 and 25 (pages 96 and 97), in the AMS (BLM 2018b) for more information about the stewardship program, stewardship contracts, and the Buckskin Mountain Fuelwood Area hand-thin projects.

The BLM forecasts that the demand for harvest, forest, and woodland resources will continue and likely increase slightly in the future. In particular, interest in biomass generated from stewardship contracts has been growing; however, demand depends primarily on the future of the biomass and bio-energy industries. It is unlikely that commercial timber harvest would ever be considered as a future management tool because the predominant vegetation (sagebrush, pinyon-juniper) does not contain any sawmill-quality lumber that would support a viable logging industry.

3.10.2 Environmental Consequences

3.10.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on forestry and woodland products from implementation of the management alternatives. The BLM will manage the Planning Area using management specific to each program area (e.g., fish and wildlife, soils, water). When assessing effects on forestry and woodland products, it is important to note that impacts will generally be limited because there are few opportunities and suitable locations for forestry and woodland product harvesting in the Planning Area. Impacts on forestry and woodland products would primarily result from the following impact mechanisms:

- Restrictions to harvesting in specific areas
- The level of proactive management to improve forest health
- Wildland fire effects

Effects on forestry and woodland resource uses from these impact mechanisms are generally described in a qualitative fashion, with acreages provided where appropriate to draw distinctions among the alternatives.

This analysis uses the following assumptions:

- Several traditional woodland products (e.g., Christmas trees, posts and poles, fuelwood) may be harvested from tree species growing on sites not classified as forest or woodland.
- Demand for forest and woodland products is not anticipated to grow substantially over the planning period; however, biomass utilization and stewardship contracts may increase in the future.
- Forest product removal is a permitted multiple use; the analysis below incorporates the BMPs for forestry and woodland products included in Appendix G, *Best Management Practices*.
- Management actions for the following program areas are not addressed in detail in this comparative analysis because they would result in limited direct and indirect impacts on forestry and woodland products, or in direct and indirect impacts that would not vary substantially by alternative: cultural resources, paleontological and geological resources, recreation, livestock grazing, transportation, visual resources, wild horses, lands and realty and renewable energy, and minerals.

3.10.2.2 Direct and Indirect Effects

Direct adverse impacts on forest and woodland products result from other resource or resource use programs that limit or restrict the use of forest products. These adverse impacts occur from allowable use decisions that restrict surface-disturbing activities. Direct adverse impacts also occur when management decisions prioritize other resource values, such as special status plant species and lands with wilderness characteristics, over forest and woodland product use. Indirect beneficial impacts result when management decisions emphasize the use of forest products to maintain forest ecosystem health and when vegetation treatments are designed to improve forest and woodland objectives.

The use of prescribed fire to protect, maintain, and enhance vegetation resources would decrease the availability of forest and woodland products in the short term; however, it would result in long-term indirect benefits to forest and woodland health and future availability for the

use of these products. Suppressing wildland fires in areas where fire is not desired could increase the quantity of forest and woodland products. Fire suppression typically results in denser forest stands, increasing the potential for these areas to be managed with biomass stewardship programs to address forest health objectives. Alternatively, treatments on encroached pinyon-juniper stands could result in long-term beneficial impacts on fire and fuels management, land health, soils, and habitat for sagebrush/grassland steppe-dependent species. Fire and fuels management objectives would be the same across all alternatives, although the application of fire and fuels management activities would vary, as they would be governed by other resource decisions.

Limits or Restrictions on Forest and Woodland Harvest

Long-term direct adverse impacts on forestry and woodland products could result in areas where fuelwood cutting or the distribution of commercial wood-cutting permits is specifically prohibited, such as special status plant species habitat and some lands with wilderness characteristics. Long-term indirect adverse impacts could also result from surface disturbance restrictions intended to protect special status wildlife and fish species and sensitive big game habitat; riparian and wetland areas; fragile or sensitive soil areas; Drinking Water Source Protection Zones; and in the OSNHT National Trails Management Corridor. These management decisions would reduce the available lands available for forest and woodland harvesting activities.

The potential for adverse direct impacts from prohibitions on forest harvesting activities, including commercial harvesting, would be the greatest under Alternative A, followed by Alternative B, and smallest under alternatives D and C. Differences in the alternatives are driven by the degree of use restrictions on commercial or non-commercial harvest, and prohibitions on fuelwood cutting. Under Alternative A, no commercial timber harvest is allowed and harvesting activities (i.e., fuelwood harvest, post cutting, and Christmas tree cutting) are only allowed in the designated Rock Springs and Buckskin Mountain areas. Alternative B applies fewer restrictions than Alternative A by allowing commercial and non-commercial timber harvesting in KEPA for the purposes of promoting or sustaining forest health while still prohibiting these activities within the GSENM units. Under alternatives C and D, commercial timber harvesting would be allowed in both KEPA and GSENM for the purposes of promoting or sustaining forest health. Additionally, commercial and non-commercial fuelwood harvesting, post cutting, and Christmas tree cutting would be allowed across the entirety of the Planning Area under alternatives C and D, with the exception of within WSAs and areas designated as closed to harvesting (Map 29). As a result, alternatives C and D would be least restrictive, resulting in the lowest potential for adverse impacts on forest and woodland product harvesting.

Alternatives A and B include the most limitations on surface-disturbing activities for the protection of other resources and special designations; these restrictions could adversely affect forestry and woodland because they limit certain harvest methods. Under Alternative B, surface-disturbing activities are prohibited within crucial desert bighorn sheep habitat during lambing season, within 0.25 mile of southwestern willow flycatcher and western yellow-billed cuckoo suitable habitat, in fragile or sensitive soil areas, within Drinking Water Source Protection Zones, and within the OSNHT National Trails Management Corridor, limiting the areas where surface-disturbing activities associated with harvesting forest and woodland products could occur. Alternative B also prohibits fuelwood cutting an all special status plant

species habitat. Alternative C and Alternative D include comparatively fewer resource use and development restrictions, particularly in KEPA, and allow fuelwood cutting in habitat for BLM sensitive plant species across the Planning Area, pending approval by the BLM that habitat degradation would not occur as a result. As a result, impacts from restricting harvesting activities would be fewest in KEPA under alternatives D, C, and then B, respectively.

Vegetation and Forest Management

Vegetation restoration treatments could have short-term direct adverse impacts on forests and woodlands through surface-disturbing activities and removal of vegetation. However, as these areas are reclaimed, long-term beneficial impacts on forests and woodlands could include the restoration of overall stand health, composition, diversity, and resiliency. For example, fuel reduction treatments and prescribed burning could result in short-term disturbances to forest and woodland communities, but could have long-term beneficial impacts on species composition and diversity.

Short-term adverse impacts would be greatest under Alternative D, which allows the full range of upland vegetation treatment methods. However, Alternative D would prioritize treatments in areas where removal of woodland products would improve rangeland health, improve wildlife habitat, and improve forage. Alternative C would result in similar impacts as Alternative D, as it would allow all vegetation treatment methods except chaining; however, treatments would be designed to promote overall land health, potentially resulting in additional long-term benefits to forestry and woodland products compared to Alternative D. Alternative A allows the use of machinery unless limited by management for other resources and allocations and generally applies greater restrictions on treatments that could benefit woodland stands and the production of woodland products compared to alternatives C and D. Alternative B allows vegetation treatments only in limited circumstances, which could result in the least potential for short-term adverse impacts and the fewest long-term beneficial impacts, compared to the other alternatives.

3.10.2.3 Cumulative Effects

The cumulative impacts analysis area for forestry and woodland products is the Planning Area and watersheds that intersect the Planning Area. The analysis area encompasses the extent of forested areas and communities that could be cumulatively affected by harvesting, fires, vegetation treatments, and other activities associated with management decisions. Vegetation restoration treatments focused on forests undertaken by other agencies and landowners would reduce the risk of wildland fire and long-term loss of forest products and productivity within the Planning Area, which would improve forest ecosystem health and function by maintaining or enhancing ecological complexity in forested stands, resulting in long-term benefits to forest products. Past, present, and reasonably foreseeable vegetation projects include Upper Paria Watershed vegetation treatments; Skutumpah vegetation treatments; Alvey Wash, Coal Bench, and Last Chance vegetation restoration projects; and other vegetation treatment and weed management plans and projects identified in Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*.

Conversely, the availability of other forest and woodland products on adjacent lands could reduce the demand for these products within the Planning Area, which would result in adverse impacts on forestry and woodland products. Among the alternatives, Alternative D would have the greatest likelihood of reducing potential adverse cumulative impacts on forestry and

woodland products, while Alternative B would have the greatest likelihood of increasing these potential cumulative impacts.

3.11 Lands and Realty and Renewable Energy

3.11.1 Lands and Realty Affected Environment

The analysis area for lands and realty is the Planning Area. The analysis area encompasses the extent of area where the BLM would make land use authorizations and land tenure adjustments associated with these RMPs.

There are two formal utility corridors in the Planning Area, both located in KEPA (Map 30, Designated ROWs and Communication Sites). The first, designated by Public Law 105-355, runs along Highway 89 in Kane County. This utility corridor hosts the highway itself, a buried fiber optic line, and several above-ground powerlines, and will be the location of the Lake Powell Pipeline, if approved. The second is Energy Corridor #68-116, designated under Section 368 of the Energy Policy Act of 2005. This segment is part of the regional West-Wide Energy Corridor project and hosts a segment of the Navajo-McCullough powerline. There are plans to connect this line to the Glen Canyon Dam Hydro Electric Power Plant in the future. Additionally, there are several de-facto utility corridors along transportation routes in both the GSENM units and KEPA. These de-facto corridors host local power transmission lines connected to the Glen Canyon Dam Hydro Electric Power Plant. Refer to Chapter 2, Section 2.3.2, *Lands and Realty* (pages 98–102), in the AMS (BLM 2018b) for more information on utility corridors in the Planning Area. Refer to Appendix 8, *Lands and Realty*, Figures 1 through 3 (pages 327–329) in the AMS (BLM 2018b), for more information on Corridor #68-116's designation and conflict analysis through the Planning Area.

There are two multiple use communication sites in the Planning Area, in addition to a standalone site leased by the Glen Canyon NRA in Kane County. These include Buckskin Ridge, located in KEPA in Kane County, and 50 Mile Head of Rocks, located in the Escalante Canyons Unit of GSENM (Map 30, Designated ROWs and Communication Sites). The BLM's policy is to co-locate new facilities within these existing communication sites whenever possible.

The Planning Area currently has approximately 150 active ROWs and other land use authorizations for access roads, powerlines, pipelines, communication sites, fiber optic lines, and material sites. Many of these authorizations predate the 1996 GSENM designation and continue under valid existing rights. There are approximately six pending ROW applications or renewals that fall in KEPA. There are also approximately six active trespass cases. The BLM projects approximately 10 to 12 new ROW applications each year, an increasing number of which are expected to be for commercial film permits (BLM 2018b). Refer to Chapter 2, Section 2.3.2, *Lands and Realty* (pages 98–102), and Appendix 8, *Lands and Realty* (pages 327–346), in the AMS (BLM 2018b) for more information on ROW applications and a list of active land use authorizations in the GSENM units and KEPA.

GSENM unit lands are not available for disposal as a result of the national monument designation, which states “All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from entry, location, selection, sale, leasing, or other disposition under the public laws, other than by exchange that furthers the protective purposes of the monument” (BLM 2018b). A large land exchange with the Utah SITLA

previously occurred along with some acquisitions of inholding parcels in GSENM to consolidate land ownership patterns.

3.11.2 Renewable Energy Affected Environment

Renewable energy development projects in the Planning Area are permitted in accordance with the *Final Programmatic EIS (PEIS) on Wind Energy Development on BLM-Administered Lands in the Western United States* (BLM 2005a) and the *Final PEIS for Solar Energy Development in Six Southwestern States* (BLM 2012d). Renewable energy development is currently restricted across much of the Planning Area due to GSENM status (i.e., excluded in GSENM), special designations, VRM objectives, critical habitat, and technical feasibility (e.g., slopes, access). A solar energy project near Big Water, Utah (outside of the Planning Area) is in the planning stages. If approved, it could encompass over 5,700 acres of land adjacent to BLM-administered surface lands in the Planning Area. There are no existing renewable energy facilities in the Planning Area. No geothermal temperature systems have been identified and no future geothermal development is expected (BLM 2018b). Biomass products do exist in the Planning Area, primarily as wood residues of forest restoration projects. Refer to Section 3.10 (*Forestry and Woodland Products*) for additional information on biomass. Refer to Chapter 2, Section 2.3.6, *Renewable Energy* (pages 118–119), in the AMS (BLM 2018b) for more information on renewable energy assessments in the Planning Area.

3.11.3 Environmental Consequences

3.11.3.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on lands and realty and renewable energy from implementation of the management alternatives. Maps 31 through 34 depict ROW avoidance and exclusion areas by alternative and Maps 36 through 39 depict areas recommended for withdrawal by alternative. Maps 40 through 43 depict utility-scale renewable energy variance and exclusion areas by alternative.

Many of the program-specific management decisions will have the same or similar types of effects on lands and realty; therefore, impacts on lands and realty will also be similar. Impacts on lands and realty would primarily result from the following impact mechanisms:

- ROW avoidance/exclusion areas and resulting potential for these land use authorizations
- Land tenure adjustments

Analysis of impacts on lands and realty from these impact mechanisms is generally based on acreages of ROW avoidance and exclusion areas.

This analysis uses the following assumptions:

- Existing ROWs and communication sites will be managed to maintain valid existing rights and may be modified or amended if the action is consistent with the RMPs.
- The BLM will continue to process land tenure adjustments consistent with RMP goals and decisions.
- There are no lands identified for FLPMA Section 203 sales within the Planning Area. Land exchanges and acquisitions could be considered so long as the current owner is a willing participant, the action is in the public interest, and the action is in accordance with other

management goals and objectives. Exchanges and acquisitions in GSENM must also result in a net gain of objects and values within GSENM.

- Management actions for the following program areas are not addressed in detail in this comparative analysis because they would result in limited direct and indirect impacts on lands and realty, or in direct and indirect impacts that would not vary substantially by alternative: air quality, cultural resources, paleontological resources, soil and water resources, wild horses, forestry and woodland products, minerals, transportation, and social and economic considerations.

3.11.3.2 Direct and Indirect Effects

Management for fish and wildlife, special status species, lands with wilderness characteristics, vegetation, visual resources, livestock grazing, recreation, ACECs, national trails, scenic routes, Wild and Scenic Rivers (WSRs), and WSAs would result in direct, adverse impacts on lands and realty, as these areas generally have the greatest amount of ROW avoidance and exclusion areas and other restrictions that would limit land use authorizations. This could result in a reduction for the potential of new ROW authorizations and communications sites, or the need to construct utility corridors and communications sites in less-desirable locations.

Land tenure adjustments are typically used to facilitate access, improve management ability, and reduce conflicts in the Planning Area. Management actions that facilitate land exchanges or acquisitions would generally provide beneficial impacts on lands and realty given the land tenure adjustment is in the public interest or increases accessibility.

ROW Avoidance/Exclusion Areas and Resulting Potential for these Land-Use Authorizations

Short- and long-term, direct, adverse impacts on lands and realty could result from the designation of ROW avoidance or exclusion areas. ROW avoidance and exclusion areas are applied in WSAs, WSR corridors, some ACECs and SRMAs/RMZs, and in some areas based on resource-specific protections (e.g., areas with steep slopes). ROW exclusion areas are typically not available for the location of ROWs, unless granted through an exception, modification, or waiver as indicated in Appendix H, *Stipulations and Exceptions, Modifications, and Waivers*. ROW avoidance areas may be available for ROW location pending site-specific analysis and additional terms and conditions. ROWs in ROW avoidance areas may require special design or siting requirements and could adversely affect the costs of implementation. In contrast, areas available for ROW development would have direct and indirect, short- and long-term, beneficial impacts on lands and realty by accommodating desired placement of facilities, accommodating access and efficient energy supply, and minimizing additional costs.

Table 3.11-1 provides the number of acres that would be excluded, avoided, or considered suitable for ROWs by alternative. Map 31 through Map 34 show locations of ROW avoidance and exclusion areas under each alternative.

Table 3.11-1. ROW Exclusion, Avoidance, and Suitable Areas within KEPA

ROW Designation	Alternative A	Alternative B	Alternative C	Alternative D (Preferred Alternative)
ROW exclusion areas (acres)	451,802	760,314	213,432	212,235

ROW Designation	Alternative A	Alternative B	Alternative C	Alternative D (Preferred Alternative)
ROW avoidance areas (acres)	410,629	102,117	237,938	199,293
ROW suitable areas (acres)	0	0	411,061	450,904

Source: BLM 2018f

ROW – right-of-way, KEPA – Kanab-Escalante Planning Area

Alternative D would have the most beneficial impacts on ROWs because it has the least amount of area managed for ROW avoidance and exclusion. In addition, Alternative D contains the fewest special designations and restrictions on resource uses that limit ROWs. In contrast, alternatives B and A would have the greatest adverse impacts on ROWs because they would have the largest acreage of ROW exclusion and avoidance areas. Alternative C provides for 411,061 acres of area suitable for ROWs in KEPA while still managing for ROW exclusion and avoidance based on special designations, resource concerns, and other management goals and objectives (e.g., SRMAs). In general, ROW avoidance and exclusion areas would also apply to renewable energy development in KEPA. All utility-scale renewable energy development is prohibited in GSENM per the *Final PEIS for Solar Energy Development in Six Southwestern States* (BLM 2012d). Alternative B would not designate any of the Planning Areas as suitable for utility-scale renewable energy development, whereas Alternative C and Alternative D would manage 411,061 and 450,904 acres as suitable, respectively (Map 40 through Map 43). As a result, Alternative D would have the most beneficial impacts on renewable energy development followed by Alternative C, with alternatives A and B having the greatest adverse impacts on renewable energy development due to the least amount of areas suitable for renewable energy development.

All alternatives would recognize valid existing land use authorizations and manage 11,012 acres as designated ROW corridors (Map 30). These utility corridor ROWs include the existing Section 368 corridor, Energy Corridor #68-116, and the utility corridor along Highway 89 in Kane County, which extends 240 feet north and 500 feet south of the highway centerline (Map 30, Designated ROWs and Communication Sites). These corridors could be utilized for transmission interconnection lines or other infrastructure associated with renewable energy development occurring within or adjacent to the Planning Area. New communication facilities would be required to be co-located with an existing communication site under Alternative B and Alternative C, although the latter allows for alternative siting when co-location is not feasible. Existing BLM guidance would be used for all communication site placements under Alternative A. Alternative D would allow siting and development of communication facilities in any ROW suitable area and may provide the greatest beneficial impacts on the Lands and Realty program.

The Planning Area contains a number of special designation areas (e.g., WSAs), which generally limit areas open to ROW consideration. In general, impacts on ROWs and other land use authorizations would be similar across the three GSENM units based on the similar management applied in each unit.

Application of lands and realty BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect adverse impacts on lands and realty and on resources affected by ROW decisions. For example, locating ROWs for pipelines and roads within existing ROWs or disturbance areas would reduce the amount of new surface

disturbance and associated impacts that would correspondingly reduce potential impacts on wildlife, visual resources, and other resources. Similarly, BMPs for transmission line and communication site design standards (e.g., non-electrocution standards, non-reflective materials) would further reduce potential impacts on raptors, wildlife, visual, and other resources.

Other land-use authorizations that would affect the lands and realty program include film permits. In general, all action alternatives would have similar impacts on the lands and realty program as authorization of film permits would require site-specific NEPA assessments.

Impacts from Land Tenure Adjustments

The BLM strives to manage lands to meet the needs of internal and external customers and to preserve important resource values. In certain cases, the lands and realty program can experience long-term, direct, beneficial impacts by consolidating land ownership patterns and enhancing important resource values through land tenure adjustments.

Under all alternatives, land exchanges and acquisitions would be considered when they are in the public interest and result in a net gain of objects and values within the GSENM units, or a net gain of important and manageable resource values in KEPA lands. In general, long-term, beneficial impacts would result from these land tenure adjustments as a result of a more consolidated land management pattern.

Land tenure adjustments could also result in short-term, adverse impacts when used to withdraw lands from specific resource uses such as mineral entry and location. Under Alternative A, all lands in the Planning Area are currently withdrawn from mineral entry and under the action alternatives all lands in GSENM would continue to be withdrawn. Alternative D would recommend the least amount of new withdrawal area in KEPA (225 acres), followed by Alternative C (210,676 acres), with Alternative B having the greatest amount of area recommended for withdrawal in KEPA (485,422 acres).

Under all alternatives, and during implementation level planning, the BLM would authorize only one access route to private land parcels through the GSENM units, unless public safety or local ordinances warranted additional routes. By requiring private landowners to coordinate on development across public lands, the BLM would be able to manage the number of routes within the GSENM units. The access route authorization requirements would apply under all alternatives and therefore all alternatives would provide similar levels of impact.

3.11.3.3 Cumulative Effects

The cumulative impacts analysis area for lands and realty is the Planning Area. Lands and realty in the Planning Area has historically been altered by the land exchanges that occurred with creation of the monument. The Lake Powell pipeline, Garkane Transmission ROW, South Central Buckskin to Page Buried Fiber Optic Line, South Central Johnson Canyon to Cannonville Buried Fiber Optic Line, solar development project near Big Water, Utah, expansion and development of U.S. Highway 89, and continued growth of other de facto utility corridors could all affect the lands and realty program (Appendix N, *Cumulative Impact Methodology and Past Present, and Reasonably Foreseeable Future Actions*). Among the alternatives, alternatives A and B would have the greatest likelihood of presenting adverse effects on ROWs in the Planning Area by reducing routing options and possibly increasing construction costs for

utilities, while Alternative D would have the greatest likelihood of increasing potential cumulative impacts.

3.12 Livestock Grazing

3.12.1 Affected Environment

The analysis area for livestock grazing includes the Planning Area plus the extent of the livestock grazing allotments that intersect the Planning Area, some of which extend into the Glen Canyon NRA, BLM Arizona Strip Field Office, and BLM Kanab Field Office (Map 45, Livestock Grazing Allotments Alternative A).

Livestock grazing in the region dates back to the 1860s and during this initial settlement period, there was neither intensive grazing management on public lands nor established livestock numbers or seasons of use. As a result, the number of cattle, sheep, and horses rapidly increased until the early 1900s. After enactment of the Taylor Grazing Act in 1934, grazing allotments were created and the number and kind of livestock and season of use were established for the area. Livestock grazing use in the region has substantially decreased from its peak in the early part of the 20th Century.

Within the analysis area the BLM administers grazing allotments and permits in GSENM, Glen Canyon National NRA, Kanab Field Office, and the BLM Arizona Strip Field Office. There are 97 grazing allotments that overlap the analysis area including 79 active grazing allotments and 18 grazing allotments that are wholly or partially unavailable to livestock grazing. There are 91 permittees authorized to graze cattle and horses on the 79 active allotments. There are 2,096,539 acres available for livestock grazing within grazing allotments in the analysis area and 147,236 acres that are wholly or partially unavailable to livestock grazing (Table 3.12-1) (Map 45, Livestock Grazing Allotments Alternative A). Allotments that are wholly or partially unavailable to livestock grazing includes 89,800 acres in the Glen Canyon NRA. An additional 34,502 acres within the analysis area are available for livestock grazing but are not being grazed, including 1,600 acres in the Glen Canyon NRA. The total permitted use in the analysis area is 106,202 AUMs, which includes 76,957 active AUMs (including from forage reserves) and 29,245 suspended AUMs. Refer to Chapter 2, Section 2.3.3, *Livestock Grazing* (pages 102–106), and Appendix 9, *Livestock Grazing*, Table 1 (pages 347–350), in the AMS (BLM 2018b) for more information on acreages, seasons of use, and AUMs for allotments in the Planning Area.

Table 3.12-1. Available, Unavailable, and Unallotted Acreage of Livestock Grazing Allotments within the Planning Area

Allotments	Grand Staircase Unit (acres)	Kaiparowits Unit (acres)	Escalante Canyons Unit (acres)	KEPA (acres)	Kanab Field Office ⁽¹⁾ (acres)	Arizona Strip (acres) ⁽¹⁾	Glen Canyon NRA (acres) ⁽¹⁾
Allotments Available for Grazing	208,045	546,520	177,479	850,626	65,500	2,300	246,069
Forage Reserve Allotments	-	-	14,603	-	-	-	-

3.12 Livestock Grazing

Allotments	Grand Staircase Unit (acres)	Kaiparowits Unit (acres)	Escalante Canyons Unit (acres)	KEPA (acres)	Kanab Field Office ⁽¹⁾ (acres)	Arizona Strip (acres) ⁽¹⁾	Glen Canyon NRA (acres) ⁽¹⁾
Allotments Unavailable for Grazing	0	4,427	46,114	6,895	0	0	89,800

Source: BLM 2018f

¹These acreages are included because GSENM has administrative responsibility for livestock grazing in these portions of the BLM's Kanab Field Office, Arizona Strip Field Office, and National Park Service-managed lands in Glen Canyon NRA.

KEPA – Kanab-Escalante Planning Area, NRA – National Recreation Area, BLM – Bureau of Land Management

There are a variety of structural and nonstructural range improvements across the Planning Area including fences, corrals, cattle guards, line cabins, water pipelines, well developments, spring development, stock ponds, water catchments, seedings, and vegetative enhancement projects. Range improvements are generally used to assist with livestock management but some are also used to assist with wildlife management (e.g., fences).

The BLM forecasts that the demand for livestock forage and livestock permits will continue and likely increase in the future, potentially adding to factors that compromise *Utah Standards for Rangeland Health*. There is direct competition for forage and water between livestock and wildlife in some areas, especially in riparian areas. An overall increase in visitation in the area has also resulted in livestock grazing and recreation use conflicts (e.g., access issues, damage to range improvements).

3.12.2 Environmental Consequences

3.12.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on livestock grazing operations from implementation of the management alternatives. The BLM will manage the Planning Area using management specific to each program area (e.g., recreation, fish and wildlife, or vegetation). However, when assessing effects on livestock grazing, it is important to note that many of these program-specific management decisions will have the same or similar types of effects on livestock grazing; therefore, impacts on livestock grazing will be also be the same or similar. Impacts on livestock grazing would primarily result from the following impact mechanisms:

- Changes in land availability for livestock grazing and stocking rates
- Allowance for or restrictions on the construction or maintenance of new structural and nonstructural range improvements
- Changes in forage or livestock grazing management due to other program areas

Effects on livestock grazing from these impact mechanisms are generally described qualitatively, with acreages provided where appropriate to draw distinctions among the alternatives.

This analysis uses the following assumptions:

- All new and existing leases and permits would be subject to terms and conditions determined by the BLM authorized officer to achieve the management and resource condition objectives for BLM-administered surface lands and to meet BLM *Utah Standards*

- for Rangeland Health (BLM 1997). *Utah Standards for Rangeland Health* are assessed according to BLM Handbook H-4180-1, Rangeland Health Standards (BLM 2001).
- Structural range improvements, such as fences, pipelines, water wells, troughs, and reservoirs, could result in a localized or temporary loss of vegetation cover throughout the life of the improvements. Along water pipelines, vegetation would be reestablished through reclamation practices in the short term and to the extent possible. Areas with fences, water wells, troughs, and reservoirs could retain vegetation areas during their useful life and would be revegetated when abandoned.
 - Range improvements lead to better livestock distribution and management options, which maintain or improve rangeland health. The construction of new range improvements and maintenance of existing range improvements would continue in the Planning Area as needed. New range improvements could be subject to limitations, as defined in these RMPs, and subject to site-specific NEPA analysis.
 - The BLM owns most water rights that are solely for livestock watering in the Planning Area, and permittee water rights in areas made unavailable for livestock grazing are not anticipated to be at risk for an abandonment or forfeiture proceeding. Any affected permittees could seek legal relief under Utah State Law or pursue a change application to an existing water right through the Utah State Engineer.
 - Temporarily removing livestock during times of drought or post-vegetation disturbance could limit where permittees put their livestock; however, this may not affect the level of forage available overall, due to the temporary nature of such restrictions.
 - While restrictions on the type and kind of livestock to cattle and horses near bighorn sheep habitat can result in a loss of flexibility and financial hardship for permittees, there are currently no sheep permitted in the Planning Area and therefore no reasonably foreseeable impacts.
 - The BLM authorized officer must expressly exclude a permittee from cross-county OHV travel in areas designated as limited or closed to OHV use.

3.12.2.2 Direct and Indirect Effects

Impacts on livestock grazing are generally the result of activities that affect forage levels, areas available for grazing, class of livestock, season of use and timing, and the ability to construct range improvements, as well as disturbances or harassment of livestock in grazing allotments.

Impacts from Changes in Land Availability for Livestock Grazing and Stocking Rates

Impacts on permittees, including direct loss of forage and ability to distribute livestock, would occur if all or a portion of an allotment is made unavailable (or if reductions in utilization levels are required) to address issues of vegetation or riparian management or other resource concerns. The level of impact would depend on the number of allotments or portions of allotments made unavailable; the forage condition on the remaining allotments or portions of allotments, if applicable; and the degree of permittees' dependence on Federal lands for forage. If sufficient forage were not available on the remainder of the allotments, permittees would need to reduce Federal grazing use and reduce herd size or substitute alternative forage, which would typically reduce profits (Torell et al. 2014). Refer to Section 3.21, *Social and Economic Considerations*, for a description of social and economic impacts associated with reducing acres available for grazing and livestock forage AUMs.

Indirect impacts, including the need to construct fences for managing livestock to ensure they are excluded from unavailable areas, would also result from making areas unavailable for grazing. The need for increased management to implement these actions would increase time and costs for permittees. For example, there can be significant economic constraints to installing exclusion fences (Agouridis et al. 2005). Implementing particular livestock grazing management actions could affect livestock grazing by increasing permittees' costs or changing management actions. Short-term and long-term costs to permittees could increase, or AUMs could decrease for some permittees due to change in season of use or livestock class, modification to grazing systems, or construction of range improvements or other approaches to meet rangeland condition objectives or to protect other resources. As shown in Table 3.12-2, the alternatives vary in their effect on acres available for livestock grazing and stocking rates (expressed in AUMs). Alternative C management is similar to current management under Alternative A. Alternative B includes a decrease in available acres and active AUMs that could adversely affect livestock grazing, while Alternative D increases acres available for grazing and active AUMs. More restrictive grazing management under Alternative B, including staggering spring start times and requiring rest years for winter grazing lands, could require permittees to reduce the size of their operations or locate replacement forage elsewhere. Making portions of the Planning Area unavailable for livestock grazing could also disrupt the viability of current seasonal rotations or other management strategies that use combinations of Federal, State, and private lands. Under Alternative D, the beneficial increase in active AUMs would result from making more areas available for livestock grazing and the implementation of nonstructural range improvements to help reactivate suspended AUMs during permit renewal.

Table 3.12-2. Livestock Grazing Management by Alternative (and Percentage Change from Alternative A)

	Alternative A	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Available for Livestock Grazing	2,039,014 acres	1,604,094 acres (-21%)	2,045,796 acres (<+1%)	2,120,591 acres (+4%)
Maximum Permitted AUMs	106,202	92,389 (-13%)	105,765 (<-1%)	107,995 (+2%)
Active AUMs	76,957	63,144 (-18%)	76,413 (-1%)	107,995 (+40%)

Source: BLM 2018f

AUM – animal unit month

Closing individual pastures in allotments to address resource degradation or other issues can have indirect adverse impacts on permittees where access to water is lost. Absent the development of new water sources, such closures can adversely affect the ability of the permittee to utilize all or part of their allotment. Alternatives A, B, and C all close pastures, such as the River pasture in Big Bowns Bench, that could adversely affect the ability of permittees to access water.

Allocating reserve common allotments as available for grazing under alternatives A and C would provide additional opportunities to acquire grazing permits, but could also eliminate the flexibility to use these allotments if other allotments are designated temporary nonuse in emergency situations. Alternative C maintains and expands the acreage of reserve common

allotments under Alternative A to facilitate grazing methods research within the GSENM units and to offset potential temporary reductions in existing allotments. Alternatives B and D would not allocate reserve common allotments. Under Alternative B, reserve common allotments would be unavailable for livestock grazing and under Alternative D, reserve common allotments would be allocated as available for grazing as regular permits.

Alternatives B, C, and D consider the use of reference sites as tools for improving livestock grazing management. Reference sites are locations, either within the Planning Area or in comparable plant communities/ecoregions on adjacent lands, where the BLM and NPS can compare objectives for native plant communities, riparian and wetland areas, and soils between grazed and ungrazed areas. Monitoring reference sites would determine which tools are successful in maintaining rangeland health for permittees and BLM and NPS specialists for the efficient management of livestock grazing. The size of sites, breadth of criteria analyzed, and application of exclosures and other tools under the reference site program is greatest under alternatives B, C, and D, respectively. Alternative B would result in a greater potential for beneficial information for livestock grazing permittees through the identification of new tools for managing grazing operations and maintaining rangeland health. Conversely, the application of larger (ungrazed) reference sites and additional livestock exclosures under Alternative B would reduce the area available for livestock grazing compared to alternatives C and D or Alternative A, which does not include reference area management. Given the existing science (e.g., Bowker et al. 2013), Alternative B is expected to result in a suspension of some permitted AUMs after the reference areas are established.

Impacts from Allowing for or Restricting the Construction or Maintenance of New Structural and Nonstructural Range Improvements for Livestock

Adjustments to grazing management can alter available forage in the short term. As stated previously, making areas unavailable for grazing results in direct impacts through reduction in grazing use; however limiting distribution by restricting range improvement construction can result in indirect impacts by limiting the season of use or the ability to use available forage. In addition, not maintaining improvements can also reduce forage availability. The level of impact would depend on the percentage of individual allotments affected, the forage condition on affected allotments, and the degree that permittees depend on Federal lands for forage. In the long term, adjustments to grazing management could promote healthy forage and open up forage in areas that may not usually be available.

Constructing range improvements could improve livestock distribution and allow livestock to use more of the rangeland, which would consequently enhance rangeland conditions. Conversely, restricting range improvements could affect livestock operations by not supporting effective distribution and thus increasing the cost or time for management. In some cases, restrictions may limit the ability to fully use permitted AUMs; for example, restrictions affecting water development could limit use if capacity were limited by water distribution. Constructing offsite water sources and fencing riparian and spring sources could keep livestock away from sensitive riparian areas and provide a cleaner, more reliable water source for livestock.

Nonstructural range improvements designed to reduce the intrusion of nonnative annual grasses, such as cheatgrass, and the encroachment of shrubby vegetation could have short-term impacts on livestock grazing, such as removing forage and requiring rest periods from grazing. However, these nonstructural range improvements would generally enhance rangeland

conditions in the long term, including maintaining or improving the available forage, which is the amount of vegetation available for wildlife and livestock use (DiTomaso 2000; Vollmer and Vollmer 2008; Gottfried and Severson 1994). Long- and short-term impacts on grazing would be minimized when the primary objective of nonstructural range improvements is to support healthy rangeland ecosystems consistent with BLM *Utah Standards for Rangeland Health* (BLM 1997). On NPS-managed lands, additional criteria beyond BLM *Utah Standards for Rangeland Health* may be required, as specified in the 1999 Grazing Management Plan and other NPS policies.

Impacts from continued maintenance of and development of new structural and nonstructural range improvements vary by alternative based on management restrictions. Alternative A generally provides limited guidance on the use of range improvements. Alternative B does not allow the development of water developments, vegetation treatments, or other structural or non-structural range improvements for the sole purpose of increasing desired plant communities or forage availability for livestock. Such management would adversely affect permittees' ability to utilize existing or create new forage for livestock. Conversely, alternatives C and D generally allow maintenance and development of new structural and nonstructural range improvements for livestock, benefitting permittees' grazing management on public lands.

Allowing for native and nonnative species to be used for nonstructural range improvements under alternatives C and D gives grazing permittees options and flexibility to provide a higher quality or quantity of desired plant communities for livestock. Conversely, allowing use of only native plants and prohibiting seeding designed to increase forage under alternatives A and B limits a permittee's flexibility to provide desired plant communities for livestock forage, especially in cases where native vegetation does not germinate as well as nonnative plants. NPS management policies do not support the use of nonnative species for nonstructural range improvements in Glen Canyon NRA, eliminating the possibility of increased forage from nonnative species on these allotments under all alternatives. In addition, allowing maintenance of existing nonstructural range improvements using the full range of upland vegetation treatment methods and tools under alternatives C and D would benefit livestock grazing permittees by providing the best chance for successful vegetation reestablishment. It should be noted that effects on ecosystem function and biodiversity may occur when nonnative species and non-structural range improvements specifically to benefit livestock grazing are applied to the range; these effects may result in long-term changes to or degradation of the health of allotments. Refer to Section 3.7, *Vegetation and Fire and Fuels Management*, of this document for additional information on grazing management's effects on ecosystem function and biodiversity.

Alternatives B and C include the greatest restrictions and requirements on lands available for grazing and stocking rates (expressed as AUMs) to meet BLM *Utah Standards for Rangeland Health*, thereby increasing costs and limiting a permittee's flexibility and available management tools. These types of restrictions would be for, but are not limited to, placing salt blocks and altering the season of use, duration, and recovery periods based on monitoring data. Alternative D emphasizes other actions to improve rangeland health versus changing stocking rates, limiting potential adverse effects on permittees and providing the greatest flexibility among the alternatives.

Impacts on Livestock Grazing from Other Program Management

Surface-disturbing activities associated with the development of mineral resources, lands and realty, transportation and access, and ROWs and transmission corridors could result in direct, adverse impacts on livestock grazing where they disturb soils and remove forage. Installing permanent facilities or roads would result in long-term, adverse impacts through reductions in forage, while authorizations that include only initial disturbance that would be reclaimed would have only short-term impacts. Indirect, adverse impacts associated with surface-disturbing activities include an increased potential for the spread and establishment of nonnative invasive species that out-compete desired native and nonnative forage species. Management that limits surface disturbance by establishing ROW avoidance and exclusion areas, managing areas as VRM Classes I or II, applying surface-use stipulations to mineral and renewable energy development, or through other means such as the restrictions in special designations would reduce the potential for adverse impacts. Conversely, prohibitions on surface-disturbing activities can result in adverse impacts on livestock grazing where they limit the ability to develop or maintain range improvements.

The potential for adverse direct and indirect impacts from surface-disturbing activities is greatest under Alternative D, followed by Alternative C, Alternative A, and Alternative B, respectively. Differences between the alternatives are driven by the degree of use restrictions on minerals development, the availability of areas for issuance of new ROW and renewable energy permits, the ability to develop range improvements, the creation of facilities and infrastructure for OHV use and recreation, and the extent and management of special designations in the alternatives. In KEPA, Alternative D contains the fewest special designations and restrictions on resource uses, followed by Alternative C, Alternative A, and Alternative B (refer to Table 3.12-1). In the three GSENM units, the potential for adverse direct and indirect impacts from surface disturbance is limited under all alternatives due to restrictions on development activities that apply to these units.

Limitations on group sizes, including in SRMAs/RMZs to better manage recreational use and to contain other restrictions on recreationist behavior (e.g., prohibitions on off-trail travel or fuel wood collection), would benefit livestock grazing by reducing potential damage to forage and disturbance/disruptions to livestock that can occur during recreational use. Dispersed camping can also directly affect livestock's ability to access water sources, corrals, and meadows that are important to permittees' grazing management. Water sources and meadows in particular are attractive to dispersed campers, and their use can lead to the displacement of livestock or damage to these resources. Alternatives B, C, and A (respectively) include the most protective management for recreation, and would have the greatest beneficial effects on livestock grazing associated with recreation management. Alternative D includes the fewest restrictions on dispersed camping and other recreational uses that could adversely affect livestock, forage, and permittees' grazing management. All alternatives prohibit camping within 0.25 mile of isolated water sources, which would reduce adverse impacts on livestock that use these resources.

Management to meet habitat objectives or to protect other resources could affect stocking rates and forage availability for permittees. In general, vegetation management imposes short- and long-term limitations on grazing. Examples include requiring rest periods and adjusting timing of grazing in order to meet resource objectives. As a result, site-specific direct and indirect impacts may occur, and costs and time required for livestock management would

increase, with the level of impact depending on the extent and nature of treatments. In the long term, management of rangeland vegetation generally enhances vegetation conditions and indirectly affects livestock grazing by increasing vegetation productivity and improving forage conditions. Vegetation treatments designed to reduce the incursion of nonnative annual grasses, such as cheatgrass, the encroachment of shrubby vegetation, and the buildup of biomass could have short-term impacts on livestock grazing. Short-term impacts include removal of forage and required rest periods from grazing. However, these treatments generally enhance rangeland conditions by maintaining the forage base (the amount of vegetation available for wildlife and livestock use) in the long term.

Management practices to protect rangeland health indirectly affect grazing. Protecting water quality and watershed health to meet BLM *Utah Standards for Rangeland Health* in riparian and wetland areas could require changes in livestock management. Examples of this are deferring or shortening grazing periods, changing season of use, adding range improvements, excluding grazing from riparian areas, establishing riparian pastures, and increasing livestock herding. The level of impact would depend on the number of individual allotments or portions of allotments made unavailable and the forage condition on the remaining allotments or portions of allotments. These limitations could increase costs to permittees if changes were to indirectly reduce forage availability or increase management requirements. On NPS-managed lands, additional criteria beyond BLM *Utah Standards for Rangeland Health* may be required, as specified in the 1999 Grazing Management Plan and other NPS policies. Alternatively, treatments to improve land health, such as treatments on encroached pinyon-juniper, could also improve forage for livestock.

Alternatives D, C, and B (respectively) permit a broader range of vegetation, habitat management, and watershed improvement techniques than Alternative A, resulting in a greater potential for short-term, adverse and long-term, beneficial impacts on livestock grazing. Alternative A restricts the type of noxious weed and invasive species controls, vegetation treatments for pinyon-juniper encroachment, and other general habitat treatments that could occur. Such restrictions limit potential short-term, adverse effects from surface disturbance and vegetation removal, but eliminate the potential for long-term vegetation improvement in degraded vegetation communities. Alternatives B, C, and D would allow habitat treatments that benefit wildlife species and would actively manage big game habitat. These alternatives would result in some short-term disturbance to existing forage and the potential need for rest periods or grazing timing adjustments; however, treatments could enhance the forage base in the long term. Alternatives A and B also limit vegetation restoration activities to native species, resulting in potential long-term benefits to native vegetation community enhancement, but eliminating potential short-term benefits from the ability to use desirable nonnative species to accelerate restoration activities. In contrast, alternatives C and D allow the use of desirable nonnative species.

Unlike the other alternatives, Alternative B suspends livestock grazing where objectives and BLM *Utah Standards for Rangeland Health* are not met and livestock grazing is a contributing or causal factor. Requiring suspensions, instead of considering the full suite of potential options to move an allotment toward meeting standards and objectives, would increases potential adverse impacts from lost AUMs in the affected allotment. While all alternatives require monitoring for compliance with objectives and BLM *Utah Standards for Rangeland Health*, Alternative B and allotments in the Glen Canyon NRA under Alternative C include the most comprehensive monitoring measures and methods. As a result, management under

alternatives B and C, respectively, would be more likely to identify rangeland health issues early (before long-term damage occurs) than would management under alternatives A, D, or the GSENM allotments under Alternative C. Conversely, more rigorous monitoring could result in additional suspensions or other corrective actions that could adversely affect permittees' ability to use their allotments in the short term.

3.12.2.3 Cumulative Effects

The cumulative impacts analysis area for livestock grazing is the allotments overlapped by the Planning Area in their entirety. This cumulative impact analysis area encompasses the full extent of the grazing allotments that intersect the Planning Area. In general, livestock grazing competes with recreation as the dominant use of the land and grazing relies on healthy rangeland conditions and acreage suitable and available for grazing. High visitor use in the Planning Area contributes to the degradation of forage vegetation through trampling from concentrated and dispersed pedestrian-based activities and dust deposition on vegetation from motorized activities. Trending increases in visitation and recreation use are anticipated to continue contributing to these cumulative impacts.

A variety of grazing management plans in the analysis area provide management direction for grazing activities that can contribute to cumulative impacts. These include the Capitol Reef National Park Livestock Grazing and Trailing Management Plan and EIS, Kanab Field Office RMP, and Kane County Land Use Ordinance, Chapter 27, Escalante Region Multiple Use/Multiple Functions Grazing Zone. Refer to Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*, for more information.

Other activities in the Planning Area that would contribute to cumulative impacts on livestock grazing include surface disturbance related to mineral development and the granting of ROWs (e.g., Lake Powell pipeline). Depending on the type of ROW, some are revegetated and provide an improved forage condition while others may be un-reclaimed for the life of the use, such as roads. Surface disturbance and associated impacts would be the greatest under Alternative D and the least under Alternative B. Vegetation treatments and habitat improvement projects would have short-term, adverse impacts on livestock but provide a long-term, beneficial impacts. Beneficial impacts resulting from habitat improvement projects would be the greatest under Alternative B and the least under Alternative D. Alternatives C and D would potentially result in the greatest beneficial impacts from upland vegetation treatments by implementing a broad range of strategies when compared to alternatives A and B.

Increased opportunities for public access, livestock grazing, and range improvement management on BLM-administered surface land may result in adverse impacts on lands managed by Glen Canyon NRA. Boundaries between the Planning Area and the Glen Canyon NRA are often unsigned in remote portions of the Planning Area. Where BLM management is inconsistent or incompatible with management of adjacent areas, confusion by the public and permittees may lead to inadvertent damage to vegetation cover and soils on NPS lands by recreationists and potential increases in inadvertent trespass by permittees using OHVs for administrative access to their allotments or inadvertently moving their livestock onto NPS lands that are closed to grazing. Potential adverse impacts would be least likely under alternatives A and B, which generally manage grazing and other uses consistent with adjacent NPS lands, and greatest under Alternative D and Alternative C, which generally include fewer restrictions on access and grazing permittee operations than do adjacent NPS lands.

3.13 Minerals

3.13.1 Affected Environment

The analysis area for minerals is the Planning Area, including the GSENM units and KEPA. In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, GSENM units are withdrawn from mineral entry, location, selection, sale, leasing, or other disposition under the public land laws, subject to valid existing rights. The only valid existing rights wholly or partially in this portion of the Planning Area are 34 suspended oil and gas leases (Map 77, Combined Hydrocarbon Lease Application Area). Refer to Chapter 2, Section 2.3.4, *Minerals* (pages 106–109), in the AMS (BLM 2018b) for more information on valid existing rights in GSENM.

A total of 48 exploratory oil and gas wells have been drilled historically in the Planning Area, 26 of which are located in KEPA. All 48 wells have been plugged and abandoned. KEPA contains the only producing oil field in the Planning Area, the Upper Valley oil field, as well as tar sand deposits with high occurrence potential. The BLM has determined it is unlikely that much future drilling activity or development of tar sand deposits will occur in the Planning Area due to high exploration risk, lack of infrastructure, and the remoteness of the region, among other factors (BLM 2018c). There is generally low potential for occurrence and low potential for development of other non-energy leasable minerals. Refer to Section 3.1.1, *Oil and Gas* (pages 27–37), Appendix B, *Oil and Gas Field-Size Classification* (page 69), and Maps 4, 5, and 7 through 16 in the *Mineral Potential Report* (BLM 2018c) for more information on the Upper Valley oil field classification, oil and gas wells and field locations, and occurrence and development potential of all oil and gas plays in KEPA. Refer to Section 3.1.3, *Tar Sands* (pages 43–44), and Map 19 in the *Mineral Potential Report* (BLM 2018c) for more information on tar sands deposits and occurrence and development potential in KEPA.

Kane County and Garfield County contain 54 percent and 22 percent of Utah's coal resources, respectively. Parts of the Alton coalfield and the Kaiparowits Plateau coalfield are located in KEPA and contain coal potentially suitable for mining (Map 35, Coal Recovery Areas and Tar Sands Area). All coal in the part of the Alton coalfield within KEPA is in an area identified as unsuitable for surface mining (and surface effects from underground mining) due to its proximity to Bryce Canyon National Park (BLM 2018c). The Kaiparowits Plateau coalfield has historically housed several small coal mine operations and a large underground mine was in the planning stages before declaration of GSENM in 1996, making the area high potential for development. Establishment of GSENM in 1996 closed the Planning Area to new coal leasing; however, under Presidential Proclamation 9682, lands that are now excluded from GSENM (i.e., KEPA) are available for coal leasing if found to be suitable for leasing. Refer to Section 3.1.2, *Coal* (pages 37–43), and Maps 17 and 18 in the *Mineral Potential Report* (BLM 2018c) for more information on the quality and amount of coals, past coal mines, and the occurrence and development potential of coals in KEPA.

The only mining activity that has occurred for locatable minerals in the Planning Area is a small scale extraction operation of sculpting grade alabaster that is no longer operating. There is one existing mining claim on an alabaster deposit in KEPA. Due to the limited size or quality of locatable mineral deposits as well as their remote location, the BLM has determined development in KEPA will likely be limited to alabaster (BLM 2018c). Refer to Section 3.2, *Locatable Minerals* (pages 44–51), and Maps 20 through 22 in the *Mineral Potential Report*

(BLM 2018c) for more information on locatable minerals deposits, occurrence and development potentials in the KEPA.

Various salable minerals are found within KEPA. Currently, sand and gravel removal occurs in the Planning Area by way of a valid existing Material Site ROW authorization. It is likely that there will be continued interest in sand and gravel development for future road surfacing and maintenance activities (BLM 2018b). Refer to Section 3.3, *Salable Minerals* (pages 51–57), and Maps 24 through 28 in the *Mineral Potential Report* (BLM 2018c) for more information on salable minerals deposits, occurrences and development potentials in the KEPA.

3.13.2 Environmental Consequences

3.13.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on minerals from implementation of management actions for resource and resource use programs. Maps 49 through 56 depict minerals management and allocations by alternative.

Many of the program-specific management decisions will have the same or similar types of effects on minerals. The primary impact mechanisms for minerals would be lease stipulations, closures/withdrawals to mineral development, and constraints placed on minerals development and surface-disturbing activities. Impacts are assessed by a qualitative description of the constraint as well as a comparison of affected acreages across the alternatives.

The analysis uses the following assumptions:

- In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, GSENM units are withdrawn from mineral entry, location, selection, sale, leasing, or other disposition under the public land laws, subject to valid existing rights. Mineral operations could only occur in the GSENM units under valid existing rights. Under Presidential Proclamation 9682, lands within KEPA are no longer withdrawn from mineral location, entry, disposal, or leasing. Despite the fact that the all mineral related withdrawals have been lifted, for the purposes of analysis, under Alternative A, it is assumed that the entire KEPA would be closed to mineral material sales and mineral leasing because these are discretionary uses that are not allowed under the existing Approved MMP and ROD (BLM 2000). Conversely, staking of mining claims and casual use could occur, and notice-level and plan-level operations could occur; however, the BLM would be required to complete project-specific NEPA review and analysis to approve a proposed plan of operations. Under the action alternatives, mineral leasing and mineral-material sales could occur throughout KEPA, except where restricted by management actions. Mining-claim entry, exploration, location, and operations could also occur throughout KEPA, except where withdrawn from operation of the mining laws.
- A total of 14 oil and gas wells (four exploration and ten new development/production wells) could be drilled during the next 15 years, which could result in a future surface disturbance of 322 acres. In addition, 302 acres of disturbance from seismic operations could occur. Approximately 527 acres of the total 624 acres potentially disturbed by drilling and seismic operations would be reclaimed (BLM 2018c).
- The estimated total surface disturbance from coal mining in the Planning Area would be fewer than 45 acres, including surface facilities and improvement to the access road. This

development could support an underground mine covering roughly 10,000 acres (BLM 2018c).

- The RFD of 10 producing oil and gas wells and one coal mining operation that may contain multiple seam development would vary by alternative because leasing constraints vary between the alternatives. Alternative D assumes that all 10 producing oil and gas wells and coal mining would be developed. Alternative C assumes the development of 5 oil and gas production wells and no coal mining. Alternative B assumes the development of 2 oil and gas wells and no coal mining.
- While the salable mineral commodities of sand and gravel, crushed stone, building stone, clay, and humates occur within the KEPA portion of the Planning Area, only sand and gravel are likely to be developed. This development would likely take the form of free-use permits issued to county road departments to serve as maintenance materials for unpaved roads in the Planning Area (BLM 2018c).

3.13.2.2 Direct and Indirect Effects

Management for soil resources, special status plants, visual resources, recreation, water resources, fish and wildlife, lands and realty, cultural resources, ACECs, vegetation, WSAs, WSRs, special status animals, and lands with wilderness characteristics could result in direct, adverse impacts on minerals. Impacts would result from management allocations and decisions that close or withdraw areas from mineral development or that place constraints on minerals development (e.g., NSO, controlled surface use [CSU], timing limitation stipulation [TLS]). In contrast, management that does not limit or substantially constrain the Federal mineral estate to mineral entry, mining-claim location, or mineral leasing could result in direct beneficial impacts on mineral-resource development. Management decisions that impose moderate constraints (TLS or CSU) on oil and gas leases could result in less potential adverse impacts on oil and gas resources than management decisions imposing major constraints (NSO). Management actions that close or restrict lands to mineral-materials disposal could also have a direct adverse impact on the availability of salable mineral resources. Alternatives that close more acres would have the most adverse impacts, as the availability of mineral material disposal sites can directly affect mineral material exploration and development activities.

Impacts from Constraints on Minerals Development

Short- and long-term direct adverse impacts on minerals could result from closures or constraints applied to minerals development in KEPA. Mineral constraints include major constraints (e.g., NSO) and moderate constraints (e.g., CSU in certain wildlife habitats, TLS on development based on wildlife protective buffers). Restrictions to these activities would result in the temporary or permanent loss of opportunity for mineral exploration and development in KEPA. Refer to Appendix H, *Stipulations and Exceptions, Modifications, and Waivers*, for more information. Refer to Table 3-1 for acreages of mineral development closures and constraints, by mineral type.

The potential for adverse direct impacts from constraints on mineral development is greatest under Alternative A, and increasingly less under Alternative B, Alternative C, and Alternative D, respectively. Differences in direct, adverse impacts between the alternatives are driven by the type and degree of constraints applied, as well as the locations such measures would be applied in relation to the occurrence of mineral resources (Maps 49–56).

Impacts from Mineral Leasing Constraints

The application of mineral leasing constraints could result in direct, adverse impacts on minerals. Moderate constraints could result in the relocation of mineral facilities or restrict the time available to complete exploration and development activities. Major constraints could require directional drilling or other extraction methods to access mineral resources. In certain cases exceptions, modifications, and waivers could be granted for mineral constraints, as described in Appendix H, *Stipulations and Exceptions, Modifications, and Waivers*.

In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, GSENM units are withdrawn from mineral leasing, subject to valid existing rights. Table 3.13-1 below identifies the acres open to mineral leasing, open to leasing subject to moderate constraints, open to leasing subject to major constraints, and closed/withdrawn to mineral leasing in KEPA under each alternative. Maps 49 through 52 depict leasable mineral management and allocations by alternative. For Alternative A, the analysis assumes that lands in KEPA would be closed to mineral leasing. Among the action alternatives, Alternative D would apply the least amount of constraints and limitations on mineral leasing, followed by Alternative C, with Alternative B having the most constraints on mineral leasing (Table 3.13-1).

Table 3.13-1. Mineral Leasing Stipulations in KEPA

Mineral Leasing Stipulation	Alternative A (acres)	Alternative B (acres)	Alternative C (acres)	Alternative D (Preferred Alternative) (acres)
Open to leasing subject to moderate constraints (TLS and/or CSU)	0	25,145	278,385	551,582
Open to leasing subject to major constraints (NSO)	0	272,506	380,242	108,230
Closed to leasing	869,529	571,878	210,902	209,717
Total	869,529	869,529	869,529	869,529

Source: BLM 2018f

KEPA – Kanab-Escalante Planning Area, TLS – timing limitations, CSU – controlled surface use, NSO – no surface occupancy

Direct adverse impacts on minerals in the GSENM units would occur as a result of the units being managed consistent with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, which withdrew all Federal lands from mineral entry, location, leasing, or sale. Impacts on minerals across the three GSENM units would be similar based on the similar management in the three units.

The Circle Cliffs area of KEPA has high occurrence potential for various mineral resources including tar sands, sandstone, and oil and gas (Maps 78 and 79). Management to open the Circle Cliffs area to mineral development would provide a long-term beneficial impact on the minerals program and mineral extractive industries, although development may be unlikely due to the limited amount of existing infrastructure (e.g., roads, transmission lines, pipelines), proximity to Capital Reef National Park, and a lack of specific past interest in the Circle Cliffs deposits (BLM 2018c). Management to open the Alvey Wash area, just south of Escalante, to mineral leasing would also increase the beneficial impacts on minerals and extractive

industries, as this area contains known coal deposits and is adjacent to a historic oil field (Map 79).

Application of mineral BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect adverse impacts on minerals and other resources. For example, drilling of multiple wells from a single pad or use of closed drilling systems could reduce potential adverse impacts associated with surface disturbance, as well as adverse impacts on wildlife and visual resources.

Impacts from Mineral Materials Disposal Restrictions

Management that limits the availability of mineral materials disposal sites would have an indirect, short-term, and adverse impact. In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, GSENM units are withdrawn from mineral material disposal, subject to valid existing rights. Maps 54 through 56 depict mineral materials allocations and management by alternative. Among the action alternatives, Alternative D closes the fewest acres (225,394 acres) to mineral material disposals, followed by Alternative C (244,347 acres), with Alternative B closing the most area to mineral material disposals (868,385 acres).

Under alternatives B, C, and D, certain areas are closed to new exclusive mineral material pits, but allow expansion of existing pits and are open to community pits that are 5 acres or fewer (Map 55). Allowing expansion of existing pits and new community pits under alternatives B, C, and D would reduce potential impacts on mineral material disposal in these areas compared to Alternative B, which closes all mineral material disposals in these areas.

Impacts from Locatable Minerals Withdrawals

Presidential Proclamation 6920 withdrew all lands in GSENM from mineral location and entry and lands remaining in GSENM continue to be withdrawn under Presidential Proclamation 9682. As a result, impacts on locatable mineral development in GSENM would be the same under all alternatives. Under Presidential Proclamation 9682, lands within KEPA are no longer withdrawn from mineral location, entry, disposal, or leasing. Consequently, staking of mining claims and casual use and notice-level and plan-level operations could occur; however, the BLM would be required to complete project-specific NEPA review and analysis to approve a proposed plan of operations. In general, management that recommends new areas for withdrawal from mineral location and entry would have adverse impacts by reducing potential locatable mineral development. Alternative D would have the fewest potential impacts on locatable minerals development due to the least amount of new area being recommended for withdrawal in KEPA (225 acres). Alternative B would have the greatest potential impacts on locatable mineral development due to the greatest amount of area being recommended for new withdrawals in KEPA (485,422 acres), followed by Alternative C, with 210,676 acres being recommended for new withdrawals in KEPA.

Impacts from Coal Unsuitability

Coal resource decisions directly affect the extent to which lands can be made available for coal leasing and development. In accordance with Presidential Proclamation 6920, as modified by Presidential Proclamation 9682, GSENM units are withdrawn from mineral leasing, including coal development. Alternatives B, C, and D all employ management actions that close 75,076 acres in KEPA to surface coal mining operations based on coal unsuitability criteria (43 Code of

Federal Regulations [CFR] 3461) (Map 53, Coal Unsuitability). Under each of these action alternatives, additional areas could be found unsuitable for surface coal mining operations as a result of site-specific analysis. Alternatives B, C, and D would provide beneficial impacts on minerals by retaining some lands in the Kaiparowits coalfield as suitable for surface coal mining operations (Map 53). This coalfield is rated high for development potential outside of WSAs (BLM 2018c), although there is a current lack of infrastructure and an overall declining market for coal. See Appendix L, *Coal Unsuitability Report*, for more detail on coal suitability decisions in the Planning Area.

3.13.2.3 Cumulative Effects

The cumulative impacts analysis area for minerals is the Planning Area. This area encompasses the extent of mineral resources that could be affected by management decisions. Minerals development in the Planning Area has historically been altered by GSENM designation and subsequent State-Federal land exchange in 1997 (Appendix N, *Cumulative Impact Methodology and Past Present, and Reasonably Foreseeable Future Actions*). Adverse impacts would result from land uses and land use designations that are incompatible with mineral development. Examples include the designation of new or expanded special designations or an increase in recreation areas as the local population grows. Cumulative impacts would also result from past, present, and reasonably foreseeable mineral development projects that extract minerals and remove them from future use, such as historic and ongoing development in the Upper Valley Field.

Among the alternatives, Alternative D would have the greatest likelihood of reducing potential adverse cumulative impacts, while Alternative A would have the greatest likelihood of increasing potential adverse cumulative impacts on minerals. In contrast, population growth could also increase construction and infrastructure improvement needs, which would lead to cumulative impacts by increasing demand for mineral materials, subject to broader market conditions and availability of materials. Closing areas to mineral material disposals could make local sources of sand and gravel inaccessible to the BLM, transportation departments, and other entities to meet increasing infrastructure demands.

3.14 Recreation and Visitor Services

3.14.1 Affected Environment

The analysis area for recreation consists of the Planning Area (Map 57, Recreation Management Zones Alternative A). A variety of dispersed uses occur in the Planning Area, including hiking, camping, backpacking, OHV, auto-touring, equestrian, canyoneering, rock climbing, wildlife viewing, photography, hunting, trapping, target shooting, and backcountry aviation. Recreation use in the Planning Area is associated with general leisure; education; and historical, cultural, and religious activities. Popular recreation destinations include hiking and backpacking use in the Escalante and Paria Canyons areas; scenic viewing and hiking along HITRR; OHV use in the Nephi Pasture region; and auto-touring along the Burr Trail, Cottonwood Canyon Road, Skutumpah Road, and State Highways 12 and 89. Calf Creek and Deer Creek are two popular developed recreation sites with campgrounds.

Recreation tourism is a vital part of the local economies. More than half of all private jobs in Garfield County (54 percent) were tourism-related in 2016, with similarly high percentages in Kane County (42 percent) (Gardner Policy Institute 2016). The Planning Area lies directly in the

middle of the “Mighty Five” national parks, the name given to Utah’s major National Parks (Zion, Bryce, Arches, Canyonlands, and Capitol Reef National Parks), and contributes to the attractiveness of this park system. Recreation use in the Planning Area and throughout southwestern Utah continues to rise. For example, visitation numbers at Zion and Bryce Canyon National Parks have more than doubled since 2007 (NPS 2011).

Recreation visits to the Planning Area increased approximately 38 percent from 2007 to 2017, and recreation visitation in 2017 was estimated around 1 million visits. Actual visitor numbers are likely higher than estimated due to multiple access points, lack of permit compliance, and the inability to count visitation in every location. Many areas lack direct visitation monitoring facilities such as traffic counters or visitor registers. The BLM reports recreation visitation estimates using the Recreation Management Information System, an internal database. The database estimates participation in recreation activities recorded at BLM sites and areas by the number of participants/visitors and visitor-days; these estimates are based on registrations, permit records, observations, and professional judgment. Refer to Chapter 2, Section 2.3.5, *Recreation* (pages 109–118), in the AMS (BLM 2018b) for more information on recreation visitation.

Increases in recreation use are due to a combination of social and environmental conditions in Utah and neighboring States, as well as the overall growing trend of people visiting public lands. Marketing campaigns for tourism, displacement of visitors from National Parks due to crowding, rising leisure time and money, increasing retired populations, population growth, and new recreation types contribute to more recreation use in the Planning Area.

OHV use has become a significant component of recreational use. This increase is due to growing OHV popularity, changes in demographics, increased commercial availability (purchase and rental opportunities), and marketing of multi-passenger OHVs. OHV travel is currently limited to designated routes. However, some locations receive unmanaged intensive OHV use based on landscape characteristics and easy access from local communities.

Recreation management areas are the BLM’s primary means for managing recreational use of public lands. BLM lands can be identified as a SRMA or an ERMA. SRMAs are areas “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” (BLM Handbook 8320-1). ERMAs are areas “that require specific management consideration in order to address recreation use, demand, or recreation and visitor services program investments” (Handbook 8320-1).

Based on the GSENM Final EIS and Proposed RMP (BLM 1999a), four management zones (MZs) exist within the Planning Area. These zones identify the location, type of recreational setting, group size, and subsequent opportunities likely to be available to users. Furthermore, two recreation areas that existed prior to monument designation were retained after designation: Calf Creek and Deer Creek recreation areas. These areas are highly used destinations. Table 3.14-1 provides a list of the SRMAs, ERMAs, and MZs with acres by unit. Refer to Chapter 2, Section 2.3.5, *Recreation* (pages 109–117), and Appendix 10, *Recreation* (pages 357–363), in the AMS (BLM 2018b) for more information and descriptions of SRMAs and MZs, along with developed recreation sites within them.

Table 3.14-1. SRMA, ERMA, and MZ by Administrative Unit

Management Area	Grand Staircase Unit (acres)	Kaiparowits Unit (acres)	Escalante Canyon Unit (acres)	KEPA (acres)
Escalante Canyons SRMA	-	33,434	233,995	244,915
Paria/Hackberry SRMA	92,106	77,298	-	104,306
Paria Canyon and Plateaus SRMA	-	-	-	30,011
Fiftymile Mountain SRMA	-	99,401	-	58,203
Highway 12 Corridor SRMA	-	1,871	8,758	13,884
Highway 89 Corridor SRMA	1,036	5,121	-	35,145
Frontcountry MZ	3,167	9,937	8,758	566,668
Passage MZ	1,281	4,911	4,782	28,136
Outback MZ	123,440	79,583	2,012	332,598
Primitive MZ	82,011	456,488	227,201	444,443

Source: BLM 2018f

SRMA – Special Recreation Management Area, ERMA – Extensive Recreation Management Area, MZ – management zone, KEPA – Kanab-Escalante Planning Area

As authorized by the Federal Lands Recreation Enhancement Act, there are five types of uses for which Special Recreation Permits (SRPs) are required: commercial, competitive, vending, individual or group use in special areas, and organized group activity and event use. SRPs are issued to outfitters, guides, vendors, recreation clubs, and commercial competitive event organizers that provide recreation opportunities or services without using permanent facilities. The permits are issued to manage visitor use, protect natural and cultural resources, and accommodate commercial recreation uses. The BLM issues SRPs for non-commercial use in certain special areas where a permit system for individual use would achieve management objectives. Large non-commercial group activities outside developed campgrounds could require an SRP, if necessary to meet planned resource management objectives or resource conditions. If the group or activity does not warrant an SRP, a letter of agreement is often used. Key recreational activities can be estimated through recreation activities requiring SRPs. The demand for SRPs to conduct commercial services on public lands has increased 227 percent over the past 17 years, from 35 to 121 SRPs. These activities are anticipated to continue to increase, especially along State Highways 12 and 89, as the public continues to spend more time on public lands. Refer to Chapter 2, Section 2.3.5, *Recreation* (pages 109–117), and Appendix 10, *Recreation* (pages 357–363), in the AMS (BLM 2018b) for more information on SRPs.

3.14.2 Environmental Consequences

3.14.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on recreation opportunities and experiences due to implementation of the management alternatives. Maps 58 through 61 depict SRMAs, RMZs, and ERMAs by alternative.

Impacts on recreation from management of other resources or resource uses are primarily in the form of changes to available recreation opportunities or recreation settings and experiences. Impacts on recreation would primarily result from the following mechanisms:

- SRMA and ERMA designations
- Surface-disturbing activities
- Management of human and visitor health and safety
- Special designations

This impact analysis is based on the following assumptions:

- Tourism and recreation use within the Planning Area will continue to increase during the life of the RMPs.
- Increasing recreation/natural resource conflicts and non-motorized/motorized conflicts will cause an escalation of damage to resources and public safety concerns.
- There will be sufficient opportunities within the Planning Area to meet the demand of non-motorized recreation (e.g., hiking, mountain biking, and horseback riding).
- In areas managed as available for grazing, the incidence of interactions between recreationists and livestock grazing operations will increase with rising recreation use.

3.14.2.2 Direct and Indirect Effects

Management for forestry and woodland products, lands and realty, livestock grazing and range improvements, minerals development, transportation and access, vegetation, and fire and fuels may result in direct adverse impacts on recreation opportunities and experiences. Development and management of these resources and resource uses may create health and safety concerns to the recreational user such as noise, dust, and vehicle conflicts; adverse effects on recreation experiences through damage to recreation settings and perceptions of naturalness; or reduced or restricted access to recreation areas. Fire and fuels management and vegetation treatments generally result in short-term direct effects on settings, access, and experiences, but may result in long-term beneficial effects on recreation settings where they improve and restore vegetation communities. Change to the landscape that can be seen from popular recreation sites, trails, or auto-touring drives (e.g., Highway 12) could affect the recreation setting and the potential to realize certain recreation experiences.

Management for special designations, cultural resources, paleontology, visual resources, fish and wildlife, and resources has the potential to both adversely and beneficially affect recreation. Management to preserve and enhance fish and wildlife habitat is generally supportive of protecting recreation opportunities and experiences through preservation of the natural setting and maintenance of healthy wildlife populations for hunting or wildlife viewing. Conversely, fish and wildlife management can restrict the season of use or recreation opportunities available at a given location, such as through seasonal restrictions on access to big game seasonal habitats for OHVs or climbing closures on cliffs with nesting raptors. Similar to fish and wildlife management, measures to protect soil and water, visual resources, and special designations can be both adverse and beneficial to recreational opportunities and experiences. Where these measures limit changes to the natural setting, they can benefit primitive recreational experience, where such settings are important. For example, WSAs are managed and maintained to provide opportunities for unique recreation opportunities in a primitive setting by limiting development. Conversely, restrictions associated with these programs can limit the ability to engage in certain activities, for example limits on OHV activities in WSAs, or the ability to construct new recreation facilities.

Designating SRMAs, RMZs, and ERMAs is beneficial toward the recreation opportunities and settings for which those areas were designated.

Impacts from Designation of Recreation Management Areas

SRMAs and RMZs set distinct recreation management strategies for identified values and characteristics at discrete locations, resulting in beneficial impacts on recreational use. Recreation planning across BLM-administered surface lands has shifted to an outcome focused management framework. Each SRMA and RMZ has specific measurable outcomes, focused objectives, and associated management actions that provide a beneficial impact by guiding the amount and type of uses allowed. ERMA management is commensurate and considered in context with the management of other resources and resource uses. RMZs, which can be included as discrete units within an SRMA or ERMA, have a distinctive recreation character, provide opportunities for a different experience and benefit outcome, and require a different set of management actions. Maps 58 through 61 depict SRMAs, RMZs, and ERMAs by alternative.

Designation of SRMAs and RMZs, and, to a lesser extent, ERMAs, would have long-term beneficial effects on the management and protection of specific recreation opportunities and experiences. Table 3.14-2 shows the number and acres of recreation management areas for each alternative. Each alternative designates SRMAs and/or RMZs, with the largest acreage under Alternative B, Alternative C, Alternative A, and Alternative D, respectively. Alternative D and Alternative A include the largest acreage of land in ERMAs. In some cases, SRMAs and ERMAs cross administrative units; however, each recreation management area would be managed consistently across administrative units.

Recreation management area frameworks have been developed for each SRMA, ERMA, and RMZ (Appendix R, *Recreation Management Areas*). These frameworks identify the key elements of the proposed recreation management areas, including targeted recreation activities, experiences, benefits, outcomes, allowable use activities, and management actions associated with each area. Impacts would vary depending on the number and size of the recreation management areas. Recreation management areas under alternatives B and C are generally managed for the same activities, experiences, benefits, and outcomes and, as a result, these alternatives generally implement consistent recreation management strategies. However, because Alternative B applies additional restrictions compared to Alternative C on the amount and type of recreation opportunities and the ability to host competitive events and motorized/mechanized activities, management under Alternative B would benefit natural and biological uses and recreation users seeking solitude and primitive opportunities to a greater extent than would Alternative C. Alternative A includes six SRMAs and four MZs that, similar to SRMA management under alternatives B and C, set location, type of recreational setting, group size, and recreation opportunities. Alternative A management for SRMAs and MZs was developed before significant increases in visitation occurred following monument designation; as a result, management for these areas is generally less prescriptive than SRMA/RMZ management under alternatives B and C, which addresses issues occurring due to the current high level of visitation (e.g., firewood collection and the proliferation of dispersed campsites). Alternative D does not include SRMAs and designates only a small portion of the Planning Area as RMZs.

All action alternatives manage a portion of the Planning Area as an ERMA, with the largest such designation under Alternative D. Unlike SRMAs, ERMAs do not include specific measureable recreation outcomes, and therefore their management is generally less prescriptive on allowable recreation activities, experiences, and associated management and

allocations decisions. Should visitation continue to increase as anticipated, management of large portions of the Planning Area as ERMAs could limit the BLM's ability to maintain desired recreation experiences and settings.

Table 3.14-2. SRMAs, ERMAs, MZs, and RMZs by Alternative

	Alternative A (number/acres)	Alternative B (number/acres)	Alternative C (number/acres)	Alternative D (Preferred Alternative) (number/acres)
SRMA	6/1,039,650	9/1,189,765	9/1,189,765	0/0
ERMA	-	1/678,694	1/678,694	1/1,835,630
RMZ	-	7/34,650	7/97,279	4/30,132
Frontcountry MZ	1/78,530	-	-	-
Passage MZ	1/39,110	-	-	-
Outback MZ	1/537,633	-	-	-
Primitive MZ	1/1,210,103	-	-	-

Source: BLM 2018f

SRMA – Special Recreation Management Area, ERMA – Extensive Recreation Management Area, MZ – management zone, RMZ – Recreation Management Zone

All alternatives include an implementation-level decision requiring the use of disposable, self-contained human waste bags within 300 feet of a water source. This requirement could increase recreation experiences and could reduce potential water resource and health and safety impacts associated with human waste, especially in highly visited areas.

The action alternatives (alternatives B, C, and D) contain a range of implementation-level recreation decisions associated with SRMAs/ERMAs/RMZs, including: organized event and group size limits, campfire restrictions, permitting systems for overnight camping, parking restrictions, waste management, burn restrictions for waste wood and debris, and vending at recreation sites. The action alternatives also include an implementation-level decision for allowable group sizes within WSAs, with Alternative B limiting group sizes in WSAs to 8 people, Alternative C limiting group sizes in WSAs to 12 people, and Alternative D limiting group size in WSAs to 25 people. Under all alternatives, group sizes above these limits could be approved by a letter of agreement by the authorized officer or through an SRP.

More restrictive implementation-level decisions would generally be favored by smaller groups seeking a more primitive recreation experience, while fewer restrictions would generally favor larger groups seeking a more social recreation experience. The State of Utah has larger than average families when compared to other States. The number of individuals per household, combined with close-knit community and religious culture, can result in conflicts between large group events and activities and group size limits. Group size limits are frequently used by the BLM, NPS, and U.S. Forest Service as a tool to limit the frequency of encounters with other groups in backcountry environments and minimize ecological impacts such as trampling of vegetation, displacement of wildlife, and changes in water quality created by soil erosion and human waste. In general, applying more restrictive implementation-level decisions (e.g., lower group sizes, limitations on camping) could decrease the effects of human activities on water quality, fish and wildlife, vegetation, and other natural and cultural resources. Implementation-level decisions that are not necessarily related to group size also have the ability to minimize ecological impacts. For example, limiting restrictions on campfires and fuelwood collection may

prevent unintentional human-caused wildfire ignitions and damage to living and downed and deadwood vegetation that provides habitat for wildlife.

Alternatives B and C include the most restrictive implementation-level recreation decisions. As a result, beneficial impacts from implementation-level decisions on those seeking primitive small-group recreation experiences and reduced adverse effects from recreation on other resources would be greatest under Alternative B, followed by Alternative C. Alternative D manages the majority of the Planning Area as an ERMA in which implementation-level decisions are generally less restrictive (e.g., larger allowable group sizes and fewer restrictions on campfires). As a result, Alternative D would generally benefit those seeking social and large-group experiences to a greater extent than implementation-level decisions under alternatives B and C. Less-restrictive implementation-level decisions under Alternative D would also do less to reduce adverse effects from recreation on other resources than would management under alternatives B or C.

Impacts from Surface-Disturbing and Development Activities

Surface-disturbing activities can have adverse impacts on recreation through the displacement of recreationists, reduction of opportunities for solitude, and degradation of natural recreation settings (Bureau of Reclamation 2016). Within KEPA, the locations where surface-disturbing activities are most likely to adversely affect recreation are locations with potential for mineral or ROW development and high recreation use. Therefore, the BLM anticipates the areas with greatest potential to be adversely affected include the Circle Cliffs, Escalante Canyons, Highway 12, Burr Trail, Paria-Hackberry, HITRR, and Nephi Pasture SRMAs and RMZ. Mineral development in the Circle Cliffs area would require the improvement of Burr Trail, which would have adverse impacts by reducing the naturalness setting and increasing traffic along the route and in local communities. Primary travel corridors (e.g., HITRR, Highway 12, and Highway 89) provide scenic driving experiences, which could be adversely affected by mineral development along the routes or through increased traffic on the routes. Adverse impacts from mineral and ROW development would be greatest on experiences of recreationists seeking natural landscapes, because these activities could alter the natural character of the areas. Certain types of adventure/skill-based OHV and mechanized forms of recreation activities could be compatible with certain ground-disturbing activities, although the experience of these recreational users could be still be adversely affected by the presence of the mineral or ROW developments.

Surface-disturbing developments may also require the construction of new roads or the improvement of existing roads. Paving and/or resurfacing of gravel roads can reduce the diversity of recreation experiences for users seeking challenging, remote, and primitive experiences. Road improvements also increase access, which can lead to increases in visitation and associated impacts on recreation setting and the quality of recreation experiences.

Opportunities for surface-disturbing development in KEPA and resulting displacement of recreationists, reduction of opportunities for solitude, and degradation of natural recreation settings would increase under Alternative D compared to alternatives C, A, and B, respectively. Within KEPA, Alternative D places the fewest restrictions on development activities and vegetation treatments followed by alternatives C, A, and B, respectively. Increasing the potential for development and resource use could affect recreational settings, experiences, and access. Refer to Table 3-1 for a summary of allocation decisions by alternative.

Management of surface disturbance in the GSENM units is similar under all alternatives. In general, the ability to authorize mineral, ROW, or other developments in the GSENM units would be limited, and the associated effects on recreation across the three GSENM units would be similar and correspondingly limited. Presidential Proclamation 9682 clarified that the BLM may authorize ecological restoration and active vegetation management activities in the GSENM units. In general, ecological restoration and active vegetation treatments activities in the GSENM units would be similar under the alternatives, and could affect recreational settings, experiences, and access in the short term.

Application of BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect adverse impacts on recreation from other program area management. For example, vegetation and fire management would be required to sustain desired qualities of naturalness near developed recreation facilities. However, some BMPs, such as recreation use and access restrictions for threatened, endangered, or special status species, may have adverse impacts on certain recreation activities and at certain times of the year.

Impacts on Visitor Health and Safety

The majority of the Planning Area is managed for dispersed recreational opportunities, with few developed campgrounds, restrooms, and amenities beyond the visitor centers and contact stations in adjacent communities. As visitation increases, the potential for effects on health and safety also rises due to the variety of uses, density of users, and inappropriate use of resources by visitors. Impacts from unmanaged visitation increases can include conflicts between incompatible uses, decreased water quality from human and dog waste, degradation of vegetation, and undesirable recreation settings from livestock and human waste (e.g., bad odors and sights). These impacts are typically more severe in popular recreation destinations where the facilities are inadequate for the level of recreational use. In particular, narrow and slot canyons with high visitation (e.g., canyons along HITRR and Paria River) offer limited ability to provide sanitation facilities and minimal control on use levels and separation of use.

All alternatives include management that would provide beneficial impacts on the recreation setting and conditions and on visitor health and safety. This beneficial management includes the creation of campgrounds or designated dispersed camping areas, constructing new parking lots and restrooms along open travel routes, and use of human waste disposal systems within 300 feet of water sources.

The presence of livestock in areas used for recreation could adversely affect the recreational setting for some users due to the presence of cow manure, cows in constrained areas (e.g., slot canyons), trail damage and water quality effects in wet areas, trampling of vegetation, and fencing. In general, management that allows more livestock on public lands and grazing in more locations in the Planning Area will be more likely to result in adverse effects due to conflict between recreationists and livestock. Alternative D allocates the most AUMs to livestock and makes the largest portion of the Planning Area available for livestock grazing, followed by alternatives C, A, and B, respectively (Table 3-1). Closing the Little Desert RMZ to livestock grazing under Alternative C would benefit OHV recreational users in the proposed open OHV area by avoiding collisions between vehicles and livestock.

Application of BMPs identified in Appendix G, *Best Management Practices*, for resource and resource uses would generally reduce the potential for direct and indirect adverse impacts on

recreation from livestock grazing by minimizing interactions between recreationalists and livestock. Additionally, developing facilities for sanitation would minimize impacts on resource values and public health and safety.

Impacts from Special Designations and other Management Restrictions

Special designations and other classifications, such as VRM and OHV designations, would create both adverse and beneficial impacts on recreation depending on the type of activity and the desired experience. ACECs, WSAs, WSRs, and scenic routes are managed to protect and preserve the unique values and characteristics for which they were designated. Management of areas under special designations would provide for protected scenic quality, improved fish and wildlife habitat, and opportunities for remoteness. In KEPA, Alternative B and Alternative A include the most restrictive management for the protection of resources and special designations, followed by Alternative C and Alternative D, respectively (Table 3-1). As a result, the beneficial effects on natural settings and primitive recreation experiences would be greater under alternatives B and A, compared to alternatives C and D. Similarly, the adverse effects from restrictions to access, limits on certain recreation activities, and the development of recreation facilities would be greater under alternatives B and A than under alternatives C and D. Management in the GSENM units under all alternatives is oriented toward resource protection and the proper care and management of monument objects. GSENM unit management would therefore increase beneficial impacts on recreation setting and primitive recreation experiences, and adversely affect access for certain recreation activities and the development of recreation facilities.

VRM protects and maintains recreation settings by limiting the degree of contrast new activities are permitted to create on the landscape. Alternative B includes the most restrictive VRM, followed by alternatives A, C, and D, respectively (Table 3-1). In general, more restrictive VRM benefits recreational users, particularly those interested in remote and primitive experiences. Conversely, restrictive VRM and special designations management can limit the potential to develop new recreation facilities that may be desired by those seeking amenities or to develop social recreation opportunities.

3.14.2.3 Cumulative Effects

The cumulative impact analysis area for recreation is the Planning Area and surrounding public land accessible to recreation users. This area includes recreation areas that could be directly affected by management decisions and surrounding public lands that could also experience recreation impacts due to management decisions in the Planning Area. Cumulative impacts may result from activities in adjacent communities, recreation and visitation to nearby public lands, and resource use activities (e.g., mineral development). Past, present, and reasonably foreseeable recreation projects in the analysis area could contribute to cumulative impacts. These projects include recreation area site improvements in Calf Creek, HITRR repair projects, Dry Fork facilities development projects, and other recreation site improvement projects identified in Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*. In general, these projects would contribute to beneficial cumulative impacts by improving recreation facilities. Past, present, and reasonably foreseeable future minerals and energy development projects, such as solar development near Big Water and ongoing oil and gas development in the Upper Valley Field, could degrade recreation experiences and contribute to adverse impacts on recreation.

If recreation demands continues to increase across the State of Utah in general, and in the “Mighty Five” National Parks in southern Utah near GSENM in particular, visitors seeking small-group, primitive, and unconfined recreation experiences may choose to visit the Planning Area instead. Alternative D, which primarily manages the Planning Area as an ERMA, may limit the tools available to the BLM to manage increased recreation in comparison to alternatives A, B, and C, all of which include SRMAs and/or MZs to control recreation objectives, activities, and experiences.

Management decisions on BLM-administered surface lands that are inconsistent with management on adjacent public lands, such as allowing mineral development in the Circle Cliffs area under alternatives C and D, could affect recreation use in the cumulative impacts analysis area. Such development affects scenic qualities and views for recreationists, in particular from areas that overlook large portions of KEPA, like Bryce Canyon National Park. KEPA also includes popular access routes for areas like Capital Reef National Park and travel routes used by visitors touring the “Mighty Five” National Parks. Development in KEPA under alternatives C or D could affect scenic quality for visitors using these routes to access these adjacent recreation areas. Conversely, management in adjacent areas that is consistent may benefit recreationists. For example, managing portions of the Planning Area directly adjacent to Glen Canyon NRA (e.g., HITRR RMZ and Circle Cliffs SRMA) for smaller group sizes and primitive recreation would lead to consistent management. In many cases, visitors may start their visit on BLM-administered surface lands and cross into NPS-managed lands; the remoteness of the many portions of the Planning Area make it difficult to identify the transition between land ownership, and recreationists could benefit from consistent management and expectations between the areas. Management under alternatives A and B is most likely to result in consistent management between the Planning Area and adjacent lands, and is least likely to adversely affect scenic qualities and views for recreationists in these areas from development in KEPA.

3.15 Travel and Transportation Management

3.15.1 Affected Environment

The analysis area for transportation is the Planning Area, and includes Federal and State highways, BLM roads, county road systems, and private roads (Map 62, Travel Management OHV Area Designations Alternative A). All OHV and mechanized (e.g., bicycles) travel within the Planning Area is limited to designated routes (43 CFR 8340) located outside the Primitive Zone; the Primitive Zone is closed to OHV and mechanized travel, unless designated for an administrative or authorized use. Area designations by administrative unit are shown in Table 3.15-1. Mechanized travel is allowed on trails designated for that use as well as on routes and areas designated for OHV use, unless specifically prohibited. The transportation system within the Planning Area encompasses 908 miles of designated routes in the Frontcountry, Passage, and Outback Zones as well as portions of State Highways 12 and 89. OHVs that are not street legal are allowed on approximately 553 miles of the 908 miles of routes designated open to street-legal vehicles in these zones.

Table 3.15-1. Area Travel Designations by Administrative Unit

Travel Designations	Grand Staircase Unit (acres)	Kaiparowits Unit (acres)	Escalante Canyon Unit (acres)	KEPA (acres)	Total
Open	0	0	0	0	0
Limited (Frontcountry, Passage, and Outback Zones)	127,889	94,431	15,552	417,403	655,275
Closed (Primitive Zone)	82,011	456,448	227,201	444,443	1,210,104

Source: BLM 2018

KEPA – Kanab-Escalante Planning Area

Most of the State- and county-maintained roads have either a BLM ROW or are claimed as Revised Statute 2477 (R.S. 2477) roads by the counties. Primary and secondary roads have historically been maintained by the counties. Revised Statute 2477 was enacted in 1866, during a period when the Federal Government promoted settlement of the West. It was a primary authority under which many State and county highways were constructed over Federal lands in the West.

In addition to arterial and collector routes, there are numerous smaller routes that connect more remote locations to the larger routes. These smaller routes are used for recreational purposes, access to range improvements, forestry product areas, and inholdings not managed by the BLM. The majority of these routes are not paved and most are unimproved, consisting of dirt, clay, or gravel surfaces. The Planning Area also includes abandoned backcountry airstrips on public land, some of which are within WSAs. The Boulder Airstrip is the only airstrip maintained and identified in the current MMP.

Many routes change over time due to flooding, a lack of use, or simply because the route crosses rock or sand dunes. Route braiding and a proliferation of rock cairns occur throughout the Planning Area.

The majority of the transportation use on existing routes is defined as casual use. Other travel uses include administrative use and authorized actions, associated with livestock grazing, forestry, and emergency purposes. Routes also provide administrative use access to mining claims and mineral leases in areas formerly part of GSENM.

OHVs are used in the Planning Area for recreational and non-recreational (administrative) purposes. Much of the administrative use involves all-terrain vehicles/utility task vehicles driven by local ranchers for administration of their grazing operations. Administrative all-terrain vehicle/ utility task vehicle use occurs in association with permitted uses and is authorized on a case-by-case basis. In addition to non-recreational uses, OHV use has become a popular means of transportation for recreational hunting, fishing, or camping and a form of recreation in itself. More information about recreational OHV use is provided in Section 3.14, *Recreation and Visitor Services*, of this document.

Visitation and recreation use is increasing in Kane and Garfield Counties, which is expected to result in increased public demand on some routes and destinations within the existing transportation system in the Planning Area. Informal pullouts have resulted from increased visitation at key points of interest such as HITRR. Increased travel across public lands by motorized, mechanized, and non-motorized equipment could increase the need to manage, maintain, and improve the current transportation system. The undeveloped nature of the area

is highly valued by the public and any development or improvements would need to be carefully considered.

3.15.2 Environmental Consequences

3.15.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on travel and transportation management due to implementation of the management alternatives. Maps 62 through 65 depict travel management by alternative.

Impacts on resources and resource use resulting from implementation of the transportation program are discussed in the relevant resource sections of this chapter. Impacts on travel and transportation would primarily result from the following impact mechanisms:

- Delineation of travel management areas (TMAs)
- Designation of OHV areas
- Lands and realty actions and mineral development

The analysis was based on the following assumptions:

- According to BLM Manual 1626, “A travel management plan is not intended to provide evidence, bearing on, or address the validity of any R.S. 2477 assertions. R.S. 2477 rights are determined through a process that is entirely independent of the BLM's planning process. Consequently, [this RMP/TMP] did not take into consideration R.S. 2477 evidence. The BLM bases travel management planning on purpose and need related to resource uses and associated access to public lands and waters given consideration to the relevant resources. At such time as a decision is made on R.S. 2477 assertions, the BLM will adjust its travel routes accordingly.”
- Tourism and recreation use within the Planning Area will continue to increase during the life of the RMPs.
- Increases in transportation and access will cause an increase in resource damage and concerns of public safety.
- Travel off designated or existing routes and the creation of social trails has occurred and will likely continue.
- TMPs will be prepared after the completion of the RMPs and will direct route designations in areas designated as limited to OHV use. Public input and comments on the route network will be taken during the TMP planning process.
- During the future TMP process, per Presidential Proclamation 6920 as modified by Presidential Proclamation 9682, the BLM will consider designation of OHV use and mechanical transport on primitive routes and ways that existed during the original inventory and were available for use immediately before the issuance of Presidential Proclamation 6920.
- Existing and valid rights for permittees, ROW holders, and other authorized uses are not affected.

3.15.2.2 Direct and Indirect Effects

Management for lands and realty, fish and wildlife, minerals, special designations, and recreation may result in impacts on travel and transportation management. For example,

management that limits or restricts access based on the values of protecting and enhancing habitat, special status species, or other resources would have an adverse impact on transportation. Management that allows mineral development and ROW permits may have an adverse or beneficial impact, depending on the location and the availability of the associated infrastructure for future public use. New roads built for mineral exploration and development, for example, could increase access if they are integrated in the transportation system for use by the public. Certain designations on BLM-administered surface land can contain restrictions on travel that adversely affect transportation and access, including: recreation management areas; ACECs, WSAs, and other special designations; and management of lands with wilderness characteristics to preserve their wilderness characteristics.

Delineation of Travel Management Areas

TMAs are a planning tool for delineating a sub-unit of the Planning Area where unique travel management circumstances result in the need for particular focus and additional analysis. All action alternatives delineate TMAs and require TMP development in the following ranked order:

1. KEPA in Garfield County
 - HITRR
 - Circle Cliffs
2. KEPA in Kane County
3. Grand Staircase Unit
4. Kaiparowits Unit
5. Escalante Canyons Unit

While the TMA delineations cover the entire Planning Area, the size and prioritization of these TMAs may change due to changes in public interest and resource conflicts. Route designations within the TMAs are implementation-level decisions that will be analyzed and approved in accordance with 43 CFR 8342.1 separately through the TMP. The TMP process evaluates and designates routes to provide for a high-quality travel network for a wide variety of uses. The TMP provides a process for determining a comprehensive and maintainable road and trail network, while meeting resource management needs. Presidential Proclamation 9862 directs the BLM to consider routes mapped in 1996. During the development of these RMPs/EIS, Kane and Garfield Counties submitted maps illustrating routes that they believe existed prior to issuance of the original GSENM Presidential Proclamation on September 18, 1996. The BLM is in the process of reviewing this information and will take this information into consideration when initiating implementation-level travel planning. Subsequent transportation management planning following the development of the RMP will include analysis of these routes for inclusion in TMP(s). Under all action alternatives, TMPs will consider monument objects and values and opportunities for non-motorized/mechanized trails. In addition, the TMP process under alternatives C and D will consider designating routes in the TMAs consistent with the counties' submitted route maps. Beneficial impacts of TMPs are a reduction in route redundancy, resource degradation, and habitat fragmentation within the Planning Area. TMPs may also provide an opportunity for coordinating transportation planning with Kane and Garfield Counties or adjacent communities. Such coordination could reduce access issues and management conflicts, improve the safety and convenience of the traveling public, and provide a more sustainable use of resources. Under Alternative A, the BLM would continue to manage the Planning Area route network under the decisions made during the previous land use

planning process. Alternative A management would not include the benefit of a system-wide reevaluation to ensure designated routes are meeting current management needs.

Until TMPs are completed, OHVs will be allowed on routes identified in the GSENM route map within areas designated as limited to OHVs.

Priorities for completing TMPs were based on issues identified through internal and external scoping. KEPA in Garfield County is divided into two TMAs: HITRR and Circle Cliffs. Increasing tourism and visitation, coupled with potential mineral exploration in the Circle Cliffs, necessitates transportation planning in these areas. Designation of routes through a TMP would provide for the protection of resources on public lands, the promotion of safety for all users, and the minimization of conflict among various uses of public lands.

Impacts from Changes to the GSENM Route Network

The addition of specific routes to the GSENM route map for the Planning Area is an implementation-level decision. Alternatives A, B, and C do not propose changes to the GSENM route map as part of this land use planning effort. However, Alternative D would amend the current GSENM route map through implementation-level decisions to include the V-Road, Inchworm Arch Road, and Flagpoint Road (off 532) as open and available for OHV use (Map 65). These additional routes are currently used by local residents and tourists to access certain archaeological and geological sites, and their inclusion on the GSENM route map would be beneficial to these users by allowing continued and legal access. Inclusion of these routes as open and available for OHV use could result in impacts on cultural and paleontological resources, non-motorized recreation and travel, soil and water resources, wildlife, and other resources and uses. Because alternatives A, B, and C do not include these additional routes, neither the beneficial nor the adverse impacts anticipated under Alternative D would occur under those alternatives. Appendix K, *Interdisciplinary Route Evaluation Forms and Analysis*, provides detailed site-specific analysis of the implementation-level decisions to add these three routes to the GSENM route map.

Impacts from OHV Area Designations

All public lands are required to have OHV area designations (43 CFR part 1600 and part 8342.1). Areas must be designated as open, limited, or closed to OHV travel. Open areas allow all types of vehicle use at all times. Limited areas are restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but are generally within the following categories: number of vehicles, types of vehicles, time or season of vehicle use, permitted or licensed use only, use on existing roads and trails, use on designated roads and trails, and other restrictions. Closed areas are unavailable for OHV use. The BLM authorized officer may expressly authorize use of OHVs in closed areas, because such expressly authorized OHV use is exempt from the OHV regulations per 43 CFR 8340. The criteria used to make the area designations are based on the management described in the alternatives.

Under alternatives B, C, and D, OHV and mechanized travel is designated as limited unless the area is identified as closed or open to OHV use. See Table 3.15-2 for the acreage of OHV designations by alternative. Alternative C identifies closed areas as the Steep Creek WSA, WSRs (wild sections), No Mans Mesa Research Natural Area, and Wolverine Petrified Wood. Additionally, Alternative B closes all WSAs and lands with wilderness characteristics. In the majority of cases, areas that are designated as closed are not highly used or already have

limited or no travel routes because of existing special designations that already restrict OHV travel. Management under Alternative B is most likely to adversely affect transportation and access for OHVs due to the scale of OHV closures. Management under Alternative D is most likely to beneficially affect OHV use, as it manages all of the Planning Area under OHV open or limited designations, followed by Alternative C, which manages a relatively small area of OHV closed. Alternatives C and D management allowing cross-county OHV use in some (Alternative C) or all (Alternative D) of the Little Desert RMZ (Map 64 and Map 65) would beneficially affect OHV recreational users to this area. Open OHV areas provide beneficial recreational experiences for some users; however, those seeking pristine or quiet-use recreation opportunities could be adversely affected. Open OHV areas are a unique recreation experience and may provide positive economic and tourism impacts on neighboring communities. Providing an area for those seeking this type of activity may help avoid instances of cross-country OHV travel in closed or limited areas.

Under Alternative A, travel and transportation is managed consistent with the current transportation route map (Map 62). This map shows routes that would be open for public use and those available for administrative use only; all other routes are closed.

Table 3.15-2. Travel Management Designations by Alternative

Travel Designations	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Open	0	116	2,528
Limited	448,956	1,801,163	1,863,552
Closed	1,417,124	64,801	0
Total	1,866,080	1,866,080	1,866,080

Source: BLM 2018f

Impacts from the Management of Lands and Realty and Mineral Development

Land exchanges and acquisitions can increase opportunities to consolidate public lands, improve access, and facilitate travel in portions of the Planning Area. Mineral development and the issuance of ROWs can sometimes expand the transportation network, but can also create short-term adverse impacts on the transportation system in the form of temporary closures, increased traffic and congestion on routes, and more frequent maintenance. Alternatives D, C, B, and A, respectively, have the largest area, open and available for mineral development, and available for ROW and renewable energy permitting (refer to Table 3-1).

3.15.2.3 Cumulative Effects

The cumulative impact analysis area is the Planning Area, the extent of transportation routes that intersect the Planning Area, and transportation routes in areas adjacent to the Planning Area. This area encompasses the full extent of transportation routes that could experience impacts resulting from management decisions in combination with other past, present, and reasonably foreseeable actions. Transportation and road networks adjacent to BLM-administered surface lands in the Planning Area include routes maintained by other Federal, State, and county agencies and private landowners. Maintenance of Federal and State

highways would provide arterial connections to BLM roads and county-maintained routes and would improve access throughout the Planning Area. However, the RMPs will not affect use of existing State or Federal highways or county-maintained roads. Potential increases in traffic from development in KEPA under alternatives C and D, in combination with traffic associated with local residents and visitors in the cumulative impact analysis area, could cumulatively affect traffic and road conditions.

See Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*, for a list of past, present, and future projects that could result in cumulative effects with the alternatives.

3.16 Areas of Critical Environmental Concern

3.16.1 Affected Environment

The analysis area for ACECs is the Planning Area. ACECs are areas on BLM-administered surface lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values or fish and wildlife resources or other natural systems or processes; or to protect life and safety from natural hazards. BLM regulations for implementing the ACEC provisions of FLPMA are found in 43 CFR 1610.7-2(b).

There are no existing ACECs in the Planning Area. During the development of the GSENM MMP, the BLM determined that the entire monument was found to qualify under both R&I criteria and determined that their protection would be substantially equivalent under either monument authority or ACEC designation (BLM 1999a).

A request for ACEC nominations was issued during the public scoping period (BLM 2018a), and new nominations were received for the KEPA. The process used to evaluate nominations for ACECs is described in Appendix S (*Areas of Critical Environmental Concern Evaluation Report*). The BLM interdisciplinary team evaluated 1,193,077 acres (including some overlapping acreages) that were nominated as ACECs. Of these, 14 areas totaling 308,683 acres met the criteria for R&I values, resources, natural systems or processes, or hazards/safety/public welfare (referred to collectively as values) and were identified as potential ACECs for consideration in the land use planning process.

Other special management designations that existed prior to monument designation, and were retained after monument designation, include:

- Calf Creek Recreation Area
- Deer Creek Recreation Area
- Devils Garden Outstanding Natural Area
- Dance Hall Rock Historic Site
- Escalante Canyons Outstanding Natural Area (tracts 2, 3, and 4 are included in the North Escalante Canyon/The Gulch Instant Study Area (ISA) and tracts 1 and 5 are separate)
- North Escalante Canyon Outstanding Natural Area
- The Gulch Outstanding Natural Area
- Phipps-Death Hollow Outstanding Natural Area
- No Mans Mesa Research Natural Area
- Wolverine Petrified Wood Natural Environmental Area

Of these special management designations, a portion of Devils Garden Outstanding Natural Area, a portion of Dance Hall Rock Historic Site, Escalante Canyons Tract 5 ISA Complex, and portions of Wolverine Petrified Wood Natural Environmental Area are located on lands that have been excluded from GSENM and now occur in KEPA.

3.16.2 Environmental Consequences

3.16.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on areas eligible for ACEC designation from implementation of the management alternatives. ACECs are only designated under alternatives B and C. Maps 66 through 67 depict ACEC designations by alternative.

Impacts on areas eligible for ACEC designation would primarily result from management that affects the identified R&I values. The BLM is required to defend or guard against damage or loss of the identified R&I values, either through management prescriptions specifically for the ACEC or, absent the ACEC designation, through other management sufficient to protect the values.

Effects on areas eligible for ACEC designation from this impact mechanism are generally described in a qualitative fashion, with acreages provided where appropriate to draw distinctions among the alternatives.

This analysis uses the following assumptions:

- The 14 potential ACECs in Alternative B are the basis for describing the geographic locations of R&I values across the alternatives.
- Because ACEC values include wildlife, visual resources, cultural resources, paleontological resources, and other resources, the assumptions used in the analyses of those resources apply to the analysis of ACECs; those resource-specific assumptions are not repeated here.

3.16.2.2 Direct and Indirect Effects

In general, management that restricts, limits, or prohibits surface disturbance and development in and adjacent to ACECs in the short and long terms generally reduces adverse impacts on identified R&I values identified in the Planning Area. Overlapping special designations (e.g., WSAs, lands with wilderness characteristics) generally confer additional benefits on the values for which ACECs are designated. Management that maintains and enhances natural processes therein, including habitat restoration activities and some vegetation treatments, could be beneficial to certain R&I values over the long term, but may result in short-term, adverse impacts on ACEC values.

Nominated ACECs designations by alternative are shown in Table 3.16-1 and are depicted on Maps 66 and 67. While no ACECs are designated in Alternative A, some nominated ACECs overlap with Primitive or Outback Zones, which would provide protection to identified R&I values. Primitive Zones generally preclude ROWs, mechanized vegetation treatments, and OHV closures, while Outback zones allow these activities with substantial restrictions. Alternative B designates all 14 potential ACECs (approximately 308,683 acres), and closes these areas to surface-disturbing mineral activities and a variety of other activities (as necessary to protect the specific R&I values of the area). Table 3.16-1 shows the acres that overlap or are outside of WSAs under Alternative B. Alternative C designates five of the 14 potential ACECs (130,995

acres) outside of WSAs, and allows some surface disturbing mineral development and other activities where consistent with protection of the R&I values. Alternative D does not designate any potential ACECs, and any protection for R&I values would be incidental to management for other program areas.

Table 3.16-1. ACEC Designations and Overlap with WSAs for Alternative B

Nominated ACEC	R&I Values	Alternative B (acres)	Overlap with WSA (acres)	No overlap with WSA (acres)	Percentage outside of WSA (%)
Alvey Wash	Historic/cultural and paleontological; natural process or system	29,769	15,227	14,707	49%
Bulldog Bench	Historic/cultural: Paleontological	361	0	361	100%
Butler Valley	Scenic, natural process or system	15,780	48	15,732	99%
Circle Cliffs	Historic/cultural, paleontological, scenic, fish and wildlife	26,706	0	26,706	100%
Cockscomb East	Historic/cultural and paleontological scenic, geologic, and natural process or system	42,100	9,416	32,684	78%
Cockscomb West	Historic/cultural, scenic, and natural process or system	40,475	13	40,462	99%
Collet Top	Scenic, historic/cultural, natural process or system	9,218	1,012	8,206	89%
Henderson/Pardner	Historic/cultural: Paleontological and scenic	12,259	10,401	1,858	15%
Hole-in-the-Rock Trail	Historic/cultural, natural processor system	60,772	5,760	55,013	91%
Paria River	Historic/cultural, scenic, and natural process or system	180	153	27	15%
Scorpion Flat/Dry Fork	Scenic	30,691	27,894	2,798	9%
Straight Cliffs/Fiftymile Bench	Historic/cultural and scenic	21,357	1,035	20,322	95%
Tibbet Head	Historic/cultural: Paleontological, natural process/system	19,079	204	18,874	99%
Wahweap Hoodoos	Natural process or system	130	130	0	0%

Source: BLM 2018f

ACEC – Area of Critical Environmental Concern, R&I – relevance and importance, WSA – Wilderness Study Area

Impacts on Historic/Cultural and Paleontological R&I Values

Threats of irreparable damage to historic/cultural and paleontological R&I values include destruction due to ground-disturbing actions or collection of cultural resources and/or paleontological materials as a result of recreational use, livestock grazing and range improvements, mineral development, rock climbing, and other surface-disturbing activities. See Section 3.2, *Cultural Resources*, and Section 3.5, *Paleontological Resources*, for more detailed

discussion of these resources. In accordance with NHPA Section 106 (applicable only to cultural resources and historic properties), future management actions carried out by the BLM under any of the four alternatives must avoid, minimize, or mitigate direct and indirect impacts on historic properties. The Paleontological Resources Preservation Act of 2009 (16 USC 470aaa-aaa-11) further requires the BLM to manage and protect paleontological resources on Federal land. Although the Section 106 process ensures resolution of any adverse effects on historic properties, management decisions under some alternatives may result in more prevalent use of avoidance strategies, whereas other alternatives would be more likely to minimize or mitigate impacts.

Alternative A closes all areas to mineral leasing and also prohibits collection of monument resources including paleontological materials. This management would help protect the identified R&I values from irreparable damage. Alternative B management would protect the identified paleontological values by prohibiting the casual collection of fossils or other paleontological materials, as well as implementing annual monitoring and inventories of all paleontological resources. Under alternatives C and D, casual collection would be allowed except in select locations or where incompatible with other concerns. While casual collection would be restricted to common invertebrate and botanical fossils in both alternatives C and D, some inadvertent loss of significant specimens could occur.

Application of historic/cultural and paleontological resource BMPs identified in Appendix G, *Best Management Practices*, and Appendix H, *Stipulations and Exceptions, Modifications, and Waivers*, would generally reduce the potential for adverse impacts on historic/cultural and paleontological resources from surface disturbance and unauthorized and unpermitted actions. For example, BMPs require avoidance of areas with unique paleontological resources and allows for sampling in areas of ubiquitous fossils. Alternatives B, C, and D protect paleontological resources by requiring surveys and monitoring for all surface-disturbing mineral activities in PFYC Class 4 and 5 areas as a standard stipulation. These management actions and stipulations would help protect the historic/cultural and paleontological R&I values from irreparable damage under all alternatives.

Effects on scenic, geologic, and biological values from the potential designation and overlaps with other special designations and VRM classes are described below by ACEC.

Alvey Wash ACEC

Impacts on the potential Alvey Wash ACEC could occur if there were threats of irreparable damage to historic, cultural, paleontological values; or natural process or system values (i.e., impacts on Atwood penstemon). Alternative A does not designate the Alvey Wash ACEC; however, the potential ACEC overlaps with both Primitive and Outback Zones and portions of the Carcass Canyon and Death Ridge WSAs. These overlapping designations would help protect the identified R&I values from irreparable damage. Alternative B designates the potential Alvey Wash ACEC and applies management specifically designed to protect R&I values from the identified potential threats. Alternatives C and D do not designate the potential ACEC. However, under alternatives C and D, portions of the potential ACEC overlap with WSAs, which would provide some protection for R&I values similar to Alternative A.

Bulldog Bench ACEC

Impacts on the potential Bulldog Bench ACEC could occur if there were threats of irreparable damage to paleontological values from destruction due to ground-disturbing actions or collection of paleontological materials. Alternative A does not designate the Bulldog Bench ACEC; however, the potential ACEC overlaps with Outback Zones. This overlapping designation would help protect the identified R&I values from irreparable damage. Alternative B designates the Bulldog Bench ACEC and applies management to protect R&I values from potential threats. Alternatives C and D do not designate the potential Bulldog Bench ACEC; however, management under alternatives C and D as described above would help protect the R&I values from irreparable damage.

Butler Valley ACEC

Impacts on the potential Butler Valley ACEC could occur if there were threats of irreparable damage to scenic values, including visual intrusions, vegetation treatments, or natural process or system values (impacts on Kodachrome bladderpod). Alternative A does not designate the potential Butler Valley ACEC; however, the potential ACEC area would overlap with a designated Outback Zone, which would protect the identified R&I values from irreparable damage. Alternative B designates the Butler Valley ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B would protect the identified scenic resources by managing the area as VRM Class II, which would provide some protection from visually intrusive uses. Additionally, Alternative B would prohibit vegetation treatments in known suitable habitat for special status species plants and would conduct inventories and research to identify and document habitat and populations of all sensitive plants within the ACEC. Alternatives C and D do not designate the potential ACEC. However, under these alternatives, the potential ACEC would be managed as VRM Class II, which would help provide protection of R&I values from irreparable damage.

Circle Cliffs ACEC

Impacts on the potential Circle Cliffs ACEC could occur if there were threats of irreparable damage to historic, cultural, paleontological, scenic (including visual intrusions), and fish and wildlife (i.e., MSO) values. Alternative A does not designate the potential Circle Cliffs ACEC; however, the potential ACEC area would overlap with both Primitive and Outback Zones, which would help protect the identified R&I values from irreparable damage. Alternative B designates the Circle Cliffs ACEC and management would be sufficient to protect R&I values from potential threats. Alternative B would protect the identified scenic resources by managing the area as VRM Class II, which would provide protection from visually intrusive uses. Additionally, Alternative B would plan and complete NHPA Section 110 inventories and site documentation for recreational use and cattle congregation, promote archaeological research, work with SRP holders and Site Stewards to increase monitoring of archaeological sites, and close the area to mineral materials and locatable mineral entry. Alternative C designates the Circle Cliffs ACEC with similar management as Alternative B, with the exception that CSU stipulations would be applied for mineral leasing. Alternative D does not designate the potential Circle Cliffs ACEC; however, this alternative manages the areas as VRM Classes II and III. VRM in combination with the above-described historic/cultural and paleontological management would help protect the R&I values from irreparable damage under alternatives C and D.

Cockscomb East ACEC

Impacts on the potential Cockscomb East ACEC could occur if there were threats of irreparable damage to paleontological, scenic, geologic, and natural process or system values, including visual intrusions, vegetation treatments, and collection of sensitive plants. Alternative A does not designate the potential ACEC; however, the potential ACEC area would overlap a designated Primitive Zone and Cockscomb WSA and Wahweap WSA, which would protect the identified R&I values from irreparable damage. Alternative B designates the Cockscomb East ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B would protect the identified paleontological, scenic, geologic, and natural process or system values by managing all areas within the Cockscomb East ACEC that are located outside of the WSAs as VRM Class II, which would provide protection from visually intrusive uses. Additionally, Alternative B prohibits the collection of BLM or State sensitive plants; requires inventories and annual monitoring for paleontological resources; conducts research, inventories, and monitoring for all endemic and sensitive plants; prohibits the casual collection of fossils or other paleontological materials; and prohibits vegetation treatments in known suitable habitat for special status plants. Alternative C designates the portions of the ACEC that are outside of the WSA with similar management as Alternative B, with the exception that vegetation treatments are allowed in known suitable habitat for special status plants. Alternative D does not designate the potential ACEC. However, portions of the potential Cockscomb East ACEC would overlap with portions of the Cockscomb WSA and Wahweap WSA, and portions of the potential ACEC that do not overlap with the WSAs (Table 3.16-1) would be managed as VRM Class II. Alternative D management, in combination with the above-described paleontological management, would help protect and prevent irreparable damage to the R&I values from the potential threats.

Cockscomb West ACEC

Impacts on the potential Cockscomb West ACEC could occur if there were threats of irreparable damage to cultural, scenic, and natural process or system values, including visual intrusions, vegetation treatments, OHV use, collection of sensitive plants, and vehicular traffic. Alternative A does not designate the potential ACEC; however, the potential ACEC area would overlap a designated Outback Zone, which would help protect the identified R&I values from irreparable damage. Alternative B designates the Cockscomb West ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B protects the identified cultural, scenic, and natural process or system values by managing all areas within the Cockscomb West ACEC that are located outside of the WSAs as VRM Class II, which would provide some protection from visually intrusive uses. Additionally, Alternative B closes the area to mineral materials and locatable mineral entry, prohibits the collection of BLM and State sensitive plants, increases monitoring of known archaeological sites, and avoids designating areas for vehicular or OHV use. Alternative C designates the portions of Cockscomb West ACEC that are outside of the WSA with similar management as Alternative B, with the exception that oil and gas leasing is allowed subject to moderate constraints. Alternative D does not designate the potential ACEC and manages it as VRM Classes II and III. Alternative D management in combination with the above described historic/cultural management would help protect and prevent irreparable damage to the R&I values from the potential threats.

Collet Top ACEC

Impacts on the potential Collet Top ACEC could occur if there were threats of irreparable damage to scenic values, including visual intrusions, cultural, and natural process or systems (impacts on Atwood's penstemon). Alternative A does not designate the potential Collet Top ACEC; however, the potential ACEC area overlaps with both Primitive and Outback Zones and Burning Hills and Fiftymile Mountain WSAs, which would help protect the identified R&I values from irreparable damage. Alternative B designates the Collet Top ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B would manage all areas within the Collet Top ACEC that are located outside the WSAs as VRM Class II, which would provide some protection from visually intrusive uses. Alternatives C and D do not designate the potential ACEC. However, under alternatives C and D, northern portions and the perimeter of the potential ACEC overlap with the Burning Hills and Fiftymile Mountain WSAs. Additionally, areas outside of the WSAs would be managed as VRM Class II and the remaining areas would be managed as VRM Class IV. Management under alternatives C and D would allow some protection of R&I values from irreparable damage.

Henderson/Pardner ACEC

Impacts on the potential Henderson/Pardner ACEC could occur if there were threats of irreparable damage to paleontological and scenic values, including visual intrusions. Alternative A does not designate the potential ACEC; however, the potential ACEC area overlaps with both Primitive and Outback Zones and The Blues WSA, which would help protect the identified R&I values from irreparable damage. Alternative B designates the Henderson/Pardner ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B manages all areas within the potential Henderson/Pardner ACEC that are located outside the WSAs as VRM Class II, which would provide some protection from visually intrusive uses.

Alternatives C and D do not designate the potential ACEC; however, under alternatives C and D, a portion of the potential ACEC overlaps with The Blues WSA. Additionally, the majority of the area outside of the WSA under alternatives C and D is managed as VRM Class II, with a small area managed as VRM Class III. Management under alternatives C and D, in combination with the above-described paleontological management, would allow some protection of R&I values from irreparable damage.

Hole-in-the-Rock Trail ACEC

Impacts on the potential Hole-in-the-Rock Trail ACEC could occur if there were threats of irreparable damage to cultural values, including mineral development, and to natural process or system values (impacts on Barneby milkvetch). Alternative A does not designate the potential ACEC; however, the potential ACEC area overlaps with both Primitive and Outback Zones and Devils Garden ISA and the Scorpion WSA, which would help protect the identified R&I values from irreparable damage. Alternative B designates the Hole-in-the-Rock Trail ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B includes management to work with SRP holders and Site Stewards to monitor and document known archaeological sites, develop a management and recreation trail plan, prohibit commercial mineral material sites, and allow oil and gas leasing subject to major constraints. Alternatives C and D do not designate the potential ACEC; however, a portion of the

potential ACEC overlaps with the Devils Garden ISA and the Scorpion WSA. Additionally, the majority of areas outside of the WSAs under alternatives C and D are managed as VRM Class II, with a small area managed as VRM Class III. Furthermore, alternatives C and D require protection of the setting of listed sites to prevent the introduction of visual, audible, or atmospheric conditions that are out of character with the site or its setting as a standard stipulation. Management under alternatives C and D, in combination with the above-described historic/cultural management, would allow some protection of R&I values from irreparable damage.

Paria River ACEC

Impacts on the potential Paria River ACEC could occur if there were threats of irreparable damage to historic, prehistoric, cultural, scenic, and natural process or system values, including visual intrusions and vehicular traffic. Alternative A does not designate the potential ACEC; however, the potential ACEC area overlaps with the Primitive Zone and Paria-Hackberry WSA, which would protect the identified R&I values from irreparable damage. Alternative B designates the Paria River ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B manages the small portion of the potential ACEC located outside the WSA as VRM Class II, which would provide some protection from visually intrusive uses. Additionally, Alternative B includes management to work with SRP holders and Site Stewards to increase monitoring of known archaeological sites, as well as manage vehicular traffic to stay on designated routes and prohibit vehicular access to side canyons. Alternatives C and D do not designate the potential ACEC; however, a portion of the potential ACEC overlaps with the Paria-Hackberry WSA and the remainder of the area is managed as VRM Class II. Management under alternatives C and D would allow some protection of R&I values from irreparable damage.

Scorpion Flat/Dry Fork ACEC

Impacts on the potential Scorpion Flat/Dry Fork ACEC could occur if there were threats of irreparable damage to scenic values, including visual intrusions. Alternative A does not designate the potential ACEC; however, the potential ACEC area would overlap with both Primitive and Outback Zones and Scorpion WSA and a small portion of the Escalante Canyons Tract 5 ISA, which would help protect the identified R&I values from irreparable damage. Alternative B designates the Scorpion Flat/Dry Fork ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B manages all areas within the Scorpion Flat/Dry Fork ACEC that are located outside the WSA as VRM Class II, which would provide some protection from visually intrusive uses. Alternatives C and D do not designate the potential ACEC; however, portions of the potential ACEC overlaps with the Scorpion WSA and a small portion of the Escalante Canyons Tract 5 ISA and the remainder of the area is managed as VRM Class II. Management under alternatives C and D would allow some protection of R&I values from irreparable damage.

Straight Cliffs/Fiftymile Bench ACEC

Impacts on the potential Straight Cliffs/Fiftymile Bench ACEC could occur if there were threats of irreparable damage to cultural and scenic values, including visual intrusions and mineral development. Alternative A does not designate the potential ACEC; however, the potential ACEC area overlaps with both Primitive and Outback Zones, which would help protect the identified

R&I values from irreparable damage. Alternative B designates the potential Straight Cliffs/Fiftymile Bench ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternatives B, C, and D manage all areas within the potential ACEC that are located outside the Carcass Canyon WSA (19,706 acres) as VRM Class II, which would provide some protection from visually intrusive uses. Additionally, Alternative B would develop an RMP and allow oil and gas leasing subject to major constraints. Alternative C designates the southern portion of the Straight Cliffs/Fiftymile Bench ACEC that is located outside of the WSA with similar management as Alternative B, with the exception that oil and gas leasing is allowed subject to moderate constraints. The northern portion of the Straight Cliffs/Fiftymile Bench potential ACEC that overlaps the WSA is not included in the Alternative C ACEC designation. Alternative D does not designate the potential ACEC, but does apply BMPs and standard stipulations and does manage a portion of the potential ACEC as a WSA; this management would provide some protection of R&I values from irreparable damage.

Tibbet Head ACEC

Impacts on the potential Tibbet Head ACEC could occur if there were threats of irreparable damage to paleontological and natural process or system values. Alternative A does not designate the potential ACEC; however, the potential ACEC area overlaps with both Primitive and Outback Zones and Wahweap WSA, which would protect the identified R&I values from irreparable damage. Alternatives B and C designate the Tibbet Head ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternatives B and C prohibit the casual collection of fossils, require annual monitoring for impacts on paleontological resources, and require inventories of all paleontological resources prior to surface-disturbing activities. Alternative D does not designate the potential ACEC; however, the southwestern end of the Tibbet Head ACEC overlaps with the Wahweap WSA, which in combination with the above-described paleontological management would allow some protection of R&I values from irreparable damage.

Wahweap Hoodoos ACEC

Impacts on the potential Wahweap Hoodoos ACEC could occur if there were threats of irreparable damage to natural processes or systems (impacts on hoodoos), including impacts from mineral development and rock climbing. Alternative A does not designate the potential ACEC; however, the potential ACEC area overlaps with a designated Primitive Zone and Wahweap WSA, which would protect the identified R&I values from irreparable damage. Alternative B designates the Wahweap Hoodoos ACEC and the proposed management would be sufficient to protect R&I values from potential threats. Alternative B would avoid mineral materials disposal, as well as prohibit rock climbing within 100 meters of any hoodoo formation. Alternatives C and D do not designate the potential ACEC; however, under alternatives C and D, portions of the potential ACEC area overlaps with the Wahweap WSA, which would protect R&I values from irreparable damage.

Summary of Effects on R&I Values

No R&I values, resources, processes, systems, or hazards/safety/public welfare would be threatened with irreparable damage under Alternative B. Alternative B designates all potential ACECs and would implement special management actions to protect and prevent all R&I values from irreparable damage. Alternative C designates five potential ACECs whose R&I values

would be protected due to special management associated with the ACEC. Alternatives A, C, and D generally provide less protection to undesignated, potential ACECs than Alternative B. Under all alternatives, R&I values would be protected through management of overlapping WSAs (Table 3.16-1). Protective management in WSAs include non-impairment of wilderness characteristics, providing the public with important information regarding appropriate activities in WSAs, monitoring public activities, and maintaining acceptable route designations and range developments. Application of VRM classes, other special designations, the BMPs identified in Appendix G, *Best Management Practices*, and stipulations in Appendix H, *Stipulations and Exceptions, Modifications, and Waivers*, would allow some protections for all the identified R&I values, resources, processes, systems, or hazards/safety/public welfare from threats of irreparable damage.

3.16.2.3 Cumulative Effects

The cumulative impact analysis area for ACECs is the Planning Area. This area encompasses the boundaries of ACECs and other locations in the Planning Area that could be cumulatively affected by ACEC management decisions in combination with other past, present, and reasonably foreseeable actions. Cumulative impacts from the implementation of other resource decisions within and outside of the boundaries of potential ACECs would include any form of surface disturbance within or adjacent to a potential ACEC or allowable uses that would be counterproductive to the appropriate management of an ACEC, such as increased recreational activity. Past, present, and reasonably foreseeable projects that may contribute to cumulative impacts include ROW development (e.g., Lake Powell pipeline), mineral development in the Upper Valley Field, and other projects identified in Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Actions*, that could affect R&I values in KEPA.

Based on the nature of the R&I values associated with the potential ACECs, impacts tend to occur quickly but recover slowly, and could be irreparable in the case of some impacts on cultural and paleontological sites. As such, any impact would result in a cumulative increase in the potential for irreparable damage to R&I values. Impacts would be avoided or minimized in potential ACEC areas that overlap with other special designations and VRM Class I and II areas. Alternative B would result in the lowest potential for cumulative impacts resulting in irreparable damage to R&I values because all potential ACECs would be designated and would have special management to protect their R&I values. The potential for irreparable damage to R&I values would be lower under Alternative C (which designates five ACECs). The potential for such damage to R&I values within potential ACECs would be greatest under Alternative D, which designates no ACECs and allows more ground-disturbing activities.

3.17 National Historic Trails

3.17.1 Affected Environment

The analysis area for congressionally designated National Historic Trails (NHTs) is the route on public lands through the Planning Area (36 miles) and the associated trail setting.

Thirty-six miles of the Armijo Route, a segment of the OSNHT, are found within the Planning Area (Map 68, Old Spanish National Historic Trail All Alternatives) (BLM 2018b; BLM and NPS 2017). Twenty-four miles of the OSNHT along the Armijo Route's Box of the Paria segment is recognized as a "high potential route segment," a term used in the National Trails System Act

for segments of a trail that afford high-quality recreation experiences along a portion of the route having greater-than-average scenic values or affording an opportunity to share vicariously the experience of the original users of a historic route (AECOM 2012; 16 U.S.C. 1241 et seq.). The Box of the Paria high potential segment's resources, qualities, values, associated settings, and Federal protection components are primarily encompassed by relatively unaltered terrain and outstanding scenic setting (BLM 2018b; AECOM 2012). To the east and west the remaining 12 miles of the OSNHT cross and parallel Highway 89 and electrical distribution lines in KEPA.

The trail is jointly administered by the BLM and NPS. The BLM and NPS use the Comprehensive Administrative Strategy (BLM and NPS 2017), their respective trail administration manuals, and land use plans for their guidance in trail administration. Section 7(c) of the National Trails System Act outlines appropriate recreational uses, including OHV and mechanized travel, along NHTs and states that “reasonable efforts shall be made to provide sufficient access opportunities to such trails. Other uses along the trail, which will not substantially interfere with the nature and purposes of the trail, may be permitted by the Secretary charged with the administration of the trail” (16 U.S.C. 1241 et seq.). Recreational facilities and interpretive sites along the OSNHT in the Planning Area include the Paria Box Trailhead and Paria Wayside/Old Spanish Trail site. A National Trail Management Corridor (NTMC), as defined by BLM Manual 6280, has not been established to date (BLM 1999a, 2012e). Refer to Chapter 2, Section 2.4.2, *National Historic Trails* (page 122), in the AMS (BLM 2018b) for more information on the OSNHT.

3.17.2 Environmental Consequences

3.17.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on the OSNHT resources and NTMC from implementation of the management alternatives. Map 68 depicts the OSNHT and management corridors under the alternatives.

Impacts would primarily result from the following impact mechanisms:

- Surface-disturbing activities, including development, that intrudes on the historic setting, character, or recreational quality of the OSNHT
- Transportation/access and recreational use
- Unpermitted and/or unauthorized removal, vandalism, alteration, damage, or destruction of cultural resources (refer to Section 3.2, *Cultural Resources*, for this impact discussion)

Effects on the OSNHT are generally described in a qualitative fashion, with acreages and management corridor widths provided where appropriate to draw distinctions among the alternatives. In addition to those found in Section 3.18.2.1, *Methods and Assumptions*, for scenic routes that apply to the OSNHT, this impact analysis is based on the following assumptions:

- Proposed actions involving surface-disturbing activities will be reviewed using the process outlined in BLM Manual 6280, and, when historic properties are involved, through the NHPA Section 106 review process.
- The 24-mile Box of the Paria high potential segment (and associated Federal protection components) is more sensitive to impacts than the 12 miles near Highway 89 that have not been inventoried and are partially compromised by transportation and utilities.

- Regardless of the BLM management, travel off designated or existing routes and the creation of social trails has occurred and will likely continue, creating adverse effects within the setting of the NHT. Unpermitted and unauthorized off-trail hiking, off-road motor vehicle use, and OHV use create new trails and roads, which can damage or displace surface artifacts and features. Short-term, indirect, adverse impacts associated with unauthorized and unmonitored activities include increased and accelerated erosion and soil degradation, as well as increased artifact collection and human trampling. Long-term, indirect, adverse impacts could result from the loss, destruction, or vandalism of resources through prolonged use of unauthorized trails, roads, and camping.
- TMPs will be prepared after the completion of the RMPs and will direct route designations consistent with NTMC goals, objectives, and actions. Public input and comments on the route network within NTMC will be considered during the TMP planning process.

3.17.2.2 Direct and Indirect Effects

This section describes the potential direct, indirect, and cumulative impacts on NHTs from resources or resource uses within the Planning Area. Adverse effects can result from surface-disturbing activities caused by mineral resource development and other ground-disturbing activities, as these activities can cause damage to or destruction of significant Federal protection components and cultural resources associated with the OSNHT. Impacts from livestock grazing and increased human presence for recreational or job-related purposes are the same as those described for cultural resources in Section 3.2, *Cultural Resources*, and include disturbance from trampling, vandalism, looting, and casual artifact collection.

Adverse effects on the OSNHT and NTMC could also include short- and long-term loss of opportunities for high-quality recreation experiences, scenic values, and vicarious historical experiences from human-induced surface disturbance and visual resource contrasts. These direct and indirect effects would result from management actions for lands and realty, minerals development, renewable energy development, trails, and travel. Conversely, management designed to improve landscapes and protect cultural resources, such as vegetation treatments, fish and wildlife habitat management, and soils and watershed enhancement activities, could cause surface disturbance and vegetation removal in the short term, but would result in long-term, direct and indirect, beneficial impacts on NHT resources. Management that limits potential adverse effects on the OSNHT and NTMC by instituting constraints on resource uses include special designations, certain recreation management areas that limit surface-disturbing activities, and lands with wilderness characteristics specifically managed to protect and preserve their wilderness characteristics.

Impacts from Surface- and Setting-Disturbing Activities

Long-term, direct, adverse impacts would occur due to the permanent loss of trail traces, associated cultural resources, opportunities for vicarious experiences, and setting and scenic values caused by the development of permanent features (such as utility ROWs, renewable energy facilities, mineral leasing sites, and recreation sites) and certain types of surface-disturbing activities, including vegetation treatments and fire management activities. Indirect, adverse impacts associated with these latter types of activities may include erosion from soil disturbances and accidental damage from human trampling or vehicle use and machinery. For example, vegetation removal on or within the watershed of the OSNHT could temporarily increase the erosion of the trail traces.

Management that preserves landscape character within the NTMC—including establishing ROW avoidance and exclusion areas, managing areas as VRM Class I or II, and applying surface-use stipulations to mineral and renewable energy development—would reduce the potential for adverse impacts. Furthermore, where the OSNHT and NTMC overlaps special designations and lands with wilderness characteristics specifically managed to protect and preserve their wilderness characteristics, the potential for adverse effects on scenic qualities would be reduced, as these areas preclude or restrict surface-disturbing activities. Alternative B includes the most acres of protective restrictions due to special designations and lands with wilderness characteristics specifically managed to protect and preserve their wilderness characteristics, which would indirectly benefit NHT resources compared to alternatives A, C, and D. The Cockscomb WSA, which is designated under all alternatives, would protect high-quality recreation experiences and scenic values along a portion of the OSNHT and NTMC through limits on surface disturbances.

The alternatives designate varying widths for the NTMC (Table 3.17-1, Map 68) and impose varying degrees of restriction on activities that could adversely affect the recreation experiences and scenic values in the corridors. The potential for adverse, direct and indirect impacts from surface-disturbing activities within the NTMC is lowest under Alternative B, greater under alternatives A and C, and greatest under Alternative D. Alternative B designates the largest NTMC (3 miles on either side of the OSNHT centerline) and generally prohibits all new surface-disturbing activities within the NTMC, but does allow consideration of discretionary uses that would be compatible with the protection of the purpose and nature, resources, qualities, values, and settings of the OSNHT, as determined during project-specific permitting. Limitations on surface-disturbing activities under alternatives A and C would be less restrictive and provide less protection from adverse effects than Alternative B, but more than Alternative D. Adverse impacts from alternatives A, C, and D would be most pronounced on the Box of the Paria high potential segment, as the smaller NTMC widths under these alternatives would not limit effects on the larger NHT viewshed outside of the slot canyon portion (Map 68). Alternative D designates the shortest (24 miles) and narrowest (300 feet on either side of the OSNHT centerline) NTMC and would manage Federal protection components by allowing discretionary uses beyond the NTMC that are compatible with the nature, purpose, and settings of the Box of the Paria high potential segment. In general, impacts from surface-disturbing activities that could adversely affect the recreation experiences and scenic values within the corridors would be similar across the GSENM units due to similar management in the three units.

Additionally, Alternative B manages a larger portion of the NTMC under VRM Class I and II objectives, which would limit activities that could create new visual contrast and degrade the NHT's scenic values. As shown in Table 3.17-2, Alternative B and Alternative C (respectively) have the largest NTMC that would be managed as VRM Class I and II, which would provide additional protection compared to Alternative D. Alternative A does not designate the NTMC, but includes some protective management for the NHT's setting through application of VRM Class I and II objectives (Table 3.17-2).

Table 3.17-1. OSNHT NTMC by Alternative and Management Unit

Alternative	Grand Staircase Unit	Kaiparowits Unit	KEPA	Total (acres)
Alternative A: No OSNHT NTMC	N/A	N/A	N/A	N/A
Alternative B: 36-mile OSNHT NTMC up to 3 miles*	12,878	2,113	61,256	76,247
Alternative C: 36-mile OSNHT NTMC up to 0.5 mile*	2,949	409	17,879	21,238
Alternative D (Preferred Alternative): 24-mile OSNHT NTMC up to 300 feet*	404	50	1,409	1,863

Source: BLM 2018f

* Includes a distance on each side of the OSNHT centerline or within the viewshed, whichever is less.

OSNHT – Old Spanish National Historic Trail, NTMC – National Trail Management Corridor, KEPA – Kanab-Escalante Planning Area, N/A –not applicable

Table 3.17-2. Visual Resource Management Classes in the NTMC

Alternative	VRM Class I	VRM Class II	VRM Class III	VRM Class IV	Total (acres)
Alternative A: No OSNHT NTMC; 3 miles for comparison ⁽¹⁾	14,859	12,574	48,775	0	76,208
Alternative B: OSNHT NTMC up to 3 miles ⁽²⁾	19,032	57,215	0	0	76,247
Alternative C: OSNHT NTMC up to 0.5 mile ⁽²⁾	4,090	16,223	924	3	21,238
Alternative D (Preferred Alternative): OSNHT NTMC up to 300 feet*	552	1,311	0	0	1,863

Source: BLM 2018f

¹ Alternative A does not have an NTMC; however, to provide a basis for comparison in how the setting is currently being managed, this table presents Alternative A VRM Classes within a 3-mile viewshed of the OSNHT.² Includes a distance on each side of the OSNHT centerline or within the viewshed, whichever is less.

NTMC – National Trail Management Corridor, NHT – National Historic Trail, OSNHT – Old Spanish National Historic Trail, VRM – Visual Resource Management

Application of cultural resource management, site protection, monitoring, and BMPs identified in Appendix G, *Best Management Practices*, and Appendix J, *Cultural Resources*, would generally reduce the potential for direct and indirect, adverse impacts on NHT resources. For example, potential impacts on NHT resources from visual contrasts within the trail setting could be reduced by conducting a viewshed analysis and consultation to inform appropriate site locations outside of the setting. Adverse impacts on NHT resources resulting from BLM-authorized surface disturbance would also be avoided, minimized, or mitigated during NEPA and NHPA Section 106 compliance processes in accordance with the National Trails System Act.

Impacts from Transportation/Access and Recreational Use

Under all alternatives, long-term opportunities for recreational access to the OSNHT would be available; such access would provide for high-quality recreation experiences for users but could lead to continuing degradation of conditions (e.g., erosion, trampling, vandalism, looting, casual artifact collection) along the OSNHT as a result of OHV use and increased human presence. Highway 89 and a congressionally designated utility corridor runs adjacent to the OSNHT for approximately 12 miles. The 24-mile Box of the Paria high potential route segment, located

outside of the Highway 89 corridor, also has 12 miles of existing BLM-designated open and open/all-terrain vehicle routes. Because Alternative B closes all WSAs and lands with wilderness characteristics specifically managed to protect and preserve their wilderness characteristics to motorized or mechanized use (refer to Section 3.15, *Travel and Transportation Management*), recreational access and the potential for degradation of resource conditions would be reduced where these designations overlap the Box of the Paria segment. Under alternatives C and D, these WSAs and lands with wilderness characteristics would be managed as areas limited to designated routes, and both the beneficial and adverse impacts described under Alternative B would not occur.

Application of BMPs identified in Appendix G, *Best Management Practices*, would generally reduce the potential for direct and indirect, adverse impacts on NHT resources. For example, public education and/or physical barriers to direct or preclude uses that may cause damage would reduce potential impacts on NHT resources. Providing opportunities for science and research, as well as understanding and interpreting cultural resources, are major goals of all four alternatives (refer to Chapter 2). Management actions common to all the alternatives would have beneficial impacts on NHT resources as the BLM facilitates and engages in the research, outreach, and education efforts detailed in Section 2.3.22, *Science and Monument Advisory Committee*.

3.17.2.3 Cumulative Effects

The cumulative impact analysis area is the OSNHT and associated viewshed up to 15 miles or the visual horizon (whichever is closer). Although views can and do extend beyond 15 miles, the 15-mile distance was chosen because it defines the background distance zone (BLM Manual H-8410-1) and is near the limit of visibility of skylined energy development facilities, such as transmission towers and wind turbines, that may be readily noticeable to casual observers. Beyond that distance, the proposed management actions within the Planning Area would have minimal, if any, contribution to cumulative impacts on the OSNHT.

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and would likely have the greatest future effect on the OSNHT include development along Highway 89, ROW development such as the Lake Powell pipeline, energy and minerals development, cross-country and unauthorized OHV use, continued urbanization, and road construction and improvements. Energy development, which depends on a variety of external factors, could have widespread and long-term effects on the OSNHT setting if these projects were to occur within the viewshed.

Alternatives C and D would have fewer management actions that would restrict surface disturbance and/or permanent structures and fewer areas designated as VRM Class III and IV, as compared to alternatives A and B. Alternatives C and D would generally result in incremental adverse effects on the OSNHT on surrounding (non-BLM) lands within the cumulative impact analysis area. The effects of alternatives C and D, when combined with other land uses and past, present, and reasonably foreseeable future actions, would result in short- and long-term adverse cumulative impacts on the OSNHT and its setting. Alternatives B and A would have the potential for fewer adverse effects on the OSNHT and associated viewshed than alternatives C and D, because these two alternatives would have more management actions restricting surface disturbance and large-scale permanent structures and more lands designated as VRM Class I and II. The effects of alternatives B and A, when combined with other land uses and

past, present, and reasonably foreseeable future actions, would result in the least potential for short- and long-term adverse cumulative impacts on the OSNHT and its setting.

3.18 Scenic Routes

3.18.1 Affected Environment

The analysis area for scenic routes includes one All-American Road that occurs within and adjacent to the Planning Area and six Utah State Scenic Backways that occur within the Planning Area (Map 69, Scenic Byways and Backways Alternatives B and C).

The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. The program was developed to help recognize, preserve, and enhance selected roads throughout the United States by designating certain roads as National Scenic Byways or All-American Roads based on their intrinsic qualities (archaeological, cultural, historic, natural, recreational, and scenic). To be designated a National Scenic Byway, a road must possess characteristics of regional significance within at least one of the intrinsic qualities. All-American Roads must possess characteristics of national significance in at least two of the intrinsic qualities. An All-American Road, Scenic Byway 12 (State Route 12), occurs within the Planning Area and is a 124-mile scenic byway. Scenic Byway 12 is one of only 20 All-American Roads in the Nation and the only All-American Road in Utah. No roads designated as National Scenic Byways are present in the Planning Area.

Utah's State Scenic Backways have been designated by official State declaration for their scenic, historic, or recreational qualities, yet are roads that do not generally meet Federal safety standards for safe year-round travel by passenger cars. Backways often require four-wheel-drive vehicles, and road conditions can vary due to such factors as season and weather (BLM 2018b). The seven Utah Scenic Backways within the Planning Area are Burr Trail Scenic Backway, Cottonwood Canyon Road, Johnson Canyon/Alton Amphitheater, HITRR, Paria River Valley Road, and Smoky Mountain Road. Refer to Chapter 2, Section 2.4.4, *Scenic Routes* (pages 124–126), and Appendix 1 (*Maps*), Map 30 (page 242), in the AMS (BLM 2018b) for more information and locations on scenic routes that occur within the Planning Area.

3.18.2 Environmental Consequences

3.18.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on scenic route resources from implementation of the management alternatives. Map 69 depicts scenic routes that would be managed as Backcountry Byways under alternatives B and C.

Potential impacts on scenic routes are assessed by comparing the designation of the VRM class within the viewshed or “seen area” of the scenic route corridor, and by examining how other resources and resource use management actions affect scenic routes. Effects on scenic routes from these impact mechanisms are described in a qualitative fashion.

Impacts on visual resources would primarily result from the following impact mechanisms:

- Potential changes in landscape character or setting from management of other program areas

This analysis uses the following assumptions:

- VRM class objectives apply to all resources. Class objectives would be adhered to through project design, avoidance, or mitigation.
- Visual design considerations will be incorporated into all surface-disturbing projects regardless of size, potential impact, or VRM class.
- Visitors to or residents living near BLM-administered surface lands are sensitive to changes in scenic quality along scenic byways and backways.
- Scenic resources would become increasingly important to residents of and visitors to the area.
- Activities that cause the most contrast and thus are the most noticeable to the casual viewer would be considered to have the greatest effect on scenic quality. The severity of a visual effect depends on a variety of factors, including the size and scale of a project, vegetation and landform manipulation, and the overall visibility of disturbed areas. The more protection that is associated with the management of other resources and special designations, the greater the benefit to visual resources of the surrounding viewsheds.
- Visual contrast ratings would be required for proposed projects in high scenic quality and highly sensitive areas or high-impact projects, but may be used for other projects where it would be the most effective design and assessment tool.
- Projects would be designed to meet VRM class objectives. If a project could not be designed to meet VRM objectives, it would not be approved or a plan amendment would be necessary.

3.18.2.2 Direct and Indirect Effects

Impacts from VRM Designations

VRM class objectives provide criteria for determining the allowable level of visual contrast that may be created in an area; applying more restrictive VRM generally reduces direct adverse impacts along scenic routes. Applying VRM Class II objectives to any scenic route corridor would retain the existing character of the landscape and setting. In KEPA, Alternative B applies VRM Class II for a distance of 3 miles within the viewshed of the route, while Alternative C applies VRM Class II in the viewshed for a distance of 1 mile from the route. Alternatives B and C would therefore reduce the potential for direct, adverse impacts along designated scenic routes compared to alternatives A and D. Alternatives A and D do not apply VRM management specific to scenic routes, and therefore VRM management in the route viewshed would depend on the surrounding designation. Under alternatives A and D, where scenic routes cross areas of VRM Class III or IV in KEPA, activities that result in readily apparent changes to the landscape character (e.g., new ground disturbance or large-scale structures) could be allowed to dominate the viewshed; such management could lower the scenic values of the corridor to a greater extent than management in KEPA under alternatives B and C. Regardless of VRM designation, the BLM could require activities within the viewshed scenic take steps to reduce levels of visual contrast. In general, impacts on scenic route resources across the three GSENM units would be similar due to similar VRM management in these areas under all alternatives.

Impacts from Management Actions for GSENM and KEPA

Management that allows habitat and rangeland health improvement projects designed to maintain or enhance natural landscape function (e.g., vegetation treatments) would create

adverse changes to the landscape character along scenic routes in the short term, but would result in long-term, direct and indirect, beneficial impacts. Long-term, beneficial impacts would generally be associated with enhancing and restoring ecological processes and functions in the natural landscape, which in turn could enhance the overall visual character of the scenic corridor.

Management that allows surface disturbance or large-scale permanent structures, such as transmission lines or minerals development, in the viewshed of scenic routes would result in direct short- and long-term, adverse impacts by changing the landscape character. Conversely, special designations (e.g., ACECs and WSAs), certain recreation management areas (e.g., SRMAs with primitive recreation focuses), and lands with wilderness characteristics managed to maintain, preserve, and protect their wilderness characteristics are often managed with constraints on surface disturbance and development that would limit potential adverse effects on the viewshed of scenic routes. In KEPA, adverse impacts on landscape character from surface disturbance or large-scale permanent structures would be most likely to occur under Alternative D, followed by alternatives C, A, and B, respectively. Differences between the alternatives are driven by the range of restrictions to mineral development, ROWs, renewable energy permits, structural and non-structural range improvements, recreation facilities, and the extent and management of special designations in KEPA. In general, impacts on scenic route resources across the three GSENM units would be similar due to restrictions on resource uses in Presidential Proclamation 9682 under all alternatives.

3.18.2.3 Cumulative Effects

The cumulative impact analysis area used to analyze cumulative impacts on scenic routes is the viewshed of the scenic routes within a 15-mile distance of the Planning Area. Although views can and do extend beyond 15 miles, the 15-mile distance was chosen because it defines the background distance zone and is near the limit of visibility of skylined energy development facilities, such as transmission towers and wind turbines, that may be readily noticeable to casual observers on scenic routes. Beyond that distance, the proposed management actions within the Planning Area would have negligible, if any, contribution to cumulative impacts on scenic routes.

Past, present, and reasonably foreseeable future actions and conditions (Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*) within the cumulative impact analysis area that have affected and would likely continue to affect scenic route resources are residential, commercial, and industrial developments; mineral development in KEPA that may occur in the viewshed; vegetation treatments; cross-country OHV travel; range improvements; recreational developments; ROWs such as the Lake Powell pipeline; and road construction due to overall changes in landscape character and level of contrast. Actions likely to have the greatest future effect on scenic routes in the cumulative impact analysis area include activities associated with energy and minerals development, continued urbanization, road construction, developed recreation, and utility development. Road improvement projects along scenic routes such as the HITRR repair project would contribute to cumulative impacts on scenic routes. Short-term adverse impacts could occur while repair activities are in progress, but long-term beneficial impacts could occur through improved driving conditions along scenic routes.

Energy development, which depends on a variety of external factors such as type, location, scale, and operational processes, could have widespread and long-term effects on scenic routes. Generally, alternatives A and B allow less surface disturbance and permanent structures, and fewer areas designated as VRM Class III and IV compared to alternatives D and C. As a result, adverse cumulative effects are anticipated to be less under alternatives A and B than other alternatives.

3.19 Wild and Scenic Rivers

3.19.1 Affected Environment

The analysis area for WSRs consists of suitable river corridors in the Planning Area. Congressional WSR designation is intended to protect a river's free-flowing condition, water quality, and outstandingly remarkable values such as scenic, recreational, geologic, fish and wildlife, cultural, or other similar values. The three types of tentative classification are wild, scenic, and recreational. Rivers within the Planning Area and adjacent river segments that extend onto Dixie National Forest, Bryce Canyon National Park, and Glen Canyon NRA were assessed in an interagency effort from 1994 to 1998. All streams that were determined to be eligible were then evaluated for suitability during preparation of the GSENM Final EIS and Proposed MMP (BLM 1999a). All river segments and watersheds in the Planning Area were analyzed in the GSENM Final EIS and Proposed MMP for classification as WSR (BLM 1998, 1999a). A total of 234.2 miles of the Escalante and Paria River systems within the Planning Area were determined to be suitable for inclusion in the WSR system (BLM 2018b). These river corridors are currently managed by the BLM to prevent degradation of the identified outstandingly remarkable values and the tentative classification assigned to each segment (BLM 1999a). Refer to Chapter 2, Section 2.4.5, *Wild and Scenic Rivers*, Table 33 (pages 126–129), and Appendix 1 (*Maps*), Map 31 (page 243), in the AMS as well as Manual 6400 (BLM 2012f) for more information on eligible and suitable river segments.

3.19.2 Environmental Consequences

3.19.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on WSRs within the Planning Area from implementation of the management alternatives. Maps 70 through 73 depict management of WSRs by alternative.

Effects on WSRs from these impacts are generally described in a qualitative fashion, with mileage provided where appropriate to draw distinctions among the alternatives. Impacts on WSRs would primarily result from the following impact mechanisms:

- OHV and recreational use along the suitable river corridors
- Mineral material disposals on suitable river corridors tentatively classified as "recreational" within KEPA

This analysis uses the following assumptions:

- Analysis of potential impacts is limited to the study corridors of each suitable WSR segment, which generally includes 0.25 mile of land from the ordinary high water mark on each side of the WSR segment.

- Tourism and recreation use within the Planning Area will continue to increase during the life of the RMPs.

3.19.2.2 Direct and Indirect Effects

Under alternatives A and B, all suitable segments will retain their existing tentative classification, including approximately 23.2 miles of Lower Sheep Creek and the Upper Paria River that would continue to be tentatively classified as wild. These two reaches would be classified as tentatively scenic under Alternative C and tentatively classified as recreational under Alternative D. Rivers classified as wild are subject to more restrictions than scenic and recreational classifications, respectively. However, Lower Sheep Creek and the Upper Paria River are within the Paria-Hackberry WSA and would be afforded protection under WSA management. The variance in tentative classification across alternatives would result in this corridor being managed as VRM Class I in Alternative B, VRM Class II in Alternative C, and VRM Class III in Alternative D. Under alternatives B, C and D, all suitable segments within WSAs would be managed as VRM Class I. Management actions for OHV and recreational use along suitable river corridors could result in long-term, adverse impacts where they contribute to degradation of the rivers' water quality, tentative classification, and outstandingly remarkable values. Table 3.19-1 through Table 3.19-3 show the miles of suitable rivers reaches within the Planning Area by administrative unit under each alternative.

Table 3.19-1. Miles of Suitable River Reaches within the Planning Area by Administrative Unit under Alternatives A and B

Classification	Escalante Canyons Unit	Grand Staircase Unit	Kaiparowits Unit	KEPA	Total
Suitable Wild	124	16	42	16	198
Suitable Scenic	3	N/A	N/A	N/A	3
Suitable Recreational	4	4	2	13	23
TOTAL	131	20	44	29	224

Source: BLM 2018f

KEPA – Kanab-Escalante Planning Area, N/A – not applicable

Table 3.19-2. Miles of Suitable River Reaches within the Planning Area by Administrative Unit under Alternative C

Classification	Escalante Canyons Unit	Grand Staircase Unit	Kaiparowits Unit	KEPA	Total
Suitable Wild	124	10	30	11	175
Suitable Scenic	3	6	12	5	26
Suitable Recreational	4	4	2	13	23
TOTAL	131	20	44	29	224

Source: BLM 2018f

KEPA – Kanab-Escalante Planning Area

Table 3.19-3. Miles of Suitable River Reaches within the Planning Area by Administrative Unit under Alternative D

Classification	Escalante Canyons Unit	Grand Staircase Unit	Kaiparowits Unit	KEPA	Total
Suitable Wild	124	10	30	11	175
Suitable Scenic	3	N/A	N/A	N/A	3
Suitable Recreational	4	10	15	18	47
TOTAL	131	20	45	29	225

Source: BLM 2018f

KEPA – Kanab-Escalante Planning Area, N/A – not applicable

The potential for adverse direct and indirect impacts from OHV use and mineral material disposals along suitable river corridors is lower under alternatives A and B, followed by alternatives C and D, respectively. Alternatives B and C close wild river segments to OHVs, reducing the potential damage to the setting along these segments, and erosion that could degrade water quality. All action alternatives close wild or scenic river segments to mineral material disposals; however, alternatives C and D allow disposals along recreational river segments in KEPA. For river segments tentatively classified as scenic or recreational, disposal of mineral material is allowed under BLM Manual 6400 (BLM 2012f), but consideration would be given to applying conditions necessary to protect outstandingly remarkable values.

Management that reduces soil erosion and protects vegetation, particularly in riparian areas, would result in direct, long-term, beneficial impacts on suitable river corridors. Such actions could help maintain plant diversity and preserve water quality and ecological conditions of the rivers. Alternative B would provide the greatest protection for riparian corridors by prohibiting surface-disturbing activities and permanent facilities within 0.5 mile, compared to the 330-foot restriction applied under the remaining alternatives. In addition, alternatives A and B limit recreational group size in riparian areas of the GSENM units, reducing impacts on these resources from visitor waste, vegetation trampling, and erosion.

3.19.2.3 Cumulative Effects

The cumulative impacts analysis area for WSRs is the extent of suitable WSR corridors within the Planning Area. Under all alternatives, the past, present, and reasonably foreseeable future actions with the greatest potential to affect water quantity and quality and free-flowing condition of suitable WSRs in the Planning Area would be OHV and recreational use along the suitable river corridors and surface-disturbing and minerals projects that could result in sedimentation, erosion, and other impacts that affect WSR values. Refer to Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*, for additional information.

Based on the tentative classifications and management of WSRs across alternatives, the potential for adverse direct and indirect cumulative impacts from OHV and recreational use as well as mineral development along the suitable river corridors would increase under Alternative D compared to the other alternatives, followed by alternatives C, A, and B, respectively.

3.20 Wilderness Study Areas

3.20.1 Affected Environment

Sixteen WSAs are located within the Planning Area (Map 74, *Wilderness Study Areas*). The wilderness characteristics and other resource values and uses found in each WSA are described in the *Utah Statewide Wilderness Study Report* (BLM 1991). These 16 WSAs account for approximately 880,857 acres (47 percent) of the Planning Area (BLM 2018b). Refer to Chapter 2, Section 2.4.6, *Wilderness Study Areas* (pages 129–131), and Appendix 1 (*Maps*), Map 32 (page 244), in the AMS (BLM 2018b) for descriptions of the WSAs.

Section 603(c) of FLPMA provides direction, including a non-impairment mandate, to the BLM on the management of WSAs. Pursuant to the non-impairment mandate, the BLM will manage WSAs so as not to impair the suitability of such areas for preservation as wilderness until Congress passes legislation to either designate them as part of the National Wilderness Preservation System or release them from further study or protection (BLM 2018b). Activities permissible within WSAs include temporary uses that create no new surface disturbance and do not involve permanent placement of structures. Temporary, non-surface-disturbing activities, as well as valid existing rights or activities that meet the exception to the non-impairment standard (described in Section 1.6.C.2 of BLM Manual 6330 [BLM 2012g]), may generally continue in WSAs.

3.20.2 Environmental Consequences

3.20.2.1 Methods and Assumptions

This section describes direct, indirect, and cumulative effects on WSAs from implementation of the management alternatives. BLM Manual 6330 allows for little flexibility in the management of a WSA because it does not allow discretionary actions that adversely affect WSAs based on the non-impairment standard. Impacts on WSAs would primarily result from the following impact mechanism:

- Management of resources and resources uses (e.g., OHV travel and vegetation treatments) within the boundaries of WSAs

This analysis uses the following assumptions:

- Management actions that enhance wilderness characteristics and biological or ecological health would improve the wilderness quality and suitability of the WSAs.
- The BLM will continue to manage all WSAs in the Planning Area in accordance with BLM Manual 6330 until Congress either designates the WSA as wilderness or releases the WSA for other uses.

3.20.2.2 Direct and Indirect Effects

Wilderness characteristics within WSAs would be protected under all alternatives.

Allowing access for OHV travel via routes in the WSA could adversely affect opportunities for solitude or primitive and unconfined recreation. It is important to note that there are few existing primitive routes and ways in the Planning Area WSAs, reducing the effect of travel management decisions under alternatives that allow OHV use. Under Alternative A, WSAs are managed to provide undeveloped, primitive, and self-directed visitor experiences without OHV

or mechanized access. Under Alternative B, all WSAs are closed to OHV use. Alternatives C and D allow OHV use on designated routes in WSAs (except in the Steep Creek WSA, which is closed under Alternative C); although there are few routes in WSAs, OHV management under these alternatives is more likely to adversely affect opportunities for solitude or primitive and unconfined recreation than would OHV management under alternatives A and B.

Successful vegetation management to reduce the intensity of wildland fire, improve rangeland health, and control invasive and noxious weeds would have a direct, long-term beneficial impact on WSAs where they improve naturalness. Vegetation treatments could also have direct, short-term adverse impacts on opportunities for solitude. Alternative B prohibits most vegetation treatments in WSAs and, compared to other alternatives, could reduce long-term beneficial impacts from improved naturalness and short-term adverse impacts on solitude while treatments are conducted. Alternatives A, C, and D allow vegetation treatments in WSAs, and would result in similar long-term beneficial and short-term adverse impacts on WSA values. However, because Alternative D allows nonnative species for restoration, long-term beneficial effects on the naturalness of the area may be reduced under that alternative.

3.20.2.3 Cumulative Effects

The cumulative impacts analysis area for WSAs is the extent of WSAs within the Planning Area and the full extent of WSAs that intersect the Planning Area. Past, present, and reasonably foreseeable projects with the greatest potential to contribute to cumulative impacts in WSAs include those projects that create audible or visual intrusions, impacts on scenic quality, or a noticeable increase in human presence within WSAs. These projects include oil and gas development in the Upper Valley Field, development and road repairs along Highway 89 and HITRR, ROW development including the Lake Powell pipeline and other buried pipelines, and other development projects identified in Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*.

All direct and indirect impacts from the alternatives would contribute to cumulative impacts on WSAs. Among the alternatives, Alternative B would have the greatest likelihood of reducing potential adverse cumulative impacts on WSAs due to this alternative restricting OHV use and vegetation treatments. Alternatives C and D would have the greatest likelihood of increasing potential adverse cumulative impacts due to the allowance of OHV use as well as the allowance for the use of nonnative species for restoration (Alternative D). If routes are designated for OHV use in WSAs during the travel management planning process, there could be direct, short- and long-term reductions in outstanding opportunities for solitude, naturalness, and/or primitive recreation along those routes. The magnitude and extent of direct and indirect cumulative effects would depend on the location and distance of the routes designated in WSAs during travel management planning.

3.21 Social and Economic Considerations: Environmental Justice; Native American Religious Concerns, Hazardous Materials and Public Safety

The analysis area for social and economic considerations (often referred to as socioeconomic) includes the extent of Garfield and Kane Counties in Utah and portions of Coconino County in Arizona. The analysis area encompasses the locations that would experience the greatest social and economic effects resulting from RMP decisions. This section also discusses environmental

justice (EJ) concerns as they pertain to minority, Native American, and low-income populations in the region, and also discusses hazardous materials and public safety, Native American religious concerns, and socioeconomic conditions such as income, population, and employment trends.

3.21.1 Socioeconomic Conditions

This section provides a brief overview of baseline socioeconomic conditions; refer to Appendix T, *Socioeconomic Baseline Report*, for more information on baseline social and economic conditions and Appendix U, *Economic Assessment Report*, for more information on baseline conditions and trends for key sectors relevant to the economic analysis.

The population in the analysis area has grown over the past 17 years, though population growth in the analysis area is below statewide aggregate population growth. While the Kane-Garfield two-county region compares to Utah's statewide estimates for people below the poverty line, Coconino County almost doubles Utah's population rate below the poverty line. Additionally, the median household incomes for Kane, Garfield, and Coconino Counties are close to 20, 28, and 18 percent less than that of entire State of Utah, respectively. Regarding long-term changes in the counties' socioeconomic characteristics, Kane and Coconino Counties generally reflect Utah's State averages for population, employment, and income growth. Over approximately the past 17 years, the majority of municipalities in Garfield County lost population, with the only areas gaining population being associated with recreation development and activity in the western portion of the county. The variety of recreational opportunities, ecosystem services, and other nonmarket values in the Planning Area generally provides a range of benefits to Kane, Garfield, and Coconino Counties, as well as to tourists and visitors to the region.

As part of the planning process, the BLM hosted a socioeconomic workshop and solicited comments on socioeconomic concerns. A variety of local citizens, businesses, and interest groups expressed the importance of maintaining GSENM landscapes and values and the importance of tourism for local economies. Other commenters noted the benefits of multiple use in the Planning Area. Refer to Appendix T, *Socioeconomic Baseline Report*, for more information on the socioeconomic workshop and comment period.

Multiple studies have been conducted on the social and economic values of GSENM, including the following:

- Headwaters Economics found that western counties with protected public lands grow more quickly than counties without protected public lands. The local economies of Garfield and Kane Counties grew since the designation of GSENM, specifically in terms of indicators such as per-capita income, labor income, service jobs, population, and jobs (Headwaters Economics 2017).
- Utah State University's College of Natural Resources found, based on a 2004 frontcountry use survey, that the average visitor group spent \$495 in Garfield and Kane Counties, which supported 430 full-time equivalent jobs (Burr et al. 2010).

Refer to Section 2.5, *Social and Economic Features* (pages 131–136), in the AMS (BLM 2018b) and Appendix T, *Socioeconomic Baseline Report*, for more information on socioeconomic conditions in the analysis area.

The term *nonmarket values* refers to the benefits individuals attribute to experiences of the environment or uses of natural and cultural resources that do not involve market transactions

and therefore lack prices. Examples include the benefits received from wildlife viewing, hiking, or hunting for recreation. An understanding of nonmarket values in the analysis area helps to put economic values and impacts into a broader socioeconomic context. Refer to the *Nonmarket Values* section in Appendix U, *Economic Assessment Report*, for additional information.

3.21.2 Environmental Justice

EJ analyses seek to assess the impacts, and especially any disproportionately adverse impacts, on minority or low-income communities. Executive Order 12898 established a requirement for Federal agencies to incorporate EJ considerations into planning and decision processes to help ensure that no person or group bears a disproportionate burden of negative impacts (White House Archives 1994). In 1997, the Council on Environmental Quality issued guidance for considering EJ within the NEPA process (CEQ 1997). Refer to Executive Order 12898 and Council on Environmental Quality guidelines for more information on the definitions and considerations pertinent to this action. Refer to Section 2.5.1, *Environmental Justice* (pages 131–132), in the AMS (BLM 2018b) for more information on the minority percentage or income status thresholds for evaluating potential environmental effects of projects. Refer to Appendix T (*Socioeconomic Baseline Report*), *Social Conditions* (pages T-10–T-17), for more information on social conditions in the study area.

According to the AMS, a low-income and minority EJ population is present for the purposes of this analysis because the proportion of low-income and minority residents in Coconino County is more than 10 percentage points higher than the proportion of low-income and minority residents in the reference population. Coconino County also is home to a Native American EJ population for the purposes of this analysis. Refer to Section 2.5.1, *Environmental Justice* (pages 131–132), in the AMS (BLM 2018b) for data on the low-income, minority, and Native American populations in the three counties of the study area as well as the State of Utah.

3.21.3 Native American Religious Concerns

Although there are small populations of Native American peoples in Garfield and Kane Counties, there is a sizeable Native American population living in Coconino County with members of at least 27 different Alaska Native and American Indian Tribes represented in Coconino County. In addition, the Kaibab Band of Paiute Indian Reservation is approximately 10 miles from the southwest extent of the Planning Area and the Navajo Reservation is approximately 10 miles from the southeast extent of the Planning Area. While there are no identified tribal treaty rights in the Planning Area, Native American populations continue to utilize portions of the Planning Area for plant collection and other traditional and religious uses and various tribes have a stake in how cultural resources and other resources are managed in the Planning Area. The BLM conducts formal consultation annually with the Kaibab Band of Paiute Indians, Hopi, Zuni, Navajo, Ute, and Paiute Indian Tribes of Utah tribes. Refer to Section 3.2, *Cultural Resources*, for more information on Native American history and uses of the Planning Area.

3.21.4 Hazardous Materials and Public Safety

No hazardous, toxic, or unapproved solid waste sites are known to occur on public lands in GSENM. The potential for use, storage, and transport of hazardous wastes in the Planning Area is generally limited to minor quantities in areas of ongoing oil production in the Upper Valley

Field. The use, storage, and transport of hazardous materials is generally limited in the remainder of the Planning Area due to the limited amount of industrial and other development that would be associated with hazardous materials. Public safety issues in the Planning Area are generally related to fires and fire response, traffic and traffic accidents, and injuries associated with recreation and other public land uses and geologic hazards (e.g., rock climbing, OHV accidents, landslides).

3.21.5 Environmental Consequences

3.21.5.1 Methods and Assumptions

This section describes potential direct, indirect, and cumulative socioeconomic effects that could result from implementation of the alternatives. Potential economic impacts include changes in employment, income, business costs, and tax revenue to local, State, and Federal Government entities. Changes in employment and income can then result in indirect socioeconomic impacts, such as changes in population, which can lead to community impacts on housing, infrastructure, and other government services.

Impacts on socioeconomics would primarily result from the following impact mechanisms:

- Mineral development
- Grazing management (e.g., changes in AUMs)
- Recreation management
- Forestry product management
- Nonmarket value impacts

Effects on social and economic conditions from these impact mechanisms are generally described in a qualitative fashion, with acreages and other metrics provided where appropriate and available. Quantitative economic impact analysis requires that sufficient information exists to quantify current conditions or a change in the value of production or in costs or expenditures resulting from a specific management action or set of actions. Where sufficient data exist, these changes in value or costs can then be analyzed with an economic model to estimate likely changes in employment and income. In other cases, employment and income effects cannot be quantified, but the basic data on costs and values can be presented.

Where quantifiable, employment and income impacts are estimated in this study with the IMPLAN input-output model (IMPLAN version 3.1). IMPLAN is a regional economic impact model that provides a mathematical accounting of the flow of dollars and commodities through a region's economy. The region, or socioeconomic study area, for economic impacts in this study is Garfield and Kane Counties. The IMPLAN model requires inputs of impacts on industries in the analysis area, in terms of changes in the value of production or expenditures. These changes in value or cost require data and assumptions specific to the study area. Refer to Appendix U, *Economic Assessment Report*, for additional information on IMPLAN analysis methods, assumptions, inputs, and results.

The socioeconomic impacts analysis is based on the following general assumptions:

- Under all alternatives, BLM management of public lands would not alter current population growth trends or demographic characteristics. As described in Appendix T, *Socioeconomic Baseline Report*, the population of the analysis area is expected to increase consistent with recent trends with growth rates generally lower than the statewide average. Because

demand for housing and public services is determined largely by population growth, the demand for housing and public services is expected to increase at a similar rate as population growth during the planning period.

- In general, BLM management of public lands would maintain a balance between multiple uses. Consequently, groups with interests in the economic use of Federal lands (e.g., for grazing or mining) or groups with interests in conservation would continue to be provided with a range of multiple uses on BLM-administered surface lands in the Planning Area.
- The economic assessment is based on the methods and assumptions described in Appendix U, *Economic Assessment Report*.

3.21.5.2 Socioeconomic Impacts

Total Economic Effects

This section summarizes the total economic effects resulting from the IMPLAN modeling. Refer to Appendix U, *Economic Assessment Report*, for additional information on economic terminology and the IMPLAN modeling methods and results.

The IMPLAN model showed total economic effects from GSENM management would generally be greatest under Alternative D, followed by Alternative A, then Alternative C, with Alternative B having the least economic effect. Alternative D would generally have the greatest economic effect due to the increased potential for resource use (e.g., livestock grazing) compared to the other alternatives. Alternative A would have a slightly higher economic effect than alternatives B and C due to a higher number of active AUMs under this alternative. Total modeled employment ranges from 537 jobs supported annually in Alternative B to 549 jobs supported annually in Alternative D. Similarly, total industry activity ranges from \$30.79 million annually in Alternative B to \$31.25 million annually in Alternative D.

The IMPLAN model showed total economic effects from KEPA management would generally be greatest under Alternative D, followed by Alternative C, then Alternative A, with Alternative B having the least total economic effect. Alternative D generally has the greatest economic effect due to the increased potential for minerals development and resource use in KEPA compared to the other alternatives. Total employment ranges from 396 jobs supported annually in Alternative B to 503 jobs supported annually in Alternative D. Similarly, industry activity ranges from \$23.41 million annually in Alternative B to \$38.42 million annually in Alternative D.

Refer to Appendix U, *Economic Assessment Report*, for additional information on modeled total economic effects under the alternatives.

Minerals Development

Under all action alternatives, certain areas in KEPA are available for mineral leasing, mineral material disposal, and locatable mineral exploration and development. Minerals-related economic impacts would be associated with job opportunities from mineral projects; increased economic inputs and revenue associated with wages, expenditures, and sales of mined products; and royalties and payments to Federal and State economies resulting from the extraction and sale of minerals. In general, Alternative D would result in the greatest potential for minerals development and associated economic impacts, followed by Alternative C, then Alternative B, with Alternative A having the least potential impacts associated with mineral development. Alternative D would increase potential economic effects due to the increased

potential for minerals development in KEPA, compared to the other alternatives. Refer to Appendix U, *Economic Assessment Report*, for additional information on IMPLAN modeled results and associated economic effects for oil and gas development, coal development, locatable mineral development, and mineral material disposal under the management alternatives.

Minerals development could also result in long-term impacts on social and economic conditions. For oil and gas and other extractive mineral projects, the majority of jobs, revenue, and expenditures occur during the construction or development phase of projects, creating a “boom” in population growth and economic activity. However, when minerals development rapidly decreases due to project completion, market conditions, or closing areas to minerals development, “bust” cycle impacts can occur. Bust cycle effects can result in decreased population, decreased school enrollment, reduced employment, reduced labor income, and overall reduced economic activity. Given the limited outlook for minerals development described in the *Mineral Potential Report* and RFD (BLM 2018c), the potential for substantial boom and bust cycles and associated socioeconomic impacts would be less than for other regions in Utah that have experienced larger-scale minerals development.

Minerals development could also result in adverse impacts on recreation and other public land users if those users, or the experience of users, is degraded by the development and operation of mineral projects. In addition, minerals development could result in adverse impacts on nonmarket values such as air quality, scenic views, ecosystem services, and other nonmarket values, which could affect social and quality of life conditions. Due to the greatest potential for minerals development and resource use, Alternative D would increase the potential for impacts on nonmarket values, compared to the other alternatives.

Grazing Management

Potential impacts on socioeconomics could result from grazing management actions associated with allocation of AUMs, areas identified as unavailable to grazing, management that affects livestock grazing access and operations, management that results in conflicts with livestock grazing, and management that affects rangeland conditions (i.e., BLM *Utah Standards for Rangeland Health*). The assessment of potential impacts on socioeconomic conditions resulting from grazing management focuses on impacts associated with AUMs, areas unavailable to grazing, and management that affects rangeland conditions.

The primary impacts on economic conditions are associated with changes in AUM allocations and the associated value of AUMs. The alternatives include variations in allocated AUMs, with Alternative D allocating the most active AUMs, followed by Alternative A and Alternative C with relatively similar AUM allocations, and Alternative B having the least amount of AUMs allocated. Livestock grazing-related employment, income, and economic activity would be greatest under Alternative D, followed by alternatives A and C, with Alternative B having the least economic impact, primarily resulting from the reduced level of AUMs in Alternative B compared to the other alternatives. Refer to Appendix U, *Economic Assessment Report*, for additional information on the IMPLAN economic modeling methods and modeled economic effects associated with grazing management in the alternatives. It is important to note that livestock grazing permittees may experience other market- and nonmarket-based impacts associated with livestock grazing management as described in Section 3.12, *Livestock Grazing*.

As noted by Torell et al. (2002), if a ranch is seasonally dependent on Federal forage, reducing AUMs can create forage imbalances and produce a greater reduction in grazing capacity than just the loss of Federal AUMs. The impact of eliminating or reducing grazing during selected seasons would depend on ranch resources and the substitute forage alternatives that are economically and physically available (Torell et al. 2014).

Healthy rangeland ecosystems can provide multiple goods and services that can increase the economic, social, and cultural well-being of individuals and communities. For example, healthy rangelands can provide for increased forage and production value, improved quantity and quality of water, and improved ecosystem function/services that benefit social and economic conditions. In general, Alternative B includes the greatest restrictions and requirements on lands available for grazing and stocking rates (expressed as AUMs) to meet *BLM Utah Standards for Rangeland Health*, thereby increasing costs and limiting a permittee's flexibility and available management tools, resulting in adverse social and economic impacts on those that depend on grazing. Alternatives C and D, respectively, emphasize other actions to improve rangeland health versus changing stocking rates, limiting potential adverse effects on permittees and associated social and economic impacts.

Recreation Management

BLM management decisions would affect market values associated with recreation primarily by identifying group size limits, designating SRMAs and RMZs with targeted recreation opportunities and management, and implementing other recreation management that could influence the number of recreation visitors in the Planning Area (e.g., management of competitive events, camping, and parking). Visitation results in expenditures in the local economy, such as at restaurants or gas stations, and generates economic activity measured by indicators such as economic output, employment, and labor income.

The IMPLAN model showed economic effects associated with recreation management in both GSENM and KEPA would generally be greatest under alternatives B and C and least under alternatives D and A. Alternatives B and C would designate and manage a larger amount and a larger acreage of SRMAs and RMZs for targeted recreation opportunities and management, which may slightly increase recreation visitors interested in those targeted recreation activities in the SRMAs/RMZs. However, Alternative D would increase group size limits compared to the other alternatives, which may increase visitors and recreation use in GSENM, and associated economic activity, compared to the other alternatives. Total modeled employment associated with recreation management in GSENM ranges from 484 jobs supported annually under Alternative D to 499 jobs supported annually under Alternative B. Total modeled industry activity associated with recreation management in GSENM ranges from \$28.1 million annually under Alternative D to \$28.9 million annually under Alternative B. Total modeled employment associated with recreation management in KEPA ranges from 341 jobs supported annually under Alternative D to 351 jobs supported annually under Alternative B. Total modeled industry activity associated with recreation management in KEPA ranges from \$19.8 million annually under Alternative D to \$20.4 million annually under Alternative B. As indicated by the results reported above and further detailed in Appendix U, *Economic Assessment Report*, variations in recreation management among the alternatives are not anticipated to result in significant variations in economic effects. Continued trending increases in recreation use and visitation in the Planning Area are more likely to affect economic conditions than variations in recreation management in the alternatives.

Refer to Appendix U, *Economic Assessment Report*, for additional information on the IMPLAN economic modeling methods and modeled economic effects associated with recreation management in the alternatives.

Forestry Product Management

The economic analysis of forestry-related activity considered the permit fees received by the BLM for both Christmas tree and wood permits, as well as the amount spent on stewardship contracts, as described in *Methodology* section of Appendix U, *Economic Assessment Report*. In general, the overall economic activity (i.e., employment, labor income, industry activity) associated with forestry activities and management would be minimal in the context of the analysis area economy and would generally be similar across the alternatives.

Refer to Appendix U, *Economic Assessment Report*, for additional information on the IMPLAN economic modeling methods and modeled economic effects associated with forestry management in the alternatives.

Nonmarket Value Impacts

Appendix U, *Economic Assessment Report*, describes a variety of nonmarket values relevant to the Planning Area including nonmarket use values, non-use values, Special Designation and enhancement values, tribal uses and values, ecosystem service values, and social values. In general, alternatives that reduce development potential and increase the potential for conservation of the natural environment confer beneficial impacts on non-use values, enhancement values, and ecosystem service values and can also confer beneficial impacts on tribal uses and values by protecting natural resources and tribal use areas/sites. As a result, alternatives B and A would decrease potential adverse impacts on these values compared to alternatives C and D. In general, alternatives that increase potential resource use, especially historic (e.g., grazing) and traditional uses, confer beneficial impacts on nonmarket use values and social values and can also confer beneficial impacts on tribal uses by providing for increased opportunities for tribal use of resources (e.g., plant collecting without a permit). As a result, alternatives D and C would increase potential beneficial impacts on these nonmarket values compared to alternatives B and A.

All alternatives include a variety of implementation-level decisions that would provide opportunities to conduct research, outreach, and education associated with resources in GSENM. These implementation-level decisions include requesting researchers to integrate a public outreach and education component as part of research; cataloguing inventory of natural, cultural, and socioeconomic knowledge; cooperating with colleges and universities on research and outreach; facilitating the transfer of research to the public; and improving the understanding of carbon capture associated with soil and rangeland management in the Planning Area. These activities are expected to result in beneficial impacts on monument resources and nonmarket values by increasing the understanding of GSENM resources and values and their function in the overall ecological systems for the public and other interested parties.

Refer to Appendix U, *Economic Assessment Report*, for additional information on nonmarket values associated with the Planning Area.

Cumulative Effects

The cumulative impacts analysis area for socioeconomic impacts includes the extent of Garfield and Kane Counties in Utah and Coconino County in Arizona. As summarized in the sections above and further detailed in Appendix U, *Economic Assessment Report*, variations in management across the alternatives would generally result in relatively minor differences in impacts on employment, labor income, and industry activity in the analysis area. However, these effects in combination with other past, present, and reasonably foreseeable actions would result in cumulative impacts. Past, present, and reasonably foreseeable projects that may contribute to cumulative impacts include mining development in the analysis area (e.g., the Upper Valley Field), large ROWs and other linear projects such as the Lake Powell pipeline, increased recreation and visitation across the analysis area, and other projects or actions that increase the potential for jobs, higher wages, economic output, and royalties and taxes.

In addition, a variety of Federal, State, and local resource and land management plans can guide development and contribute to cumulative impacts. Past, present, and reasonably foreseeable plans that could affect social and economic conditions include Garfield County and Kane County RMPs and comprehensive plans, Capitol Reef National Park Livestock Grazing and Trailing Management Plan and EIS, BLM Kanab Field Office RMP, and management plans for national parks and forests in the analysis area. Refer to Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*, for more information.

The impact of management alternatives on population growth in the area and demand for housing and public services is largely derived from the impact of management alternatives on employment opportunities in the area, and would likely be indistinguishable among alternatives, given current growth trends and the relatively small magnitude of the impact of alternatives on employment.

3.21.5.3 Environmental Justice

Direct and Indirect Effects

There is no information to suggest that adverse impacts on resources, resource uses, or special designations would affect identified minority or low-income populations differently than the general population of the analysis area. This conclusion is based on the following:

- The BLM found no evidence that adverse impacts identified by the analysis of each resource, resource use, and special designation would fall primarily on one or more of the identified minority or low-income populations. Because management actions would typically be dispersed throughout the public lands in the Planning Area, adverse impacts would tend to not be concentrated in locations where minority or low-income populations are present.
- The BLM found no evidence to suggest that any of the identified minority or low-income populations were subject to cumulative or multiple exposure to high and adverse environmental and health effects.
- No differential patterns of consumption of fish and wildlife were identified that would cause impacts on fish or wildlife under any of the management alternatives to be high and adverse and disproportionately affect minority or low-income populations.

- No pathways were identified that indicate greater physical sensitivity of any of the identified minority or low-income populations to particular impacts.

Cumulative Effects

The cumulative impact analysis area for EJ impacts includes the extent of Garfield and Kane Counties in Utah and Coconino County in Arizona. These areas encompass the range within which EJ communities may experience direct or indirect effects from management actions and reasonably foreseeable future actions. As noted above, there are no anticipated direct or indirect impacts that would disproportionately affect EJ communities. As a result, the RMPs are not anticipated to contribute to or lead to cumulative impacts related to EJ.

3.21.5.4 Native American Religious Concerns

In general, alternatives A and B would increase the potential for protecting natural and historic resources important to Native Americans through increased special designations, allocations, and management that would preserve natural and historic resources important to Native Americans. All alternatives would allow for Native American collection of vegetation and forest products for traditional uses, but with variation in permit requirements. Alternative D would allow Native American non-commercial traditional use of vegetation and forest and woodland products for the collection of herbs, medicines, traditional use items, or items necessary for traditional, religious, or ceremonial purposes without a permit. Alternative B would allow Native American non-commercial traditional/ceremonial use of vegetation and forest and woodland products without a permit, but would require a free-use permit for non-commercial personal use collection of vegetation and forest and woodland.

Refer to Section 3.2, *Cultural Resources*, for additional information on potential impacts on tribal uses, cultural/religious sites, and other areas and resources important to Native Americans.

Cumulative Effects

Direct and indirect impacts associated with management in the RMPs could combine with other past, present, and reasonably foreseeable future project impacts, resulting in cumulative impacts on Native American religious concerns and values. Past, present, and reasonably foreseeable projects could contribute to cumulative impacts on Native American religious concerns and values if the project degrades or diminishes resources important to Native Americans, such as historic settings or vegetation materials used for traditional purposes. Surface-disturbing projects would have the most potential to contribute to these cumulative impacts, such as the Lake Powell pipeline and other buried fiber optic lines, vegetation treatments such as the Upper Paria Watershed Vegetation Treatments, and other surface-disturbing projects identified in Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*. In general, alternatives C and D would increase the potential for development projects that could contribute to cumulative impacts, compared to alternatives A and B, which generally have less potential for surface disturbance and development.

3.21.5.5 Hazardous Materials and Public Safety

Direct and Indirect Effects

The potential for adverse impacts from hazardous materials and waste could result from any activity that involves human presence; these adverse impacts would be similar under all alternatives. These activities would typically include recreation, mineral exploration and development, and ROW development, because all could increase risks associated with generation, use, transport, and storage of hazardous wastes and materials. However, mineral activities are the most likely activities to increase the risk of hazardous wastes and materials generation. Therefore, management that allows an increase in mineral resource extraction could have short-term, adverse impacts. Alternative D is likely to result in the greatest potential impacts, followed by Alternative C and Alternative B, with Alternative A having the least potential for minerals development and thus the least potential for impacts associated with hazardous materials.

Under all alternatives, adverse impacts would be limited through the BLM's application of Federal regulations regarding hazardous materials, substances, and waste; national contingency plans; BLM policies on hazardous waste disposal; and continued coordination with Federal and State partners regarding hazardous materials and waste issues. Any BLM-administered surface land sites contaminated with hazardous wastes would be reported, secured, and remediated according to applicable Federal and State regulations and contingency plans. Such efforts would be costly and likely involve several regulatory agencies and other entities or individuals. If remediation of a large hazardous waste site were necessary, considerable funding would be required for the public health and safety program to support the remediation effort, which could result in major impacts. However, the BLM does not anticipate any substantial new hazardous materials sites on public lands in the Planning Area due to the limited potential for and anticipated interest in mineral and mining activities in the Planning Area (see Section 3.13, *Minerals*, for additional information).

Cumulative Effects

The cumulative impact analysis area for hazardous materials and public health and safety is the Planning Area and any routes used to transport hazardous materials to and from the Planning Area. While the potential for minerals development in the Planning Area is relatively minimal, any increase in mining and minerals development activity could contribute to increases in hazardous materials and thus increases in potential cumulative impacts. Past, present, and reasonably foreseeable future projects identified in Appendix N, *Cumulative Impact Methodology and Past, Present, and Reasonably Foreseeable Future Actions*, that could increase hazardous materials use, storage, and transport include other mineral projects (e.g., Upper Valley Field), transmission lines (e.g., Garkane transmission line), and pipelines (e.g., Lake Powell pipeline).

4 Consultation and Coordination

4.1 Introduction

This chapter documents the Bureau of Land Management's (BLM's) public outreach, consultation, and coordination efforts throughout the preparation of the Resource Management Plans (RMPs)/Environmental Impact Statement (EIS). Federal law (40 Code of Federal Regulations [CFR] 1506.6) provides guidance for ensuring public involvement in land use planning in accordance with the National Environmental Policy Act (NEPA). Title II, Section 202 of the Federal Land Policy and Management Act (FLPMA) directs the BLM to coordinate its land use planning with that of tribes, other Federal agencies, and State and local governments, to the extent that those external plans are consistent with the laws governing the BLM-administered surface lands. Presidential Proclamation 9682 also directs the BLM to undertake monument planning with maximum public involvement including, but not limited to, consultation with federally recognized tribes and State and local governments and to consult with other Federal land management agencies in the local area in developing the management plans.

4.2 Public Collaboration and Outreach

Public involvement is vital and legally mandated when creating an RMP/EIS (BLM 2005b). In developing these Draft RMPs/EIS, the BLM solicited public input during public scoping, during a socioeconomic comment period, and during the public comment period for these RMPs/EIS. The BLM's public outreach and collaboration are ongoing throughout the development of these RMPs/EIS.

4.2.1 Scoping

4.2.1.1 Scoping Process

The intent of the scoping process is to obtain public input when identifying issues to be addressed in the RMPs/EIS. The BLM formally initiated the external scoping process for the RMPs and EIS on January 16, 2018, with publication of a notice of intent in the *Federal Register* (83 FR 2179). The public scoping period closed on April 13, 2018, 15 days after the last public meeting was held on March 29, 2018, for a total scoping period of 107 days.

In addition to the notice of intent, outreach methods included (1) a January 16, 2018, media release identifying the start of the public scoping period and methods by which interested parties could comment; (2) a March 9, 2018, media release announcing meeting dates and locations; and (3) scoping notification letters sent to the BLM's interested party list.

4.2.1.2 Scoping Meetings

The BLM hosted two public scoping meetings in March 2018 (Table 4-1). These meetings gave the public the opportunity to learn about the RMPs/EIS and identify additional planning issues.

Table 4-1. Scoping Meetings and Attendance

Date and Time	Location	Approximate Number of Attendees
March 28, 2018	Kanab, Utah	191
March 29, 2018	Escalante, Utah	211

Source: BLM 2018a

Refer to Section 2.3, Opportunities for Public Comment (page 2), in the Scoping Report (BLM 2018a) for more information on methods and opportunities for public comment.

4.2.1.3 Scoping Results

The BLM received 120,061 submissions from the public during and after the official public scoping period. Comments received were coded according to issue categories. The issue categories that were identified most frequently were: (1) process; (2) purpose and need; (3) alternatives; (4) natural, biological, and cultural resources; (5) resource uses; (6) special designations; and (7) social and economic considerations. Refer to Appendix A, Comment Summary by Resource Topic (pages A-1 through A-124), in the Scoping Report (BLM 2018a) for a summary of public comments.

4.2.2 Socioeconomic Workshop and Comment Period

In accordance with the BLM Land Use Planning Handbook (H-1601-1), the BLM hosted a socioeconomic workshop on May 31, 2018. The workshop provided an opportunity for local government officials, community leaders, and other citizens to discuss regional economic conditions, trends, and strategies with BLM managers and staff. During the workshop, the BLM solicited comments from attendees; the BLM also accepted socioeconomic comments through June 8, 2018. During the workshop, five attendees provided oral comments and an additional 11 people submitted written comments during the comment period.

The BLM considered input received at the socioeconomic workshop and during the comment period in the development of alternatives and in the analysis of environmental consequences.

4.3 Consultation and Coordination

This section documents the consultation and coordination efforts undertaken by the BLM throughout the RMPs/EIS process. The BLM coordinates with a variety of organizations who have interests in the Planning Area during RMPs/EIS development. These organizations are largely governmental bodies with responsibility for creating, administering, and monitoring policy on public lands within the Planning Area. Consultation with these parties occurs throughout the development of the RMPs/EIS.

4.3.1 Cooperating Agencies

The regulations implementing NEPA allow Federal agencies to invite tribal, State, and local governments, as well as other Federal agencies, to serve as cooperating agencies during the NEPA process. To serve as a cooperating agency, the potential agency or government entity must have either jurisdiction by law or special expertise relevant to the environmental analysis. Refer to Section 2.5, Cooperating Agency Involvement (page 2), in the Scoping Report (BLM 2018a), for a list of the agencies and tribes that were invited to be cooperating agencies.

Cooperating agencies are Federal, State, or local government agencies or Native American tribes that enter into a formal agreement with the BLM to help develop the environmental analysis for the RMPs/EIS. The BLM invited seven agencies to be cooperating agencies; of these, five signed formal memoranda of understanding with the BLM to share knowledge and resources throughout development of the RMPs/EIS.

Table 4-2 below depicts the Federal, State, and local agencies as well as other organizations that participated as cooperating agencies on the RMPs/EIS.

Table 4-2. Cooperating Agencies

Agency Type	Agency Name
Federal	National Park Service
State	Public Lands Policy Coordinating Office
Local	Kane County, Garfield County
Tribal	Kaibab Band of Paiute Indians

The BLM held initial cooperating agency meetings from May 8 through May 11, 2018, to familiarize cooperators with the RMP development process and to develop alternatives. The BLM held another workshop with the cooperating agencies on May 29 and May 30, 2018, for them to comment on and further refine the alternatives. The BLM provided cooperating agencies opportunities to review and comment on administrative draft versions of the RMPs/EIS and worked with cooperating agencies throughout the process to refine and finalize content.

Presidential Proclamation 9682 clarified “that consistent with protection of the objects identified above and other applicable law, the Secretary may allow motorized and non-mechanized vehicle use on roads and trails existing immediately before the issuance of Proclamation 6920 and maintain roads and trails for such use.” During the review of the administrative draft EIS, both Kane and Garfield Counties submitted maps to the BLM that illustrate routes that they identified as existing prior to designation of Grand Staircase-Escalante National Monument (GSENM) on September 18, 1996. The BLM is in the process of reviewing this information, and following further discussion with the Counties, will take this information into consideration when initiating implementation-level travel planning.

4.3.2 Native American Tribes

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, requires Federal agencies to coordinate and consult on a government-to-government basis with sovereign Native American tribal governments whose interests may be directly and substantially affected by activities on federally administered lands. Consultation with federally recognized Native American tribes is also required under NEPA, FLPMA, and Presidential Proclamation 9682. Additionally, there are numerous laws, regulations, and guidance requiring tribal consultation to identify any Native American cultural values, religious beliefs, or traditional practices that could be affected by BLM actions on Federal lands. The BLM invited the following six tribes to participate as Cooperating Agencies:

- Kaibab Band of Paiute Indians
- Paiute Indian Tribe of Utah

- Uintah and Ouray Ute Tribe
- Navajo Nation
- Hopi Tribe
- Pueblo of Zuni

The Kaibab Band of Paiute Indians accepted the invitation and participated as a Cooperating Agency during development of the RMPs/EIS. The BLM initiated government-to-government consultation with nine tribes, including:

- Hopi Tribe
- Kaibab Band of Paiute Indians
- Navajo Nation
- Paiute Indian Tribes of Utah
- Pueblo of San Felipe
- San Juan Southern Paiute Tribe
- Shivwits Band of the Paiute Indians
- Ute Indian Tribe of the Uintah and Ouray Reservation
- Pueblo of Zuni

Tribal consultation and related actions will continue throughout the planning process. The BLM will meet with interested tribes to discuss tribal concerns during the public comment period on the Draft RMPs/EIS.

4.3.3 Additional Consultation

4.3.3.1 U.S. Fish and Wildlife Service

Presidential Proclamation 9682 directs the BLM to consult with other Federal land management agencies in the local area during the development of the RMPs. During preparation of these RMPs/EIS, the BLM initiated informal consultation with the U.S. Fish and Wildlife Service (USFWS). The BLM provided the USFWS opportunities to review and comment on administrative draft versions of the RMPs/EIS and has made revisions based on USFWS comments and concerns. The BLM will continue to coordinate with the USFWS in compliance with Section 7(c) of the Endangered Species Act of 1973. Following development of the Proposed RMPs, the BLM will consult with USFWS to develop a biological assessment.

4.3.3.2 State Historic Preservation Officer Consultation

During preparation of these RMPs/EIS, the BLM coordinated with state agencies, including the State Historic Preservation Officer (SHPO). The SHPO has been included as a cooperating agency within the Memorandum of Agreement with the State of Utah and the Public Lands Policy Coordination Office. The Public Lands Policy Coordination Office is responsible for coordinating and commenting on all proposals for Utah's public lands. The BLM, in conversation with the SHPO, has determined that the BLM can meet Section 106 public involvement requirements through the NEPA process, as provided by 36 CFR 800.8. The National Park Service (NPS) will be designated as a co-lead Federal agency to serve as the agency official responsible for fulfilling its collective responsibilities under Section 106 of the National Historic Preservation Act pursuant to 36 CFR 800.2(a) when GSENM-administered grazing undertakings occur within the Glen Canyon National Recreation Area's boundary on both BLM and NPS lands. The designation will be documented in the environmental record prepared for NEPA and during Section 106 consultation. Where such future actions have the potential to cause effects on

historic properties located on lands under the jurisdiction of the NPS, Glen Canyon National Recreation Area will remain responsible for making determinations of eligibility, assessment of effects, and treatment of effects for those properties. Additionally, the BLM will be the agency responsible for complying with Section 106 of the National Historic Preservation Act on BLM-administered surface lands and the NPS will be the responsible agency on Glen Canyon National Recreation Area lands.

4.4 List of Preparers

An interdisciplinary team of BLM resource specialists and independent consulting firms prepared the Draft RMPs/EIS with the help of cooperators and input from the public. Refer to Appendix D, *List of Preparers*, for more information.

