Appendix Q

Biologic Opinion for the Grand Junction Field Office

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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IN REPLY REFER TO:
ES/GJ-6-CO-15-F-003
TAILS: 06E24100-2015-F-003

April 27, 2015

Memorandum

To: Field Manager, Grand Junction Field Office, Bureau of Land Management, Grand Junction, Colorado

From: Acting Western Colorado Supervisor, Western Colorado Ecological Services Office, Grand Junction, Colorado

Subject: Biological Opinion – Revision of the Resource Management Plan for the Grand Junction Field Office

This responds to your October 3, 2014, submission of a biological assessment (BA), to the US Fish and Wildlife Service (Service) requesting formal Section 7 consultation on the effect of the subject project on species and habitats listed under the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.; [Act]). The project described in your memorandum and the accompanying BA occurs on the Grand Junction Field Office (GJFO) located in Garfield, Mesa, and Montrose Counties, Colorado. We received your request on October 3, 2014.

The Bureau of Land Management (BLM) is proposing a revised Resource Management Plan (RMP). The RMP provides direction for managing public lands administered by the BLM's GJFO in Colorado. The BA describes the effects caused by implementing the RMP. The revised RMP replaces the previous 1987 RMP, and is a refinement of the preferred alternative (Alternative B) described in the Draft RMP, released on January 25, 2013.

The GJFO determined there are 12 federally listed, and one candidate species affected by the proposed action. The species identified by the BLM as potentially affected by the proposed action are listed in Table 1 below. Since the BA was originally submitted in October 2014, the Service listed the Gunnison sage-grouse (*Centrocercus minimus)* (GUSG), as a threatened species (79 FR 69192), and concurrently designated critical habitat for the GUSG (79 FR 69312). Therefore, there are 13 federally listed species within the GJFO.

Table 1
List of Threatened, Endangered, Proposed and Candidate Species Addressed in Grand Junction Field Office RMP Biological Assessment

Common Name	Species Name	Federal Status[1]
Listed Species for Potential Consultation		
Plants		
Colorado hookless cactus	*Sclerocactus glaucus*	T
DeBeque phacelia[2]	*Phacelia submutica*	T
Parachute penstemon[2]	*Penstemon debilis*	T
Ute ladies'-tresses	*Spiranthes diluvialis*	T
Fish		
Colorado pikeminnow[2]	*Ptychocheilus lucius*	E
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	T
Razorback sucker[2]	*Xyrauchen texanus*	E
Bonytail[2]	*Gila elegans*	E
Humpback chub[2]	*Gila cypha*	E
Birds		
Mexican spotted owl	*Strix occidentalis lucida*	T
Greater sage-grouse	*Centrocercus urophasianus*	C
Gunnison sage-grouse[2]	*Centrocercus minimus*	T
Western yellow-billed cuckoo[3]	*Coccyzus americanus*	T
Mammals		
Canada lynx	*Lynx canadensis*	T

[1]Status: E = Endangered; T = Threatened; P = Proposed for listing; C = Candidate for listing
[2]Critical Habitat
[3]Critical habitat proposed

The BLM made the following effects determinations for listed, proposed, or candidate species and critical habitat, where applicable:

May affect, not likely to adversely affect:
Parachute penstemon*
Ute ladies'-tresses
Greenback cutthroat trout
Mexican spotted owl
Greater sage-grouse
Gunnison sage-grouse critical habitat
Western yellow-billed cuckoo
Canada lynx

May affect, likely to adversely affect:
Colorado hookless cactus
DeBeque phacelia*

Colorado pikeminnow*
Razorback sucker*
Bonytail*
Humpback chub*
Gunnison sage-grouse

*Includes critical habitat.

Based on our review of the information provided in your BA, we concur with the determination that the proposed action may affect, but is not likely to adversely affect the Parachute penstemon and its critical habitat, Ute ladies' tresses, greenback cutthroat trout, Canada lynx, Mexican spotted owl, western yellow-billed cuckoo, and may affect, but is not likely to adversely affect critical habitat for Gunnison sage-grouse. While we recognize the direction included in the RMP to conserve the greater sage-grouse and would like to continue working with you on this species' conservation, this is a candidate species and an official determination under section 7 consultation is inappropriate. We will not consider the greater sage-grouse further herein.

We also agree with your determination of may affect, and likely to adversely affect, for the following species: Colorado hookless cactus, DeBeque phacelia, and Gunnison sage-grouse, Colorado pikeminnow, razorback sucker, bonytail, and humpback chub. We address these species in the biological opinion (BO) below.

Section 7 (a) (4) of the Act requires conferencing with the Service when a proposed action is likely to jeopardize the continued existence of a proposed species or destroy or adversely modify proposed critical habitat. Because the BA concluded that the proposed action is not likely to adversely affect proposed critical habitat for the western yellow-billed cuckoo, we assume that BLM's conclusion is that implementation of the revised RMP is not likely to destroy or adversely modify their critical habitat. Since conferencing is not required, critical habitat issues for this species will not be further addressed herein.

CONSULTATION HISTORY

The consultation history for the proposed action consists of informal discussions with the Northwest Level One Team, and discussion between the Service and the BLM.

The Service issued two programmatic section 7 BOs in western Colorado, analyzing water depletions resulting from the BLM's activities in the Colorado River basin. These consultations include the December 19, 2008, "Programmatic Biological Opinion (PBO) for Water Depletions Associated with the BLM's Fluid Mineral Program within the Upper Colorado River Basin in Colorado" (ES/GJ-6-CO-08-F-006), and the February 25, 2009, "PBO for Water Depletions Associated with BLM's projects (excluding Fluid Mineral Development within the Upper Colorado River Basin in Colorado" (ES/GJ-6-CO-08-F-0010). Both BOs address adverse effects to the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail, and their respective critical habitats, associated with depletions resulting from projects and activities in the revised RMP. Water depletions resulting from oil and gas exploration and development on the

GJFO fall under the two respective BLM PBOs. Therefore, the section 7 consultation requirement for the Colorado River fishes is fulfilled.

On July 27, 2010, the Service provided concurrence of may affect, not likely to adversely affect the Colorado hookless cactus (Tails: 65413-2010-I-0138) for the Integrated Weed Management Plan (IWMP) for the GJFO. On September 24, 2014, the Service provided concurrence of may affect, not likely to adversely affect the Parachute penstemon and DeBeque phacelia, and their respective critical habitat (06E24100-2014-I-0185) for effects caused by the IWMP.

On November 12, 2012, the Service issued BO number ES/GJ-6-CO-12-F-006 (Tails: 06E24100-2012-F-0020). This opinion documented the effects of livestock grazing to listed plant species within the GJFO (among other field offices).

This BO is based on the BA prepared for the proposed action, previous programmatic BAs and BOs pertaining to vegetation management and livestock grazing applicable to the GJFO for plant species, listing and critical habitat decision documents, information contained in scientific literature, and other sources of information. For GUSG the BLM used the GUSG Rangewide Conservation Plan (RCP) (GUSG Rangewide Steering Committee (GSRSC) 2005), our January 11, 2013, proposed rule of endangered status for the GUSG, our January 11, 2013, proposed rule to designate critical habitat, final listing and critical habitat rules of November 20, 2014, information contained in scientific literature, and other sources of information. A complete administrative record of this consultation is on file in the Service's Western Colorado Office, Grand Junction, Colorado.

BIOLOGICAL OPINION

PROPOSED ACTION

The proposed action consists of implementation of the revised RMP for the GJFO of the BLM. The RMP provides strategic guidance for future management of BLM lands managed by the GJFO. The RMP provides a decision-making framework and guides resource management programs, practices, uses, and projects. The RMP revision does not include specific project and activity decisions. Those decisions are made later, after more detailed analysis and further public involvement.

Key Decisions

The proposed RMP revision contains the following key components and decisions that comprise the GJFO's management system.

- The establishment of goals, objectives, actions, allowable uses, allocations, restrictions, and prohibitions.
- The establishment of desired outcomes, including multiple-use goals and objectives. Goals are expressed as desired condition in the form of aspirations for which the BLM's management area direction, objectives and standards and guidelines have been directed.
- The establishment of management requirements, including measures or criteria that will

be applied in order to guide day-to-day activities. These are primarily expressed as standards and guidelines.
- The designation of lands managed for their Wilderness Characteristic and other special designations.
- The identification of river segments suitable for inclusion in the National Wild and Scenic Rivers System.
- The establishment of monitoring and evaluation requirements.

The following programs are implemented under the RMP decision framework; their goals and objectives in the RMP are outlined below. These goals and objectives are selected from Table 2-2 on page 2-22 of Volume 1 of the RMP. It is not a complete list of the plan's goals and objectives; the selections were included for their relevance to the proposed RMP's actions, allowable uses, restrictions and prohibitions that are most relevant to the species for which BLM has sought consultation. More information on specific actions and requirements, stipulations, etc., for each objective is contained in Table 2-2 of the RMP. Note that references in the goals and objectives below are to Appendices in the RMP itself, not this BO, unless otherwise noted).

➢ **Areas of Critical Environmental Concern (ACECs)**

- **GOAL (ACEC-G1)**: Manage ACECs to protect significant resource values and prevent damage to important natural, biological, cultural, recreational, or scenic resources and values, or to protect life and safety from natural hazards.
  - **Objective: (ACEC-O1)** Continue to manage those areas within the GJFO that require some special management and that meet the criteria for ACEC designation.
    - **Action (ACEC-A1):** Designate the following areas as ACECs (123,400 acres). (Figure 2- 66, Appendix A):
      - Atwell Gulch (2,900 acres);
      - Badger Wash (2,200 acres);
      - Dolores River Riparian (7,400 acres);
      - Indian Creek (2,300 acres);
      - Juanita Arch (1,600 acres);
      - Mt. Garfield (2,400 acres)
      - The Palisade (32,200 acres);
      - Pyramid Rock (1,300 acres);
      - Roan and Carr Creeks (33,600 acres);
      - Rough Canyon (2,800 acres);
      - Sinbad Valley (6,400 acres);
      - South Shale Ridge (28,200 acres); and
      - Unaweep Seep (85 acres).

➢ **Comprehensive Travel and Transportation Management Plan**

- **GOAL (CTTM-G1)**: Manage the travel system to support the BLM mission, achieve resource management goals and objectives, and provide for appropriate public and administrative access.

- Objective (CTTM-O1): Maintain a comprehensive travel network that best meets the full range of public, resource management, and administrative access needs.

- **GOAL (CTTM-G2)**: To manage a comprehensive travel and transportation management system that allows for diverse recreational use of motorized and non-motorized interests; promotes the safety of all users; minimizes conflicts among Federal land uses; communicates with the public about available opportunities, and monitors the effects of use.
- Objective (CTTM-O2): Seek to effectively manage new modes of travel that cannot be foreseen through this planning effort.
- Objective (CTTM-O3): Manage motorized travel consistent with outcomes defined by resource programs.
- Objective (CTTM-O4): Manage non-motorized travel consistent with outcomes defined by resource programs.
- Objective (CTTM-O5): Manage travel through route designations within Zone L to be consistent with the following recreation and resource objectives:

  - **Watershed and Soils**
    - Manage to maintain or contribute to long term improvement of surface and groundwater quality.
    - Promote geomorphic balance.
    - Meet Public Land Heath Standard 1 for soils and 5 for water quality.
    - Minimize salt and sediment production to natural background rates.
    - Preserve and promote soil productivity.
  - **Special Status Species (Plants)**
    - Meet Public Land Heath Standard 3 for plant communities and 4 for Special Status and Threatened & Endangered species and their habitats.
    - Promote maintenance and recovery of federally listed, proposed, and candidate plant species by protecting occupied habitat. Protect occupied habitat for all BLM sensitive plant species and significant plant communities as defined and tracked by Colorado Natural Heritage Program (CNHP).
  - **Vegetation**
    - Manage vegetation to meet BLM Standards for Public Land Health while taking into account site potential, and site-specific management objectives. Ensure vegetation resources are managed to achieve balance in soil and watershed protection, wildlife habitat, livestock grazing, forestry, and biodiversity values, while maintaining or enhancing special status species habitat.
  - **Recreation**
    - Ensure route connectivity between the extensive recreation management area (ERMA) and the Grand Valley OHV special recreation management area (SRMA). To provide a transition zone between the high-use urban interface area directly north of Grand Junction, allow higher route density along the ERMA's interface with the Grand Valley OHV SRMA at 27 ¼ Road, with route density generally decreasing as the trail system extends

to the northwest toward 25 Road and 21 Road (Travel Management Zone L).

The RMP designates motorized travel areas having existing developed road and/or motorized trail systems that, for the most part, serve current recreation and resource access needs for a particular area. The road and motorized trail system in motorized suitable areas will generally not be considered for expansion or substantial alteration of the transportation system. The RMP designates 126,200 acres closed to motorized use; 925,200 acres are closed to cross-country travel, with travel authorized on designated routes, and retains 10,200 acres of open motorized use (including cross-country travel).

➢ **Fish and Wildlife**

Habitat standards and desired wildlife populations levels are determined by Colorado Parks & Wildlife (CPW) and Service species-specific plans and strategies in order to meet BLM Colorado's Standards for Public Land Health and Guidelines for Livestock Grazing Management (BLM 1997).

- **GOAL: (FW-TW-G1) Provide** terrestrial habitats for abundance and diversity of native and desirable nonnative wildlife species to attain or maintain self-sustaining populations.
  - **Objective (FW-TW-O1):** Maintain and improve BLM lands for priority habitat requirements for the following high-value species:
    - •Critical and severe winter range, winter concentration areas, intact security areas, production areas, and big game migrations corridors for big games species (e.g., mule deer *(Odocoileus hemionus)*, elk *(Cervus canadensis)*, pronghorn antelope *(Antilocapra americana)*, bighorn sheep *(Ovis canadensis)*, moose *(Alces alces)*; and
    - •Proper functioning condition riparian and wetland habitat for all species (see Vegetation—Riparian section).
  - **Objective (FW-BG-O1):** Provide sufficient forage, cover, and protection from disturbance for large ungulates (deer, elk, bighorn sheep, pronghorn antelope, and moose) to maintain healthy viable populations across the landscape commensurate with BLM Colorado's Standards for Public Land Health (BLM 1997a).
  - **Objective (FW-BG-O2):** Protect State wildlife areas from surface occupancy and surface disturbing activities to protect the values for which they were established.
  - **Objective (FW-BG-O3):** Minimize habitat fragmentation and restore habitat connectivity on big game winter ranges, winter concentration areas, severe winter ranges, and movement corridors.
  - **Objective (FW-P-O1):** Improve pronghorn antelope habitat on BLM lands.

- ***Wildlife Emphasis Areas***

  A Wildlife Emphasis Area (WEA) is an area of high wildlife value and significance for wildlife species including but not limited to both species of sage-grouse, pronghorn antelope, mule deer, elk, bighorn sheep, white-tailed prairie dog (*Cynomys leucurus*), and kit fox (*Vulpes macrotis*). Fire rehabilitation efforts and vegetation treatments to improve

land health and/or wildlife habitat are not considered ground disturbance, as described in the actions under each emphasis area below. Wildlife emphasis areas are not designations, but rather polygons where more management emphasis is placed on protection and enhancement of the wildlife resource.

- **Objective (WEA-O1):** Emphasis areas meet BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado (BLM 1997). Prioritize those areas that do not meet land health standards as management action areas where actions are taken to work toward meeting land health standards.
- **Objective (WEA-O7):** Maintain or improve wildlife habitat in the Glade Park wildlife emphasis area (27,200 acres) with an emphasis on GUSG, mule deer, and elk habitat (Figure 2-1, Appendix A in BA).
- Objective (WEA-O16): Maintain or improve wildlife habitat in the Timber Ridge wildlife emphasis area (11,800 acres) with an emphasis on habitat for mule deer, elk, and [Gunnison] sage-grouse (Figures 2-1 [Alternative B] and 2-2 [Alternative C], Appendix A in BA).

➢ **Fluid Mineral (Oil and Gas, Geothermal, and Oil Shale Resources)**

- **GOAL (FM-G1):** Provide opportunities for environmentally responsible exploration and development of fluid mineral resources subject to appropriate BLM policies, laws, and regulations.
- **Objective (FM-O1):** Facilitate orderly, economic, and environmentally sound exploration and development of oil and gas and geothermal resources, using the best available technology.
- **Objective (OS-O1):** Maintain opportunities to lease oil shale with further National environmental Policy Act (NEPA) analysis while minimizing impacts to other resources.
- **Objective (MLP-O1):** Promote a proactive approach to planning for oil and gas development in the proposed Shale Ridges and Canyons Master Leasing Plan (MLP) area based on known resource values and reasonably foreseeable oil and gas development. Manage oil and gas operations in the Shale Ridges and Canyons MLP area to prevent degradation of sensitive soils, special status species, and other resources. All management objectives, goals, and actions are the same for the mineral leasing plan (MLP) and the entire GJFO decision area unless otherwise stated.
- **Objective (MLP-O2):** Limit air quality degradation within the MLP analysis area by ensuring that land use activities are in compliance with Federal, State, and local regulations.
- **Objective (MLP-O3):** Manage and protect surface water and groundwater in order to maintain or contribute to the long term improvement of surface and ground water quality and minimize or control elevated levels of salt, sediment, and selenium contributions to water resources. All streams on public lands in the MLP Analysis Area that meet or exceed State water quality standards, and that have acceptable channel stability, will be maintained in the present condition through limited management. Streams not meeting State standards, or having unstable channels, will be improved in order to meet minimum standards through intensive management.

- **Objective (MLP-O4):** Ensure that surface disturbances do not cause accelerated erosion (such as rills, soil pedestals, and actively eroding gullies) on a watershed scale (e.g., sixth hydrologic unit code scale). Minimize or control elevated levels of salt, sediment, and selenium contribution from public lands to rivers. Maintain or improve soil productivity, preserve proper function and condition of uplands, and ensure that surface disturbances do not cause accelerated erosion.
- **Objective (MLP-O5):** Manage for a healthy diversity of successional-stage plant communities and properly functioning riparian zones within the MLP analysis area.
- **Objective (MLP-O6):** Protect occupied and suitable habitat for Federal proposed, candidate, and threatened or endangered species, and protect occupied habitat for BLM sensitive species necessary for:
    - Maintenance and recovery of proposed, candidate, and threatened or endangered species and
    - Support of BLM sensitive species and significant plant communities, consistent with BLM policy on special status species management (BLM manual 6840, BLM 2008c, cited in BA).
- **Objective (MLP-O7):** Sustain the integrity of the sagebrush biome in order to provide the amount, continuity, and quality of habitat that is necessary to maintain sustainable populations of Greater sage-grouse and other sagebrush dependent species.
- **Objective (MLP-O8):** Maintain and improve BLM lands for priority habitat requirements for the following high-value species: Critical and severe winter range, winter concentration areas, production areas, and big game migrations corridors for big games species (e.g., mule deer, elk, pronghorn antelope, bighorn sheep, and moose. Maintain and improve lands for priority habitat requirements for highly valued species such as, but not limited to, cold water sport fishes. Protect State wildlife areas from unnecessary surface occupancy and surface disturbing activities.
- **Objective (MLP-O13):** Provide for protection of ACEC resource values by reducing impacts from oil and gas development in these areas.

Table 2 provides statistics for the amount of BLM lands available for oil and gas leasing as well as those available acres where stipulations or other restrictions may apply to future leases.

Table 2.

Bureau Grand Junction Field Office	**Proposed Action**
Federal Mineral Acres	1,236,100
Acres Withdrawn from Leasing	0
Acres Administratively Not Available for Leasing	243,500
Acres Available for Leasing	992,600
No Surface Occupancy	436,600
Timing Limitation	382,900
Controlled Surface Use	493,900
Standard Lease Terms	992,600

The proposed action includes the projection of well pads and access road miles (future leases), and corresponding disturbance acres on the GJFO, for years 2009-2029. The reasonably Foreseeable Development Scenario of Oil and Gas development on existing leases is presumed to follow BLM Instruction Memorandum No. CO-2013-033, dated July 15, 2013, and BLM Instruction Memorandum No. 2014-100.

➢ **Locatable Minerals, Mineral Materials, and Non-energy Leasable Minerals**

- **GOAL (LM-G1)**: Provide opportunities to develop locatable minerals, mineral materials, and non-energy leasable minerals consistent with other resource goals and uses to meet local and national energy and mineral needs.
  - **Objective (LM-O1):** Facilitate environmentally responsible exploration and development of locatable minerals subject to BLM policies, laws, and regulations.
  - **Objective (MM-O1):** Manage mineral material (salable minerals) resources to provide for the needs of individuals, municipalities, and businesses while ensuring compatibility with other resource objectives.
  - **Objective (NEL-O1):** Provide opportunities for non-energy leasable exploration and/or development subject to standard stipulations (e.g., NSO, CSU, and TL).

➢ **Forestry**

Under the RMP, the BLM proposes to use a variety of silvicultural techniques and harvest systems to manage for healthy forests and woodlands while offering a variety of forest products and meeting other resource objectives for the following forestry and woodland types: pinyon/juniper, ponderosa pine, Douglas-fir, aspen, spruce/fir.

➢ **Lands and Realty**

- **GOAL (LR-G1):** Meet resource needs while providing public use authorizations such as Rights-of-Way (ROWs), renewable energy sources, permits, and leases.
  - **Objective (LR-O1):** Provide for the development and operation of transportation systems, pipelines, transmission lines, communication sites, renewable energy resources, and other land use authorizations in an environmentally responsible and timely manner.
  - **Objective (LR-O2):** Manage corridors for public utilities and other facilities, and establish new corridors in an environmentally responsible manner as necessary to meet future demands and protect sensitive resources.
  - **Objective (LR-O3):** Provide for the development and operation of actions for leases, permits, and easements authorized under, 43 CFR 2920 (such as site facilities and commercial filming) in an environmentally responsible and timely manner.
  - **Objective (LR-O4):** Resolve trespass uses as they are identified and prioritized.
  - **Objective (LR-O5):** Consolidate the BLM's land ownership patterns through land tenure adjustments for improved management efficiency, and acquire from willing sellers suitable private land with special resource values.
  - **Objective (LR-O6):** Acquire lands or interests in lands through exchanges, purchases, easements, or donations to facilitate resource goals and objectives.

- **Objective (LR-O7):** Withdraw lands from the public land laws or mining laws where necessary to meet resource and other management objectives of the BLM or other Federal agencies.

➢ **Livestock Grazing**

The RMP livestock grazing goal is to provide adequate forage for livestock while attaining healthy rangelands, in accordance with land health standards and in balance with other resources and uses, to contribute to local economies, ranching livelihoods, and rural western character integral to many communities. Objectives within the goal relevant to this BO include:

- **Objective LG-01:** Meeting the forage demands of livestock operations based on current active preference animal unit-months (AUMs) while meeting the BLM Standards for Public Land Health and Guidelines for Livestock Grazing in Colorado (BLM 1997a) (Appendix E);
- **Objective LG-02:** Provide periodic rest during active growth periods of forage plants to maintain or improve plant vigor and health; and
- **Objective LG-03:** Manage livestock to maintain and/or improve sage-grouse habitat.

➢ **Recreation and Visitor Services**

- **GOAL REC-G1:** Produce a diversity of quality recreational opportunities that support outdoor-oriented lifestyles and add to participants' quality of life, enhance the quality of local communities, and foster protection of natural and cultural resources.

- **DeBeque Area Recreation Objective (REC-O5):** If feasible, provide for recreation opportunities near the town of DeBeque that enhance and protect sensitive cultural and biological resources, while providing a diverse mix of recreation activities and experiences, including intermediate to expert level singletrack motorcycling and mountain biking, and motorcycle trials riding utilizing the area's unique natural topography and scenery to enhance users' experiences. To a secondary extent, provide for shared compatible uses such as 4x4 and all-terrain vehicle (ATV) touring, hiking, and horseback riding.
- **Grand Valley Shooting Ranges ERMA [Extensive Recreation Management Area] Objective (REC-ERMA-O12):** Through the life of the plan, manage this area to minimize recreation impacts to other resources, with special consideration given to protection/mitigation of the following resources: Colorado hookless cactus (*Sclerocactus glaucus*), water quality (lead contamination, non-point source erosion/sedimentation into the Colorado River).
- **Gunnison Bluffs ERMA Objective (REC-ERMA-O16):** Through the life of the plan, manage this area to minimize recreation impacts to other resources, with special consideration given to protection/mitigation of the following resources: Colorado hookless cactus, cliff-nesting raptors, paleontological resources, and cultural resources.
- **Horse Mountain ERMA Objective (REC-ERMA-O19):** Through the life of the plan, manage this area to minimize recreation impacts to other resources, with special consideration given to protection/mitigation of the following resources: Colorado

hookless cactus, water quality (non-point source erosion/sedimentation into the Colorado River).

- **Horse Mountain ERMA RMZ 2 – C Road OHV Open Area 180 acres, Objective (REC-ERMA-022:** Through the life of the plan, manage this area to minimize recreation impacts to other resources, with special consideration given to protection/mitigation of the following resources: Colorado hookless cactus, water quality (non-point source erosion/sedimentation into the Colorado River).

➢ **Soil Resources**

The soil resource goal in the RMP is to ensure upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor, minimizes surface runoff (Land Health Standard 1), and minimizes soil erosion. Objectives within the goal include relevant to this BO include:

- **Objective (S-O1):**
  1. Minimize or control elevated levels of salt, sediment, and selenium contribution from Federal lands to river systems in the planning area.
  2. Maintain or improve soil productivity, including retention of topsoil quality and reestablishing soil capability, potential, and functionality when disturbed.
  3. Preserve proper function and condition of upland soils.
  4. Ensure surface disturbances do not cause accelerated erosion (e.g., rills, soil pedestals, actively eroding gullies) on a watershed scale (e.g., sixth hydrologic unit code scale).

➢ **Special Status Species**

- **GOAL: SSS-G1:** Manage special status species habitats to provide for their conservation and restoration as part of an ecologically healthy system.
- **Objective (SSS-O1):** Maintain or improve the quality of listed (i.e., threatened or endangered) and sensitive species habitat by managing public land activities to support species recovery and the benefit of those species.
- **Objective SSS – Fish (SSS-F-O1):** For Fish: Maintain or improve the quality of listed (threatened or endangered) fish and sensitive fish habitat by managing public land activities to support species recovery and the benefit of those species.

➢ **GOAL 2** SSS - Plants and Terrestrial Wildlife (PTW-G1): Manage special status species and their habitats to provide for their conservation and restoration as part of an ecologically healthy system, and support the goals contained in Standard 4 of the Colorado Standards for Public Land Health (BLM 1997) (see Appendix E).

- **Objective (SSS-PTW-O1):** To conserve plants and animals (and their habitats) listed by Federal and Colorado governments as threatened, endangered, sensitive or species of concern, and to conserve plants and animals that are candidates for these lists with the overall objective of improving their populations so that they can be removed from these lists.

- **Objective (SSS-P-O1):** Promote maintenance and recovery of federally listed, proposed, and candidate plant species by protecting occupied habitat. Protect occupied habitat for all BLM sensitive plant species and significant plant communities as defined and tracked by CNHP.
- **Objective (SSS-M-O1):** Protect breeding habitats of migratory birds with emphasis on avoiding impacts to nesting birds to comply with the Migratory Bird Treaty Act (MBTA).
- **Objective (SSS-R-O1):** Maintain and improve BLM lands for raptor nesting and fledging habitat.
- **Objective (SSS-BGE-O1):** Maintain and improve BLM lands for eagle nesting, fledging, foraging and roosting habitat. Protect the bald and golden eagle concentration, nesting, and nest buffer areas by prohibiting activities during certain times of the year consistent with CPW's most recent raptor recommendations.
- **Objective (SSS-WS-O1):** Provide healthy and productive habitat for waterfowl and shorebirds.
- **Objective (SSS-SG-O1):** Advance the conservation of Gunnison and greater sage-grouse and their habitat in accordance with current national, State, and local working group recommendations and policy as well as the most current scientific literature and research.
- **Objective (SSS-RA-O1):** Maintain and improve BLM lands for priority reptile and amphibian habitat.
- **Objective (SSS-B-O1):** Maintain and improve BLM lands for bat roosting, maternity sites and winter hibernacula.
- **Objective (SSS-RO-O1):** Maintain and improve BLM lands for river otter *(Lontra canadensis)* habitat.
- **Objective (SSS-CL-O1):** Maintain and improve BLM-managed portions of Canada Lynx Analysis Units for Lynx habitat.
- **Objective (SSS-KF-O1):** Maintain and improve BLM lands for kit fox habitat.
- **Objective (SSS-PD-O1):** Maintain or improve white-tailed prairie dog habitat and distribution (Figure 2-73, Appendix A).

➢ **Vegetation**

The RMP's general vegetation goal is restore and maintain healthy, productive plant communities of native and other desirable species at self-sustaining population levels commensurate with the species' and habitats' potentials. Ensure plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations and ecological processes (based on Land Health Standard 3). Objectives within the goal include relevant to this BO include:

- **Objective (VG-O1):** Manage for a healthy diversity of successional-stage plant communities.
- **Objective (VG-O2):** Provide the public with native plant materials through the sale of wilding permits (e.g., live plants and plant material products exceeding personal use amounts), commercial seed-collecting permits, and free use permits (consistent with 43 CFR 8365.1-5, IM No. 2013-176 Seed Collection Permitting and Pricing Policy

within the BLM, and BLM Manual 5500 [Nonsale Disposals]), while protecting other resources.

- **Vegetation – Adaptive Drought Management**

  - **GOAL (VADM-G1):** Develop management prescriptions for all surface-disturbing resource uses during times of extended drought.
  - **Objective (VADM-O1):** Establish criteria for restricting activities during drought.

- **Vegetation – Desired Plant Communities**

  - **Goal VDPC-G1**: Manage pinyon-juniper, upper and lower elevation sagebrush, salt desert shrub, forests and woodlands, and riparian areas (the dominant plant communities of the GJFO planning area) as desired plant communities or to emphasize native vegetation, wildlife habitat, watershed health, and biodiversity.
  - **Objective VDPC-O1**: Manage vegetation to meet BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado while taking in to account site potential as determined by ecological site inventories, Range/Ecological Site Descriptions, Soils, completed Land Health Assessments, and site specific management objectives.
  - **Objective VDPC-O2:** Manage vegetation resources to balance soil and watershed protection, wildlife habitat, livestock grazing, forestry, and biodiversity values, while maintaining or enhancing special status species habitat.
  - **Objective VDPC-O3:** In lower-elevation vegetation, occupied by the potential natural community, manage for a late- or mid-seral stage as the desired plant community.

  - **Goal VDPC-G2**: Manage the salt desert shrub communities to maintain viable populations of kit fox, burrowing owl (*Athene cunicularia*), white-tailed prairie dog, and other obligate species. Preserve undisturbed patches of salt desert shrub communities with little to no cheatgrass (*Bromus tectorum)*, halogeton (*Halogeton glomeratus)*, or other exotic species. Identify and initiate restoration and rehabilitation of unhealthy areas.

  - **GOAL VDPC-G3:** Manage the sagebrush *(Artemisia* spp.*)* biome to maintain viable populations of sagebrush-obligate species. Identify and initiate restoration and rehabilitation of sagebrush habitat, while maintaining a mosaic of canopy cover and successional stages. Maintain or improve sage-grouse winter habitat.
  - **Objective (VDPC-O4):** Manage the salt desert shrub community to improve vigor, composition, diversity, and cover of native understory species and biological soil crusts.
  - **Objective (VDPC-O5):** Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. Restore the species composition and diversity of seral stages of sagebrush communities.
  - **Objective (VDPC-O6):** Sustain, restore, and rehabilitate the integrity of the sagebrush biome to provide the amount, continuity, and quality of habitat that is necessary to maintain sustainable populations of sagebrush-obligate species.

- **GOAL (VDPC-G4):** Manage the sagebrush biome to maintain viable populations of greater and GUSG and other sagebrush-obligate species. Identify and initiate restoration and rehabilitation of sagebrush habitat while maintaining a mosaic of canopy cover and successional stages.
  - **Objective (VDPC-O7):** Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. Restore the species composition and diversity of successional stages of sagebrush communities.
  - **Objective (VDPC-O8):** Prioritize the following areas for Land Health Assessments, vegetation restoration efforts, and protection of existing intact environments: 1-4. Restoration plans would emphasize increasing patch size and connectivity through vegetation treatments. Disturbances should also be consolidated through BMPs to reduce disturbance and maintain sagebrush-obligate species.

- **GOAL (VDPC-G5):** Manage mountain shrub communities to maintain vigorous stands of deciduous shrubs.
  - **Objective (VDPC-O9):** Emphasize perpetuating late- to mid-seral plant communities that provide suitable habitat for wildlife.

➢ **Vegetation – Forestry/Woodlands (VFW)**

- **GOAL VFW-G1:** Maintain and restore pinyon-juniper woodlands to meet requirements for land health and to supply wildlife habitat, livestock forage, and consumer products (e.g., posts, poles, firewood, and biomass).
  - **Objective VFW-O1:** Manage for pinyon pine *(Pinus edulis)* and juniper with a balance of seral stages.

- **GOAL (VFW-G2):** Maintain forests and woodlands for a healthy mix of successional stages within the natural range of variation that incorporates diverse structure and composition.
  - **Objective (VFW-O2):** Manage ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii)*, aspen *(Populus tremuloides)*, and spruce/fir to mimic natural stand conditions and natural regeneration.

➢ **Vegetation – Riparian**

- **GOAL VR-G1:** Manage riparian habitat in compliance with the Land Health Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbances such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment and provides forage habitat and biodiversity. Water quality is improved or maintained. Stable soils store and release water.
  - **Objective (VR-O1)**: Protect and restore riparian areas/wetlands through sound management practices.

➢ Vegetation – Weeds

- **GOAL (VW-G1):** Reduce the occurrence of noxious and invasive species through the use of an Integrated Pest Management Program across the planning area.
- **Objective (VW-O1)**: Apply integrated control methods (physical, cultural, biological, chemical, fire) to noxious and invasive pest populations.
- **Objective (VW-O2):** Require weed prevention on appropriate actions authorized within the planning area.

➢ Water Resources

The RMP goal for water resources is to protect, preserve, and enhance watershed functions in the capture, retention, and release of water in quantity, quality, and time to meet ecosystem and human needs.

- **Objective (W-O1):** Manage public land activities to maintain or contribute to the long term improvement of surface and ground water quality and minimize or control elevated levels of salt, sediment, and selenium contribution from Federal lands to water resources in the planning area.
- **Objective (W-O2):** Ensure streams on BLM lands are in geomorphic balance (e.g., stream channel size, sinuosity, slope, and substrate are appropriate for its landscape setting and geology) with the water and sediment being supplied by the watershed (e.g., no accelerated erosion, deposition, or head-cutting) and ensure that land use does not impede the natural hydrograph (e.g., allows timing, magnitude and duration of peak, high and low flow events by minimizing surface disturbance, erosion, and sedimentation of streams).
- **Objective (W-O3):** Provide sufficient water quantity on BLM lands for multiple use management and functioning, healthy riparian, wetland, aquatic, and upland systems.
- **Objective (W-O4):** Protect municipal watersheds and source water protection areas on public land that provide drinking water to local communities.
- **Objective (W-O5):** Characterize, monitor, maintain, and/or restore surface/groundwater quality and quantity to sustain designated beneficial uses in cooperation with other Federal, local, and State agencies and private entities.
- **Objective (W-O6):** Manage public lands to maintain functioning condition of all parameters within the hydrologic cycle including groundwater quantity and quality. Ensure the consumption of water resources on public lands resulting from Federal actions do not jeopardize the sustainability of water resources or associated riparian/wetland habitats.

➢ Wild Horses

- **GOAL (WH-G1)**: Manage the administratively designated Little Book Cliffs Wild Horse Range (LBCWHR) to sustain a healthy viable wild horse population while maintaining a thriving natural ecological balance of resources and uses. (Figure 2-4, Appendix A).
- **Objective (WH-O1):** Emphasize protection of wild horses in the LBCWHR and minimize impacts to their population and habitat.

- **Objective (WH-O2):** Emphasize management of wild horses in the LBCWHR.
- **Objective (WH-O3):** Manage vegetative communities within the LBCWHR to maintain a forage base to support the established appropriate management level.
- **Objective (WH-O3):** Manage vegetative communities within the LBCWHR to maintain a forage base to support the established appropriate management level.
- **Objective (WH-O4):** Protect wild horses in the LBCWHR by limiting activities which disturb or harass wild horses during critical time periods.

➢ **Wildland Fire Management**

The GJFO proposes to use a full range of wildfire management actions, from full suppression to resource benefits on unplanned ignitions. Actions with implications and potential to adversely affect threatened and endangered species are:

- **Action WFM-A1:** Allow unplanned fire on 857,400 acres for resource benefit to manage diversity in desired plant communities in those areas identified in Figure 2-76 in Appendix A (RMP), approximately 81 percent of public lands in the GJFO.
- **Action WFM-A2:** Suppress all fires in Salt Desert Shrub communities to protect these communities that are not adapted to fire and to reduce cheatgrass invasion.
- **Action WFM-A3:** Implement fuels treatments actions that may include, but are not limited to:
  - ✓ Mechanical treatments, including mowing, weed-whacking, chopping (roller chopper), chipping, grinding (hydro-ax), chaining, tilling, and cutting.
  - ✓ Manual treatments, including hand cutting (chainsaw/handsaw) and hand-piling.
  - ✓ Prescribed fire, including pile and broadcast burning.
  - ✓ Chemical spraying or biological treatments, such as insects or goats.
  - ✓ Seeding, including aerial or ground application.
  - ✓ Commercial stewardship projects.

- **Action WFM-A4:** Use a combination of planned and unplanned fire along with fuels treatments including mechanical, manual, chemical, and seeding to meet resource objectives.
- **Action WFM-A5:** Prioritize vegetation treatments that are designed to strategically reduce wildfire threat in areas of high fire risk rather than where the probability of fire is low and the potential for natural post-fire recovery is high.

ACTION AREA

Action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR § 402.02). The action area for the proposed action consists of the BLM's GJFO, the nearly 1.1 million acres of BLM-administered lands and 1.2 million acres of Federal mineral estate within the GJFO planning area. BLM lands within the Dominguez-Escalante and McInnis Canyons National Conservation Areas are covered by separate RMPs and not included in the GJFO RMP revision. The action area includes the area described in BOs ES/GJ-6-CO-08-F-006 and ES/GJ-6-CO-08-F-0010.

STATUS OF THE SPECIES

The provided species descriptions, and life histories, and are incorporated herein, where appropriate, by reference.

Colorado Hookless Cactus

The Unita Basin hookless cactus was listed as a threatened species in 1979 (44 FR 58868). On September 15, 2009, the Service officially recognized the taxonomic split of this species into three distinct species, one of which is the Colorado hookless cactus (*Sclerocactus glaucus*) (74 FR 47112).

Colorado hookless cactus is a small ball or barrel-shaped cactus endemic to Montrose, Delta, Mesa, and Garfield Counties in western Colorado. Current data indicate that this species is currently known from about 98 occurrences totaling approximately 19,000 individuals (FWS 2010). These occurrences cover approximately 1,700 square miles, with an estimated 618,000 acres of potential habitat (FWS 2010). This species has two population centers, one associated with the Gunnison River and its tributaries near the City of Delta, and the other with the Colorado River and its tributaries near DeBeque, Colorado. Colorado hookless cactus was originally listed as threatened on October 11, 1979 (44 FR 58868), with revised listing due to taxonomic changes published on September 15, 2009 (74 FR 47112). Critical habitat has not been proposed for this species. The *Recovery Outline* (FWS 2010) presents an updated and thorough review of the species' status.

Habitat

Colorado hookless cactus grows primarily in the salt desert shrub community on alluvial terraces associated with the Gunnison and Colorado Rivers. Soils are commonly derived from Mancos shale often with a thin over layer of alluvium, and range from fine silty clay to coarse gravel with volcanic cobbles and boulders scattered on the surface. The dominant co-occurring plant species include *Atriplex confertifolia, Artemisia nova, Opuntia* spp., *Echinocereus triglochidiatus, Pleuraphis jamesii,* and *Acnatherum hymenoides*. Populations also occur in big sagebrush and the transition zone with pinyon-juniper woodland. Within these communities, Colorado hookless cactus is often found under small nurse shrubs, especially *Atriplex confertifolia*. In many Colorado hookless cactus populations, exotics occur, especially *Bromus tectorum* and/or *Halogeton glomeratus*, and *Acroptilon repens* along drainages. Typical elevations for the species range from 4,593 to 6,562 feet (1,400 to 2000 meters) above mean sea level (Heil and Porter 2004). According to the North Delta LHA report, BLM considers the Mancos shale communities that the cactus occurs in to have little resilience to disturbance due to soil chemistry and structure and the small amount of available moisture (BLM 2002).

Species Description and Life History

Colorado hookless cactus grows from a taproot and typically has a single stem that can grow to about 5 inches (12 cm) tall, with large individuals attaining heights of 11 inches (28 cm). Mature stem diameter may reach to 3.5 inches (9 cm) (Heil and Porter 2004), with large individuals growing to 4 or 5 inches (12-13 cm) (in CRVFO, some individuals are 12-13 cm) in girth. Tubercles are arranged into prominent longitudinal ribs. On the apex of each tubercle is an areole from which clusters of spines radiate. The central spine in each cluster is typically hookless. The large, funnel-shaped, pink flowers bloom from late April to May, with the small barrel-shaped fruits maturing in May and June. Flowers are hermaphroditic. Based upon preliminary breeding system studies by Tepedino, this species is believed to be primarily outcrossing (Heil and Porter 1994). Outcrossing presumably requires an insect vector for pollen transfer. Seed longevity in the ground, germination cues, and seed dispersal mechanisms for this species remain unstudied.

In addition to reproducing sexually, Colorado hookless cactus can produce new stems vegetatively by budding. New stem buds appear from beneath the main stem base, and may number from one to many. Field observations indicate that mild to moderate tissue damage, including herbivory by rodents and rabbits and crushing by vehicles, can stimulate budding (Conner 2011, pers. comm.). Presumably if the caudex is sufficiently damaged, no new buds can sprout and an individual dies. Individual cactus stems also appear to be able to sustain physical damage. Partially uprooted cacti and those with apparent herbivore or crushing damage have been observed to heal over and survive (BLM 2009; Conner 2011, pers. comm.).

Abundance and Viability

For each occurrence in their database, CNHP assesses the estimated viability of a species or ecological integrity of its community using ranks from A to D for excellent to poor. Of the 98 CNHP occurrences of Colorado hookless cactus, approximately 22 percent are ranked excellent to good (A, B, or BC), 10 percent fair (C), and 6 percent fair to poor (CD or D). The remainder are either considered historic because they have not been confirmed in over 20 years (42 percent, H rank), extirpated (1 percent, E rank), or they could not be ranked for a variety of reasons. The 21 occurrences ranked A or B represent at least 1,000 individuals (FWS 2010).

In addition to the known 98 occurrences recorded by CNHP, more than 6,000 individuals were recently found during surveys for an electric transmission line and a proposed wastewater evaporation pond facility in Delta County (BIO-Logic 2008, 2009). These additional 6,000 plants bring the estimated total individuals range-wide to approximately 19,000 (FWS 2010). Those 6,000 individuals would most likely be ranked A-B by CNHP, with the result that at least 37 percent of the estimated known individuals are in occurrences currently considered viable or ecologically intact.

DeBeque Phacelia

DeBeque phacelia (*Phacelia submutica*) is an herbaceous annual currently known from 22 occurrences distributed among nine populations spanning the Mesa and Garfield County line

near DeBeque, Colorado. The total known distribution includes approximately 625.9 acres within an area 19 miles long and 11 miles wide (76 FR 45054) at elevations ranging from 5,000 to 7,150 feet (1,525 to 2,180 meters; Service 2013). This species was listed as threatened on July 27, 2011 (76 FR 45054). The final listing rule provides a thorough review of the species' status. Critical habitat for the species was designated on August 13, 2012 (77 FR 48367).

The number of plants varies widely from year to year depending on climatic conditions. The fluctuation in numbers indicates that many seeds remain dormant in the seed bank during unfavorable years for germination. As such, it is difficult to estimate the total population size. Upper counts from surveys over the past 30 years estimated a total of 68,731 individuals (Service 2013). The final listing rule provides a thorough and up-to-date review of the status of the species.

Habitat

DeBeque phacelia is endemic to clay badland soils derived from the Atwell Gulch and Shire members of the Wasatch formation. It occurs in small patches (1 to 100 m^2) on uniquely textured soils that differ in an as yet unquantified way from adjacent soils. Preliminary results from studies conducted by the United States Geological Survey (USGS) indicate that soils in occupied habitat have higher clay content than adjacent unoccupied soils. Soil color ranges from chocolate to purple brown to gray or tan and are alkaline (pH 7 to 8.9), highly erosive, and exhibit dramatic shrink-swell activity due to their high clay content. They are especially susceptible to compaction when wet (76 FR 45054; 76 FR 45078).

The badlands occupied by DeBeque phacelia support stands of salt desert scrub and big sagebrush shrubland within pinyon-juniper woodland. Cover of other plant species is typically less than 10 percent. Associates include *Grindelia fastigiata, Eriogonum gordonii, Monolepis nuttalliana, Oenothera caespitosa,* and *Bromus tectorum*. Occurrences are typically located on moderately steep slopes, benches, and ridge tops adjacent to valley floors at elevations ranging from 5,000 to 7,150 feet (1,524 to 2,179 meters) above mean sea level (76 FR 45054; 76 FR 45078).

Species Description and Life History

DeBeque phacelia is a low-growing spring annual establishing from a thin tap root. Stems reach 0.8 to 3 inches (2 to 7.6 cm) in length, and typically branch at the base, with most branches held low to the ground in a rosette pattern. The tubular flowers are hermaphroditic, yellowish-white, and very small in size, with petals generally not exceeding 0.19 inches (4 to 5 mm) in length (76 FR 45054). Preliminary results from a breeding system study indicate that breeding occurs by self-pollination within individual flowers, without the need for an insect vector (Langton 2011, in litt.). The blooming period is from late April to late June, with fruits maturing from mid-May through early July, and seed dispersal complete by early July.

Once the plants have set fruit, they dry in the summer heat and are dislodged or disintegrate, often leaving no trace. Seed dispersal appears to be by gravity and possibly dislodged plants. It is thought that this species depends upon cracks in the soil surface to provide a favorable

environment for seed germination. Germination cues remain unknown, but based on research on other rare desert annuals (Levine et al. 2008) may involve interactions between temperature and moisture (76 FR 45054).

DeBeque phacelia depends on its seed bank for long-term survival. By storing viable genetic stock in the ground, individuals can "wait out" unfavorable environmental conditions. The buffering effect of a seed bank depends upon seed and germinant survival rates and how these factors are affected by environmental variation (Doak et al. 2002; Meyer et al. 2006). Seed bank vital rates remain unknown for this species. Given the importance of the seed bank to species health, preventing damage to or destruction of the seed bank is an important management consideration for DeBeque phacelia. Identifying occupied habitat can be challenging since plants may remain dormant underground during certain years and because emerged plants often disappear shortly after the growth period.

Abundance and Viability

New occurrences of this species have been found as recently as 2011. The estimated total number of plants range-wide varies between 7,767 and 68,371 per year. Of the 22 occurrences in the CNHP database, 7 have been ranked as A or B (two of these were ranked as B-C). These seven occurrences account for 66 percent of the known individuals based on counts recorded in good years in which germination rates were high (76 FR 45054).

Critical Habitat

The Service designated 25,484 acres of critical habitat within nine critical habitat units covering Federal, State, and private lands (77 FR 48367). Critical habitat was defined primarily by a minimum convex polygon around all known and historic populations, plus a 100-meter buffer outside of the polygons. The critical habitat units are identified as: Sulphur Gulch, Pyramid Rock, Roan Creek, DeBeque, Mount Logan, Ashmead Draw, Baugh Reservoir, Horsethief Mountain, and Anderson Gulch.

The Final Rule identifies the following Primary Constituent Elements for critical habitat:

1. Suitable soils and geology: Within the Atwell Gulch and Shire members of the Wasatch formation, areas 1 to 100 m^2 in size on colorful exposures of chocolate to purple brown to gray or tan soils. These areas have a higher clay content and different texture than adjacent soils. Areas include clay soils that shrink and swell dramatically, and are alkaline, with a pH between 7 and 8.9.
2. Topography: Moderately steep slopes (2 to 42 degrees), benches, and ridge tops adjacent to valley floors.
3. Elevation and climate: Elevations ranging from 4,600 to 7,450 feet, and climatic conditions similar to those around DeBeque, Colorado.
4. Plant community: Barrens from 1 to 100 m^2 in size with less than 20 percent plant cover in the least vegetated portions of the site. Clay badlands occurring in patches of salt desert scrub and big sagebrush shrubland within pinyon-juniper woodland. Associates include *Grindelia fastigiata, Eriogonum gordonii, Monolepis nuttalliana, Oenothera caespitosa*, and nonnatives such as *Bromus tectorum*.

5. Maintenance of the seed bank and appropriate disturbance levels: Within suitable soils and geology, undisturbed areas, and areas with light disturbance when dry, and no disturbance when wet.

Gunnison Sage-grouse

Species Description

Sage-grouse are the largest grouse in North America. Sage-grouse (both greater and Gunnison) are most easily identified by their large size, dark brown color, distinctive black bellies, long pointed tails, and association with sagebrush habitats. They are dimorphic in size, with females being smaller. Both sexes have yellow-green eye combs, which are less prominent in females. Sage-grouse are known for their elaborate mating ritual where males congregate on strutting grounds called leks and ''dance'' to attract a mate. During the breeding season, males have conspicuous filoplumes (specialized erectile feathers on the neck), and exhibit yellow-green apteria (fleshy bare patches of skin) on their breasts (Schroeder et al. 1999 in 79 FR 69192). Gunnison sage-grouse are smaller in size, have more white barring in their tail feathers, and have more filoplumes than greater sage-grouse.

Life History

Gunnison and greater sage-grouse depend on a variety of shrub-steppe habitats throughout their life cycle and are considered obligate users of several species of sagebrush (Patterson 1952, p.42; Braun et al. 1976; Schroeder et al. 1999; Connelly et al. 2000; Connelly et al. 2004, Miller et al. in press). Dietary requirements of the two species are also similar, being composed of nearly 100 percent sagebrush in the winter, and forbs and insects as well as sagebrush in the remainder of the year (Wallestad et al. 1975, p. 21; Schroeder et al. 1999, p. 5; Young et al. 2000, p. 452). Gunnison and greater sage-grouse do not possess muscular gizzards and, therefore, lack the ability to grind and digest seeds (Leach and Hensley 1954, p. 389). In addition to serving as a primary year-round food source, sagebrush also provides cover for nests and chicks (Connelly et al. 2000). Thus, sage-grouse distribution is strongly correlated with the distribution of sagebrush habitats (Schroeder et al. 2004, p. 364). Connelly et al. (2000) segregated habitat requirements into four seasons: (1) breeding (2) summer - late brood rearing (3) fall and (4) winter. Depending on habitat availability and proximity, some seasonal habitats may be indistinguishable. The Gunnison Sage-grouse Rangewide Steering Committee (GSRSC) (2005, p. 27-31) segregated habitat requirements into three seasons: (1) breeding (2) summer–late fall and (3) winter. For purposes of this finding, the seasons referenced in GSRSC (2005) are used because that publication deals specifically with GUSG. Sage-grouse exhibit strong site fidelity (loyalty to a particular area) to seasonal habitats, which includes breeding, nesting, brood rearing, and wintering areas, even when the area is no longer of value Connelly et al. 2004, p. 3-1). Adult sage-grouse rarely switch among these habitats once they have been selected, limiting their adaptability to changes. Sage-grouse distribution is associated with sagebrush (Schroeder et al. 2004 p. 364), although sagebrush is more widely distributed than sage-grouse because sagebrush does not always provide suitable habitat due to fragmentation and degradation (Schroeder et al. 2004, pp. 369, 372).

Status and Distribution

The Service listed the GUSG as an endangered species on November 20, 2014 (79 FR 69192). Concurrently, the Service designated 1,429,551 million acres of critical habitat for the species in nine southwestern Colorado counties and two southeastern Utah counties (79 FR 69312). Following is a brief description of the current distribution of the species' range-wide population and trends. A detailed discussion of GUSG taxonomy, the species description, historical distribution, habitat, and life-history characteristics can be found in the Service's 12-month finding for the GUSG (75 FR 59804).

Based on historical records, museum specimens, and potential sage grouse habitat, Schroeder et al. (2004) concluded that GUSG historically occurred in southwestern Colorado, northwestern New Mexico, northeastern Arizona, and southeastern Utah. Accounts of GUSG in Kansas and Oklahoma, as suggested by Young et al. (2000), are not supported with museum specimens and Schroeder et al. (2004) did not consider those two states within the historic range of GUSG. The GUSG historical (presettlement) range is estimated to have been 55,350 square kilometers (km2) (21,370 square miles [mi2]) (GSRSC 2005).

Gunnison sage-grouse currently occur in seven widely scattered and isolated populations in Colorado and Utah, occupying 3,795 square kilometers (km2) (1,511 square miles [mi2]) (GSRSC 2005; CDOW 2009a). The seven populations are Gunnison Basin, San Miguel Basin, Monticello–Dove Creek, Piñon Mesa, Crawford, Cerro Summit–Cimarron–Sims Mesa, and Poncha Pass (FR 69192). Population trends over the last 12 years indicate that six of the populations are in decline, with some increasing since 2011. The largest population, the Gunnison Basin population, while showing variation over the years, has been relatively stable through the period (CDOW 2010; CPW 2012). Six of the populations are very small and fragmented (all with less than 40,500 hectares (ha) (100,000 acres [ac]) of habitat likely used by grouse and, with the exception of the San Miguel population, less than 50 males counted on leks (communal breeding areas)) (CDOW 2009b; CPW 2012). The San Miguel population is the second largest and comprises six fragmented subpopulations.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed State or Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State of private actions which are contemporaneous with the consultation process. The implementing regulations for section 7(a)(2) define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 *CFR* 402.02).

Colorado Hookless Cactus

Status of the Species in the Action Area

Within the action area, the Colorado hookless cactus occurs primarily near DeBeque, Colorado, (north and south of Interstate 70) and in the Whitewater, Colorado, area. The Denver Botanic Gardens, in collaboration with the BLM, conducts on-going cactus monitoring of several populations within the action area west of DeBeque and north of Mesa. Monitoring data indicate the species is stable throughout its range (DePrenger-Levin and Kao 2013).

On November 15, 2012, the Service issued BO number ES/GJ-6-CO-12-F-006. The opinion evaluated the effects of livestock grazing on the Colorado hookless cactus, DeBeque phacelia, and the clay-loving wild buckwheat on three BLM Field Offices including the GJFO. The 2012 BO found that grazing activities would cause adverse effects to the Colorado hookless cactus, but that these activities would not jeopardize the continued survival of the cactus. The BLM does not anticipate additional effects to the Colorado Hookless cactus caused by the grazing program.

Past and Present Impacts

The primary threats to Colorado hookless cactus are (Service 2010):

- Natural gas exploration and production
- Pipelines, utilities, and other rights-of-way (ROWs)
- Off-highway vehicle activity
- Livestock grazing and trampling
- Herbicides and pesticides
- Hybridization
- Illegal human collection
- Potential water developments
- Climate change

Threats to the species within the GJFO include habitat degradation as a result of livestock trampling and grazing, non-native halogeton and cheatgrass encroachment, energy development, recreation, and unauthorized collection. Predation by rabbits and cactus-borer beetle (*Moneilema semipunctatum*) may also be a significant source of mortality (Service 2010). Of the 3,200 acres of habitat for the Colorado hookless cactus, 2,700 acres are currently under existing leases.

DeBeque Phacelia

Status of the Species in the Action Area

There are 19,600 acres of critical habitat within the action area. Of the nine designated critical habitat units (CHUs), unit 2 (Pyramid Rock) is the largest at approximately 17,321 acres located west of the town of DeBeque, Colorado.

On November 15, 2012, the Service issued BO number ES/GJ-6-CO-12-F-006. The opinion evaluated the effects of livestock grazing on the Colorado hookless cactus, DeBeque phacelia,

and the clay-loving wild buckwheat on three BLM Field Offices including the GJFO. The 2012 BO found that grazing activities would cause adverse effects to the DeBeque phacelia and its critical habitat, but that these activities would not jeopardize the continued existence of the species. Further, the Service found that the grazing program will not result in the destruction or adverse modification of critical habitat for DeBeque phacelia.

Past and Present Impacts

The primary threats to DeBeque phacelia are as follows (Service 2013):

- Oil and gas development
- Utility and energy corridors
- Livestock use and trampling
- OHV use
- Invasive nonnative plants
- Water reservoirs
- Climate change and drought

DeBeque phacelia is especially vulnerable to habitat loss by virtue of being restricted to the barren and semi-barren habitat of specific members of the Wasatch geological formation that has a limited distribution within the Piceance Basin (Ladyman 2003). Its habitat coincides with high potential natural gas reserves and has historically been affected by activities associated with resource extraction. Activities that lead to significant soil disturbance, or progressive soil erosion, eliminate or sharply reduce the seed bank, which appears to be the mechanism by which populations survive. Additionally, surface-disturbing activities can introduce and spread weeds resulting in altered plant communities that threaten DeBeque phacelia. Impacts on DeBeque phacelia have also been documented from OHV use and livestock trampling (Service 2013). Of the 19,600 acres of critical habitat designated for the DeBeque Phacelia, 19,400 acres are currently under existing leases.

Gunnison sage-grouse

Status of the Species within the Action Area

The action area for the proposed RMP encompasses lands within the GJFO including GUSG habitat defined as "occupied," and "unoccupied" as described in the final rule (79 FR 69312). Within the GJFO, GUSG occur on the Glade Park/Pinon Mesa and northern Uncompahgre Plateau areas in the southwestern part of the Field Office Planning Area.

Piñon Mesa Population—The Piñon Mesa population occurs on the northwestern end of the Uncompahgre Plateau in Mesa County, Colorado about 35 km (22 mi) southwest of Grand Junction, Colorado. Gunnison sage-grouse likely occurred historically in all suitable sagebrush habitat in the Piñon Mesa area, including the Big Dominguez watershed area of the Uncompahgre Plateau, southeast of Piñon Mesa proper (Rogers 1964). Their current distribution is approximately 18,080 ha (44,678 ac) (GSRSC 2005) which, based on a comparison of potential presettlement distribution, is approximately six percent of presettlement habitat on the northern portion of the Uncompahgre Plateau in Mesa County, Colorado, and Grand County,

Utah. The 2014 population estimate was 182 birds (CPW 2014a), much greater than the 2012 estimate of 54 birds. This increase is likely due to the transplanting of 93 grouse to Piñon Mesa population between the fall of 2012 and spring of 2014 (CPW 2014b and the discovery of two additional leks in 2012 (CPW 2012). Population estimates from 1996 to 2014 are below the population target of 200 breeding birds (based on a 10-year average) for the Piñon Mesa population, as set forth by the RCP (CPW 2014a; GSRSC 2005). Of 12 known leks, only 4 were active in 2012 (CPW 2012).

Threats

The primary threats to the GUSG within the GJFO include:

- Habitat Loss, degradation and Fragmentation from Residential, Commercial and Agricultural conversion and urbanization
- Fire
- Invasive species
- Recreation

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Colorado hookless cactus and DeBeque phacelia

As stated in the consultation history, the Service concurred with the determination of may affect, not likely to adversely affect the Colorado hookless cactus and the DeBeque phacelia for the IWMP. In addition, the Service addressed the adverse effects to the Colorado hookless cactus and the DeBeque phacelia caused by livestock grazing on the GJFO in BO number ES/GJ-6-CO-12-F-006 (Tails: 06E24100-2012-F-0020). The proposed action (revised RMP) will not cause additional effects from grazing or weed management. Therefore, the effects of grazing and weed management have been fully considered and the section 7 requirement has been satisfied for the Colorado hookless cactus and the DeBeque phacelia. Adverse effects to these plant species may result from implementation of vegetation management, comprehensive travel and transportation management under the proposed action. Specifically, the designation of routes within the GJFO is likely to result in negative effects to these species. In addition, adverse effects to the plant are likely to occur from the presence of wild horses and the issuance of permits to drill on existing leased lands.

Actions that affect listed plant species may result in the following general effects:

Direct mortality - Mortality can result from crushing, trampling, or physically removing plants. Contact with herbicides or other chemicals, can also cause direct mortality. Where occurrences of a plant are small, loss of a portion of the plants can compromise its viability. Loss of occurrences can compromise species viability due to reduced genetic diversity and a reduced ability to withstand natural or man-made disturbances.

Loss of vigor or reduced reproductive success - Trampling and coming in contact with chemicals may not always result in mortality. However, exposure to these impacts can reduce vigor, which affects the plant's ability to reproduce and sustain the population. The consumption of flowers, seeds, stems, and foliage of special status plants (herbivory) can reduce reproductive success, or in some cases result in death. Dust deposited on special status plants may reduce their photosynthetic ability, or the ability of pollinators to transfer pollen between plants.

Direct loss of potential or occupied habitat - Direct habitat loss results when habitat is physically destroyed or converted to a form that is unsuitable for the impacted species. Direct habitat loss can be short term or permanent. Surface-disturbing activities, such as construction and use of roads, trails, parking lots, buildings, power poles, wind turbines, and ponds, may result in permanent loss of occupied or potentially occupied habitat. This would reduce the total habitat capable of supporting listed plant populations and fragment remaining populations.

Short-term, temporary habitat loss can occur with habitat improvement projects, such as those addressing encroaching junipers in sagebrush or salt desert shrub habitats. Closure or reclamation of disturbed areas may eventually restore lost habitat. However, disturbance can require years or decades for recovery to pre-disturbance condition. If reclamation does not result in habitat suitable for sustaining special status plants, habitat may be permanently lost.

Changes in habitat structure - A canopy cover of shrubs offers habitat characteristics that appear to be favorable for several special status plant species, such as Colorado hookless cactus, to germinate and become established. Shrubs may protect some special status plants from herbivory or trampling and may provide improved moisture availability or reduced moisture loss under the canopy. Surface-disturbing activities that significantly reduce the percent canopy cover of shrubs may allow increased herbivory or moisture loss, resulting in decreased vigor or mortality of special status plants.

Competition - Changes in species composition also affect listed plant populations. Proliferation of noxious weeds or other invasive plants may render habitat unsuitable by outcompeting listed plants for water and nutrients or by preventing seedling germination and establishment. Occupied Colorado hookless cactus habitat that is dominated by cheatgrass appears to inhibit seedling cactus germination, thereby threatening the long-term viability of this population. In some cases, increases in canopy cover and density of native species, particularly grasses, can compete with listed plants for limited water and nutrients.

Other species, such as DeBeque phacelia thrive in environments where vegetation is sparse and competition is low. Increases in vegetation cover (following disturbances, such as fire or seeding) may cause competition with special status plants, resulting in decreased vigor or mortality.

Loss of pollinators or pollinator habitat - Actions that disturb pollinators or that destroy their habitat can have a detrimental effect on plant species. Long-term loss of pollinators can reduce the reproductive ability of these plant species and affect maintenance and genetic diversity of populations.

Habitat fragmentation - Habitat becomes fragmented when contiguous habitat is broken into smaller blocks by surface- disturbing activities and distances between suitable habitat patches increase. Because pollinators fly only limited distances, they are less likely to use small and isolated patches of habitat. Habitat fragmentation can effectively isolate pollinators from special status plants. Smaller populations receive fewer pollinator visits, so seed production is lower in small populations.

Small population size decreases reproductive success and increases inbreeding and loss of genetic variation. As a result, fragmentation may lower population viability and increase local population extinction risk (Kolb 2008). Herbivory does not decrease with population size. Instead, it enforces fragmentation by further reducing the number of flowering individuals (Kolb 2008). Closure and rehabilitation of roads in listed plant habitat may benefit the long-term survival of populations by decreasing habitat fragmentation.

Soil compaction - Soil compaction resulting from heavy equipment or vehicle travel may reduce soil pore size, inhibit water infiltration, and restrict root penetration, thereby inhibiting maintenance and establishment of special status plants.

Erosion or sedimentation - Special status plants may be washed away or their roots may be exposed by erosion from surface-disturbing activities, such as blading or bulldozing for roads. Special status plants may be buried by sedimentation resulting from disturbances upslope of special status plant populations.

Alteration of hydrologic conditions - Some special status plant species (such as Ute ladies'-tresses orchid), which are dependent on seasonally flooded environments, sub-irrigated soils, or seeps, may be negatively affected by changes in surface or groundwater flow.

Changes in fire regime - Changes in species composition, either in special status plant habitat or in adjacent plant communities, may alter the natural fire regime to which the plants are adapted. Cheatgrass, a highly flammable annual grass, may drastically increase the fire frequency in special status plant habitat, affecting the survivability and viability of the population.

Habitat restoration - This can result from vegetation management projects, hydrologic function restoration, invasive species removal, historic fire regimes restoration, grazing management alteration, or other methods. However, any habitat restoration project for special status plants must be designed specifically for the individual plant species and its specific habitat and site conditions. Generalized habitat restoration projects that do not focus on special status plant needs can have negative effects on these species.

Comprehensive Travel and Transportation Management

The BA assumes that certain distances between an activity/action and federally listed plants or habitats, trigger an effect to the species. However, the magnitude of the effect was not defined in the document. We contacted the BLM to confirm that an activity/action within 200 meters of a federally listed plant or plant population triggered a may affect conclusion with regard to that activity/action. If the activity/action occurs within 20 meters of a plant or plant population, the action would cause adverse effects to the plants. An additional assumption is that in some situations, route designations under the revised RMP may fall within 20 meters of unknown locations of federally listed plants, plant populations, and critical habitat (if applicable), causing adverse effects.

As stated above, the proposed RMP designates 126,200 acres closed to motorized use; 925,200 acres closed to cross-country travel, with travel authorized on designated routes, and retains 10,200 acres of open (cross-country) motorized use. The change in management from open cross-country motorized travel to restricting motorized travel to designated routes represents a significant reduction in potential direct and indirect effects to federally listed plants. However, the restriction of motorized use to designated routes is still likely to result in adverse effects to listed plants in proximity to the designated routes.

Direct effects on listed plants from recreation include surface disturbing activities, such as construction of developed recreation facilities, motorized or off-road vehicle (OHV) use, and foot or horse travel. Dispersed recreation off existing roads or trails can result in direct mortality of listed plant species from crushing, trampling, or uprooting. Indirect effects may also occur from recreational use, such as soil compaction, changes in vegetation composition and structure, and loss of vegetative cover; all of which may degrade habitat. Additionally, increased disturbance can result in the spread and establishment of noxious weed populations. The levels of impact are related to the duration, intensity, and expanse of recreation, and are expected to increase with increased visitation. The risk of impacts is greatest in areas where concentrated human activity, such as Special Recreation Management Areas (SRMAs) and Extensive Recreation Management Areas (ERMAs), overlap with habitat for listed plant species. In general, SRMAs, and ERMAs would avoid much of the currently occupied habitats for special status plant species; however, in some areas the BLM will employ adaptive management to protect special status species if impacts occur. Impacts would be more likely to occur in areas that have not been previously inventoried (i.e. unknown occurrences). Travel routes would be planned to avoid known occurrences.

Oil and Gas Development

Direct impacts associated with oil and gas development include habitat disturbance, fragmentation, and destruction; as well as direct mortality from construction equipment, land clearing activities, and vehicle use. The construction of access roads, well pads, pipelines, buildings, holding tanks, and other infrastructure associated with oil and gas development can fragment or degrade habitat, and result in indirect effects such as erosion, sedimentation, and establishment of noxious weeds.

Colorado Hookless Cactus

Under the proposed RMP, 56.4 miles of routes open to the public are located within 200 meters of known Colorado hookless cactus occurrences. Approximately 11 miles of open routes are county maintained where the BLM has limited discretion. Approximately 48 miles of existing routes are proposed for closure and rehabilitation. Approximately 4 miles of routes will be designated within 20 meters of known Colorado hookless cactus occurrences, thus causing adverse effects as described above, and 1.1 miles of routes would be restricted to administrative and permitted use. There will be 5.8 miles of routes within 20 meters of known occurrences proposed for closure and rehabilitation. The BLM also anticipates impacts to plants, in the form of trampling, caused by cross-country foot and horse travel.

As stated above, approximately 2,700 acres of Colorado hookless cactus habitat is currently under existing leases. Since the conservation framework in the revised RMP cannot affect currently leased lands in any meaningful way, we anticipate a full spectrum of impacts described above may occur, including the potential loss of cactus plants. We further anticipate that BLM will work with any applicant and the Service to minimize negative effects to the plants to the maximum extent practicable through conditions of approval for applications for permits to drill.

Wild Horses

Under the revised RMP, the BLM will continue to manage the 35,200-acre Little Book Cliffs Wild Horse Range (LBCWHR) located northwest of Palisade, CO. Colorado hookless cactus occurrences have been recorded in this area, and may be trampled and/or habitat degradation may occur. The LBCWHR will be managed at an appropriate management level, currently identified as 90-150 wild horses, although this number may be adjusted if warranted by range conditions.

At this broad programmatic scale, it is not possible to quantify the loss of plants impacted by implementation of the proposed action. The conservation measures for listed species within the revised RMP should significantly reduce impacts to federally listed plants and critical habitat (as appropriate). We anticipate a low level of mortality of plants relative to the populations of Colorado hookless cactus within the GJFO.

DeBeque phacelia

The BLM stated that numerous actions, stipulations, BMPs and other measures section 4.2.1 (in the BA) would be implemented under the RMP to protect the DeBeque phacelia and its habitat throughout the planning area. However, their determination indicated that adverse effects from livestock grazing and travel management are still anticipated.

The BLM identified 1.4 miles of designated routes within 200 meters of known DeBeque phacelia populations, including 0.9 miles of county- maintained roads where the BLM may lack discretion, and did not identify any routes occurring within 20 meters of known occurrences. However, consistent with our assumption, unknown individuals or populations, and critical

habitat may occur within 20 meters of designated routes. Thus, these routes are likely to cause adverse effects the species and critical habitat.

The RMP will retain the 1,300-acre Pyramid Rock ACEC and designate the 28,200-acre South Shale Ridge ACEC, which both contain critical habitat for the DeBeque phacelia, specifically the Pyramid Rock and Sulphur Gulch CH Units. The Pyramid Rock ACEC contains only a small portion of the Pyramid Rock CH Unit, but the South Shale Ridge ACEC includes all of the Sulphur Gulch CH Unit. Stipulation NSO-12 (ACECs) prohibits surface occupancy and surface-disturbing activities within each ACEC. All nine critical habitat units will be subject to Stipulations CSU-9 (Sensitive Plant Species Occupied Habitat), NSO-13 (Critical Habitat), LN-3 (Biological Inventories in known or suspected habitat) and LN-4 (Botanical Inventories in known habitat of T & E plant species).

As stated above, approximately 19,400 acres of DeBeque phacelia habitat is currently under existing leases. Since the conservation framework in the revised RMP cannot affect currently leased lands in any meaningful way, we anticipate a full spectrum of impacts described above may occur, including the potential loss of these plants. We further anticipate that BLM will work with any applicant and the Service to minimize negative effects to the plants to the maximum extent practicable through conditions of approval for applications for permits to drill.

At this broad programmatic scale, it is not possible to quantify the loss of plants impacted by implementation of the proposed action. The conservation measures for listed species and critical habitat within the revised RMP should significantly reduce, and may eliminate future impacts to federally listed plants and critical habitat (as appropriate). We anticipate a low level of mortality of plants relative to the populations within the GJFO.

Gunnison sage-grouse

Factors to be Considered

Gunnison sage-grouse depend on sagebrush for their survival and persistence, and the historic and current distribution of the GUSG closely matches that of sagebrush (Patterson 1952; Braun 1987; Schroeder et al. 2004, and references therein). Habitat fragmentation resulting from human development patterns is especially detrimental to GUSG because of their dependence on large expanses of sagebrush (Patterson 1952; Connelly et al. 2004; Connelly et al. 2011) and more contiguous sagebrush habitats (Rogers 1964; Wisdom et al. 2011). In addition, female Gunnison and greater sage-grouse exhibit strong site fidelity to nesting locations (Connelly et al. 1988; Young 1994; Lyon 2000, Connelly et al. 2004, Holloran and Anderson 2005). Sage-grouse often will continue to return to altered breeding habitats (leks, nesting areas, and early brood-rearing areas), despite any past failures in nesting or productivity (Rogers 1964; Wiens and Rotenberry 1985; Young 1994; Lyon 2000, Connelly et al. 2004; Holloran and Anderson 2005). Consequently, there may be lags in the response of GUSG to development or habitat changes, similar to those observed in other sagebrush obligate birds (Wiens and Rotenberry 1985).

The distribution of sage-grouse habitat is naturally disconnected due to the presence of unsuitable habitats such as forests, deserts, and canyons across the landscape (Rogers 1964). However, the onset of Euro-American settlement in the 1800s resulted in significant human alterations to sagebrush ecosystems throughout North America, primarily as a result of urbanization, agricultural conversion, and irrigation projects (West and Young 2000; Miller et al. 2011). Areas in Colorado that supported basin big sagebrush were among the first sagebrush community types converted to agriculture because their soils and topography are well-suited for agriculture (Rogers 1964). Decreases in the abundance of sage-grouse paralleled the loss of range (Braun 1998), and a gradual but marked decrease in sage-grouse distribution and numbers in Colorado had begun around 1910 (Rogers 1964).

Sagebrush habitats within the range of GUSG are becoming increasingly fragmented as a result of various changes in land uses and the expansion in the density and distribution of invasive plant species (Oyler-McCance et al. 2001; Schroeder et al. 2004). Based on spatial modeling, a variety of human developments including roads, energy development, residential development, and other factors known to cause habitat decline were correlated with historical loss of range and extirpation of Gunnison and greater sage-grouse (Wisdom et al. 2011). The model indicated that no secure areas (areas where the risk of extirpation appears low) of occupied range are evident for GUSG (Wisdom et al. 2011). Landscapes containing large and contiguous sagebrush patches and sagebrush patches in close proximity had an increased likelihood of sage-grouse persistence (Wisdom et al. 2011).

The degree to which habitat fragmentation prevents a species' movement across the landscape depends, in part, on that species' ability to move large distances and thereby adjust to changes on the landscape. Sage-grouse are wide-ranging and capable of making large seasonal movements, because they require a diversity of seasonal habitats (Connelly et al. 2000, and references therein). Movements as great as 56 km (35 mi) have been documented in the Gunnison Basin (Phillips 2013). In contrast, the maximum recorded movement distance of GUSG in the Monticello population is 8.2 km (5.1 mi), associated with winter movement (Ward 2007). Prather (2010) noted that such behavior may be due to the presence of large areas of piñon -juniper (i.e. less suitable habitats) which bracket currently occupied habitat in the Monticello population area. Population dynamics of greater sage-grouse in northwestern Colorado functioned at much smaller scales than expected for a species capable of moving large distances (Thompson 2012), suggesting that large expanses of contiguous sagebrush habitat may not be necessary for sage-grouse survival. The majority of juvenile dispersal was intra-population movement (within one breeding population), with only one inter-population movement (between separate breeding populations) observed during the study (Thompson 2012). As a result, juvenile recruitment into home breeding ranges ranged between 98 and 100 percent (Thompson 2012). Based on observed bird dispersal in that study, gene flow and connectivity can likely be maintained for populations within 5 to 10 km (most dispersals were less than 10 km) and possibly as far as 20 km (the maximum dispersal distance of birds studied) in greater sage-grouse (Thompson 2012). Because bird movements likely vary by population and area, their susceptibility to habitat loss and degradation may also differ. We expect that where habitat is already more limited (quantity and quality) and isolated, such as in the six satellite populations, habitat loss and decline will have more serious consequences in terms of population fitness and survival. Where habitat is already severely limited or degraded, or where sage-grouse

populations are small, any loss of habitat may impact those populations. In addition, habitat loss impacts are expected to be greater in important seasonal habitats, such as areas used during moderate to severe winters, or in lekking, nesting, or brood-rearing habitats (GSRSC 2005).

The decline or loss of lek and brood-rearing habitats can have serious consequences for sage-grouse population viability by reducing reproductive success and recruitment (survival of young to breeding age). Limitations in the quality and quantity of nesting and early brood-rearing habitats, in particular, are especially important because GUSG population dynamics are most sensitive during these life-history stages (GSRSC 2005). Juvenile recruitment is one of the most important demographic factors influencing or limiting sage-grouse population growth rates and viability (Connelly et al. 2004, GSRSC 2005).

Roads

Impacts to GUSG from roads may include direct habitat loss, direct mortality, barriers to migration corridors or seasonal habitats, facilitation of predation and spread of invasive vegetative species, and other indirect influences such as noise (Forman and Alexander 1998).

Roads have been shown to fragment GUSG habitat, with road avoidance by birds presumably to limit exposure to human activity and predation (Oyler-McCance et al. 2001). The probability of GUSG habitat occupancy (presence based on pellet surveys or sage-grouse observation) was positively correlated with distance to roads and habitat patch size (Oyler-McCance et al. 1999).

Gunnison sage-grouse may avoid road areas because of noise, visual disturbance, pollutants, and predators moving along roads, which further reduces the amount of available habitat. An unpublished study by Western State Colorado University and CPW in the Gunnison Basin found that anthropogenic noise was significantly higher at leks closer to roads and human activity centers than leks farther from those sources (Piquette et al. 2013). Leks with higher noise levels were associated with lower GUSG male counts and attendance (Piquette et al. 2013). The landscape-scale spatial model predicting GUSG nest site selection showed strong avoidance of areas with high road densities of roads classed 1 through 4 (primary paved highways through primitive roads with 2-wheel drive sedan clearance) within 6.4 km (4 mi) of nest sites (Aldridge et al. 2012). Nest sites also decreased with increased proximity to primary and secondary paved highways (roads classes 1 and 2) (Aldridge et al. 2012). Male greater sage-grouse lek attendance was shown to decline within 3 km (1.9 mi) of a deep seam natural gas well haul road where traffic volume exceeded one vehicle per day (Holloran 2005). If noise from roads interferes with mating displays, and thereby female attendance, younger males will not be drawn to the lek and eventually leks will become inactive (Amstrup and Phillips 1977; Braun 1986). However, other information (CPW 2013) suggests GUSG in the Gunnison Basin may be fairly tolerant of roads, even the more heavily used highways and county routes, and the potential direct or indirect effects of those roads.

The presence of roads increases human access and resulting disturbance effects in remote areas (Forman and Alexander 1998; Forman 2000; Connelly et al. 2004). In addition, roads can provide corridors for predators to move into previously unoccupied areas. Some mammalian species known to prey on sage-grouse, such as red fox (*Vulpes vulpes*), raccoons (*Procyon lotor*),

and striped skunks (*Mephitis mephitis*), have greatly increased their distribution by dispersing along roads (Forman and Alexander 1998; Forman 2000; Frey and Conover 2006). Corvids (Family Corvidae: crows, ravens, magpies, etc.) also use linear features such as primary and secondary roads as travel routes (Bui 2009), expanding their movements into previously unused regions (Knight and Kawashima 1993; Connelly et al. 2004). Corvids are significant sage-grouse nest predators and were responsible for more than 50 percent of nest predations in Nevada (Coates 2007).

The expansion of road networks also contributes to exotic plant invasions via introduced road fill, vehicle transport, and road maintenance activities (Forman and Alexander 1998; Forman 2000; Gelbard and Belnap 2003; Knick et al. 2003; Connelly et al. 2004). Invasive species are not limited to roadsides, but also encroach into surrounding habitats (Forman and Alexander 1998; Forman 2000; Gelbard and Belnap 2003). Upgrading unpaved four-wheel-drive roads to paved roads resulted in increased cover of exotic plant species within the interior of adjacent plant communities (Gelbard and Belnap 2003). This effect was associated with road construction and maintenance activities and vehicle traffic, and not with differences in site characteristics. The incursion of exotic plants into native sagebrush systems can negatively affect GUSG through habitat losses and conversions.

Powerlines

Depending on the infrastructure design, size, location, and site-specific factors, powerlines can directly affect greater sage-grouse by posing a collision and electrocution hazard (Braun 1998; Connelly et al. 2000) and can have indirect effects by decreasing lek recruitment (Braun et al. 2002, Walker et al. 2007), increasing predation (Connelly et al. 2004), fragmenting habitat (Braun 1998), and facilitating the invasion of exotic annual plants (Knick et al. 2003; Connelly et al. 2004).

In areas where vegetation is low and the terrain relatively flat, power poles provide an attractive hunting, roosting, and nesting perch for many species of raptors and corvids, known predators of GUSG (Steenhof et al. 1993; Connelly et al. 2000; Manville 2002; Vander Haegen et al. 2002). Power poles increase a raptor's range of vision, allow for greater speed during attacks on prey, and serve as territorial markers (Steenhof et al. 1993; Manville 2002), thereby increasing the likelihood of predation where sage-grouse occur. Golden eagle (*Aquila chryrsaetos*) predation on sage-grouse on leks increased from 26 to 73 percent of the total predation after completion of a transmission line within 200 meters (m) (220 yards (yd)) of an active sage-grouse lek in northeastern Utah (Ellis 1985). The lek was eventually abandoned, and Ellis (1985) concluded that the presence of the powerline resulted in changes in sage-grouse dispersal patterns and caused fragmentation of the habitat.

Powerlines may negatively impact sage-grouse habitats even if raptors are not present. The use of otherwise suitable habitat by sage-grouse near powerlines increased as distance from the powerline increased for up to 600 m (660 yd) (Braun 1998), indicating sage-grouse avoidance of powerlines. Based on those unpublished data, Braun (1998) reported that the presence of powerlines may limit Gunnison and greater sage-grouse use within 1 km (0.6 mi) in otherwise

suitable habitat. Based on spatial modeling, sage-grouse extirpation appears to be correlated to the presence of powerlines (Wisdom et al. 2011).

Livestock Grazing

Livestock management and domestic grazing have the potential to degrade GUSG habitat. Grazing can adversely impact nesting and brood-rearing habitat by decreasing vegetation available for concealment from predators. Decreases in vegetation may result in failures in nesting or reduced or lost productivity. Grazing also has been shown to compact soils, decrease herbaceous abundance, increase erosion, and increase the probability of invasion of exotic plant species (GSRSC 2005). The impacts of livestock operations on GUSG depend upon stocking levels and season of use.

We know that grazing can have negative impacts to sagebrush and consequently to GUSG at local scales. Impacts to sagebrush plant communities as a result of grazing are occurring on a large portion of the range of the species. Given the widespread nature of grazing within the range of GUSG, the potential for population-level impacts exists.

Livestock grazing may also have positive effects on sage-grouse under some habitat conditions. Sage-grouse use grazed meadows significantly more during late summer than ungrazed meadows because grazing had stimulated the regrowth of forbs (Evans 1986). Greater sage-grouse sought out and used openings in meadows created by cattle grazing in northern Nevada (Klebenow 1981). Also, both sheep and goats have been used to control invasive weeds (Mosley 1996 in Connelly et al. 2004; Merritt et al. 2001; Olsen and Wallander 2001) and woody plant encroachment (Riggs and Urness 1989) in sage-grouse habitat.

Fences

Effects of fencing on sage-grouse include direct mortality through collisions, creation of raptor and corvid perch sites, the potential creation of predator corridors along fences (particularly if a road is maintained next to the fence), incursion of exotic species along the fencing corridor, and habitat decline (Call and Maser 1985; Braun 1998; Connelly et al. 2000; Beck et al. 2003; Knick et al. 2003; Connelly et al. 2004). However, fences can also benefit GUSG by facilitating the management of livestock forage use and distribution to achieve desired habitat objectives (GSRSC 2005).

Sage-grouse frequently fly low and fast across sagebrush flats, and fences can create a collision hazard resulting in direct mortality (Call and Maser 1985; Christiansen 2009). Not all fences present the same mortality risk to sage-grouse. Mortality risk appears to be dependent on a combination of factors including design of fencing, landscape topography, and spatial relationship with seasonal habitats (Christiansen 2009).

Although we expect the impacts of fences to GUSG are similar to those observed in greater sage-grouse, studies on fence strike-related mortality in GUSG are more limited. However, in 10 years of tracking and studying over 1,000 radio-collared sage-grouse in Colorado, CPW has documented only two strike-related mortalities in GUSG due to fences (one confirmed case in

Poncha Pass attributed to bird release methods; and one unconfirmed case in the Gunnison Basin).

Fence posts create perching places for raptors and corvids, which may increase the ability of these birds to prey on sage-grouse (Braun 1998; Oyler-McCance et al. 2001; Connelly et al. 2004). This impact is potentially significant for sage-grouse reproduction because corvids were responsible for more than 50 percent of greater sage-grouse nest predations in Nevada (Coates 2007). Greater sage-grouse avoidance of habitat adjacent to fences, presumably to minimize the risk of predation, effectively results in habitat fragmentation even if the actual habitat is not removed (Braun 1998). Because of similarities in behavior and habitat use, the response of GUSG should be similar to that observed in greater sage-grouse.

We recognize that the stipulations, controlled surface uses, and timing limitations include exceptions, modifications, and waivers. For the purposes of this BO, we assume that the BLM granting of exceptions, modifications, or waivers, to stipulations or controlled surface uses, or timing restrictions within critical habitat for the GUSG will be extremely rare and requires separate section 7 consultation. We make this assumption for the purpose of a simplified effects analysis. It is not possible for to anticipate use of exceptions, modifications, or waivers, therefore it is not possible for us to reasonably predict the negative effects to GUSG or their critical habitat associated with their use. The use of exceptions, modifications, and waivers within critical habitat for the GUSG may require reinitiation of section 7 consultation.

Analysis of Effects of the Action

The BA concluded that implementation of the RMP where the following resources or issues occur will not affect the GUSG or its critical habitat: air and climate; wild horses; cultural resources; paleontological; visual water; wild and scenic rivers; lands with wilderness characteristics; forestry, national trails; national, State, and BLM byways; wilderness study areas; Native American tribal uses; public health and safety; socioeconomic; and environmental justice. These issues will not be further addressed within this BO.

Vegetation Management

Vegetation management and protection would impact GUSG. Management to improve and protect vegetation conditions throughout the planning area would improve vegetative cover, reduce the likelihood for erosion and sedimentation, and maintain seed banks. Most vegetation treatments would not directly affect GUSG, as a timing limitation would be applied to avoid impacts during sensitive periods. Vegetation treatments would improve habitat for GUSG in the long-term by providing more opportunities for lekking, nesting, brood-rearing, wintering, cover, and foraging. However, in the short-term, vegetation treatments may remove habitat or increase the potential for weed spread. In addition, human disturbance and noise associated with the use of heavy equipment for vegetation removal could temporarily displace GUSG from foraging, breeding, nesting, and wintering habitats.

Gunnison sage-grouse habitat would be improved and maintained through vegetation treatments, prioritizing winter sage-grouse habitat for treatment and restoration, developing restoration plans

in non-functioning habitat, reducing pinyon-juniper encroachments, increasing habitat connectivity, and managing for age class diversity. Actions to reduce pinyon-juniper woodland invasion of upper elevation sagebrush communities would benefit GUSG that require open sage parks. Monitoring after vegetation treatments would occur to evaluate success in meeting objectives. These actions would help support GUSG habitats, and are consistent with the conservation measures identified in the Piñon Mesa Conservation Plan (Piñon Mesa Gunnison Sage Grouse Working Group 2000).

Habitat Improvement

Public land management agencies should continue to improve the quality of sagebrush communities on public land through grazing management, fencing, re-seeding, fuels management, and other treatment projects (GSRSC 2005). The RMP anticipates habitat restoration and improvement, and projects will focus on removal of pinyon-juniper encroachment into sage grouse habitats and on restoration of degraded sage-grouse habitats. Some of the methods used during habitat restoration or improvement may cause short-term negative effects to GUSG. For example, use of fencing to keep livestock out of areas being rested from grazing pressure may provide perches for predators, potentially resulting in avoidance of the area by GUSG.

Weed Management

Noxious and invasive weeds are generally lower in cover and forage value to wildlife and degrade habitat by displacing and reducing optimal cover or food. The RMP goal and objectives call for control and reduction of weeds. Objective VW-O2 requires weed prevention on appropriate actions authorized within the planning area. Action VW-A3 states: Implement preventative measures for activities associated with oil and gas operations; ROWs; range developments; special recreation permits (SRP); and construction and mechanical vegetation treatment activities as authorized in contracts and permits.

Fish and Wildlife Management

The BLM would establish ten wildlife emphasis areas on 150,000 acres to protect areas with high wildlife value and significance, focusing on protecting habitat for big game, cutthroat trout, and sage-grouse. This strategy would allow the BLM to focus their wildlife management efforts in the areas that would be most effective to preserve and protect fish and wildlife, including GUSG. The Timber Ridge and Glade Park wildlife emphasis areas will be of particular benefit to the GUSG, as these boundaries would overlap with occupied habitat for the species and a recently discovered lek in the Timber Ridge area. These wildlife emphasis areas encompass approximately 96 percent of occupied critical habitat and approximately 49 percent of unoccupied critical habitat on BLM-administered lands. The Glade Park emphasis area encompasses 10,100 acres of GUSG occupied critical habitat; this accounts for the majority (95 percent) of occupied proposed critical habitat on BLM-administered lands. Examples of management actions that will be applied in wildlife emphasis areas include stipulations on surface-disturbing activities and recreation restrictions, as well as ROW avoidance and exclusion areas, travel closures, and seasonal restrictions to maintain existing unfragmented habitat and

meet wildlife objectives. Approximately 27,200 acres of the Glade Park wildlife emphasis area will be subject to the CO-CSU-Wildlife Habitat stipulation, which would benefit GUSG by restricting surface occupancy or use within this area.

Wildland Fire Management

Wildland fire, fire suppression, and wildland fire management activities have the potential to impact GUSG through loss of sagebrush habitats, erosion, human presence, noise, habitat avoidance, weed invasion, (of particular concern is cheatgrass). These impacts could affect lekking, nesting, brood-rearing, wintering, or foraging behavior. Fire management in the RMP will allow for wildfire suppression in and near GUSG habitat, and emergency stabilization and rehabilitation treatments. Prescribed fire and fuel treatment actions will be considered in vulnerable to catastrophic wildfire events to lessen the likelihood or severity of such events impacting GUSG.

The BLM intends to avoid planned and unplanned fire in low elevation cheatgrass-infested communities, which would help protect adjacent sagebrush habitats used by GUSG. However, prescribed fire, if applied at an appropriate scale, is a viable management tool for protecting Gunnison sagebrush habitats from catastrophic wildfires (GSGRSC 2005). Using a variety of fuel treatments would have short-term effects on GUSG and habitats through vegetation removal, increased likelihood of erosion and sedimentation, human presence, and the potential for habitat avoidance. In the long term, these activities would reduce the likelihood of uncharacteristically large or intense wildfires that could damage large expanses of habitat or kill or displace wildlife. In addition, the condition of upland vegetation would be improved. Cheatgrass recolonization in prescribed burned areas is a notable concern, and reseeding efforts may be necessary to reduce the potential for invasive weeds (GSRSC 2005).

Fire management in occupied and unoccupied critical sage-grouse habitat will continue to focus on immediate suppression in sagebrush habitat, but may impact GUSG habitat in the suppression effort. We cannot predict where and when these impacts may occur, but wildlife suppression activities that impact GUSG habitats will occur under emergency consultation procedures.

Grazing

The RMP includes a number of management actions to incorporate GUSG habitat objectives and management considerations into livestock grazing management. Such measures will help to improve vegetation condition of rangeland areas and could reduce the likelihood of nonnative invasive species introduction or spread. In addition, removing, modifying, or marking fences in high risk areas will help to reduce the likelihood of injury or mortality to GUSG.

The majority of critical habitat is currently meeting land health standards (see Table 4-1 in BA). However, 28 percent of occupied habitat and 9 percent of unoccupied habitat is categorized as meeting the standards with problems, or not meeting the standards. Despite the management actions described above, reductions in herbaceous cover that fall below the Rangewide Conservation Plan habitat guidelines (GSRSC 2005) are likely to continue to occur at times.

Adverse effects from trampling of eggs or nests may also occur. This is thought to be rare but the impact is not discountable.

Our conclusion regarding the effects of grazing Federal lands within the GJFO is that, in general, implementation of the grazing program may result in minimal effects to GUSG. We conclude that substantial localized negative effects may occur from over-utilization of forage. However, we believe that on-going monitoring of range conditions will result in the appropriate modification of stocking rate, timing, duration and intensity of grazing in those areas over-utilized by livestock.

As stated above, trampling of nests, or nest abandonment may occur due to the presence of livestock. In addition, flushing of hens from active nests may result in predation of eggs. We believe there is potential for these events to occur on active allotments, but we do not have any means to meaningfully detect or measure these effects, primarily due to low sage-grouse population numbers within the GJFO. In addition, the mere presence of livestock in an area known to be occupied by GUSG may not necessarily result in exposure of the birds to these effects.

Grazing management improvement actions such as fences, corrals, windmills, and stock pond development may result in substantial negative effects to GUSG. Fences may expose grouse to increased predation risk from avian predators and collisions. The RMP provides guidance for removal, modification, and marking of livestock fences. Implementation of this guidance will likely reduce the collision risk for GUSG, but is unlikely to eliminate fence collisions. However, the mere presence of a fence within occupied habitat does not necessarily means collisions will occur.

Water developments may alter existing habitat by congregating livestock use in previously unused upland habitat or by lowering water tables associated with riparian areas. Although water developments can be used to improve overall riparian habitat condition by drawing livestock and wild ungulates away from previously degraded areas, GUSG may be exposed to mosquitoes that may carry West Nile virus, which has been known to cause population declines in wild bird populations, including sage-grouse (GSRSC 2005). We are aware of three mortalities of captive bred GUSG, so it is reasonable to assume that they are susceptible to West Nile virus based on infection and mortality in greater sage-grouse. The revised plan promotes minimizing the likelihood of providing breeding sites for mosquitoes the transmit West Nile virus. However, we conclude that in situations where ponds are developed to provide for livestock water, there is a risk for production of mosquitoes that transmit West Nile virus, resulting in the possible infection, and mortality to GUSG associated with water development project within and near grouse habitat.

Recreation and Travel Management

Habitat loss, degradation, and fragmentation from roads are a major threat to GUSG (79 FR 69162). Recreation, particularly motorized and mechanized, on or off existing roads and trails can cause disturbance to GUSG at sensitive times of the year, particularly during lekking, nesting early brood-rearing and winter. The road and motorized trail system in motorized suitable areas

will generally not be considered for expansion or substantial alteration of the transportation system. The proposed action eliminates cross-country motorized use in most of the planning area, except in a limited area. The decision to restrict motorized access to existing roads and trails is generally considered beneficial, because the risk of flushing nesting grouse and other behavioral impacts or destruction of a nest from cross-country travel will be effectively reduced or eliminated.

Under the RMP, within proposed occupied habitat, 18.4 miles of routes will be open to public use (including 1.1 miles of county-maintain roads), and 12.3 miles of routes will be restricted to administrative and permitted use only. Four tenths of a mile of existing routes will be closed and rehabilitated. Within unoccupied habitat, 68.8 miles of routes will be open to public use (including 14.7 miles of county-maintained roads), and 29.6 miles of routes will be restricted to administrative and permitted use. Up to 19.9 miles of routes will be closed and rehabilitated. Habitat loss, degradation, and fragmentation from roads are a major threat to GUSG (79 FR 69162). The collective influences of fragmentation and disturbance from roads reduces the effective habitat as they are avoided by sage-grouse (Knick et al 2011; 79 FR 69162). Impacts related to behavior disruption may occur, particularly along routes occurring in occupied habitat. However, seasonal limitations and route closures within 4 miles of leks will reduce impacts. In addition, the Timber Ridge Wildlife Emphasis Area will be limited to foot and horseback use, which is expected to reduce potential impacts to the lek in this area.

Recreation on Pinon Mesa primarily consists of hunting and mountain biking. Recreation in the area is limited to existing roads and trails. In the winter a minimal number of small game hunters use the area. In late spring and summer, mountain biking occurs within the area. Mountain biking use is not considered to be high, or to have any measurable influence on sage-grouse use in the area. Impacts from big game hunting primarily consist of temporary displacement of individuals flushed by hunters. Big game hunting is not considered a threat to GUSG. Off highway vehicles (OHV) are limited to existing roads and trails. Limited use by OHVs is expected to continue with the primary impact to grouse being disturbance. In the Pinon Mesa area, recreation is limited to areas with public access, and much of the public land is isolated from public road access points, or is often too steep for OHV use. Due to limited access to BLM lands in the area there is very low likelihood for impacts from recreation related activities.

Lands and Realty

Construction and operation of ROW facilities, such as pipelines, roads, and transmission lines, may result in habitat loss, fragmentation, and degradation. Surface disturbance during construction removes vegetation and important habitat components for GUSG and, in most cases, renders the habitat unsuitable. Rights of way, such as those for roads and industrial facilities, may lead to permanent loss of GUSG habitat. Other ROWs, such as those for pipelines or buried power lines, may lead to a more short-term loss of habitat if the area were reclaimed after construction. However, following natural succession regimes, sagebrush communities would take 20 to 30 years to return to preconstruction conditions. In addition to removing vegetation, long-term occupancy of structures and facilities leads to direct habitat loss.

Rights-of-way may also lead to habitat fragmentation and degradation. Right of way projects can reduce patch size and increase edge habitats. Since GUSG require large blocks of intact habitat, linear disturbances reduce habitat quality. Surface disturbance can also lead to new weed infestations and spread weeds where infestations already occur. Noxious and invasive weeds are often of lower value to wildlife, and degrade wildlife habitat by reducing optimal cover or food. Sagebrush-steppe communities are among the ecosystems most vulnerable to invasion and degradation by invasive weeds. Not only can invasive species outcompete most native plants when moisture is limited, they can also change site-specific fire ecology and result in the loss of critical shrub communities. The loss and degradation of sagebrush habitat can reduce the carrying capacity of local breeding populations of GUSG, especially in areas where high quality sagebrush habitat is limited (Braun 1998; Connelly et al. 2000). As such, there would likely be more impacts on GUSG and their habitat in areas where ROWs are permitted compared to areas where ROWs are excluded or avoided.

Both the construction and operation phases of ROW projects can lead to disruption impacts. Noise and an increase in human presence during construction may displace GUSG into lower quality habitat and may disrupt breeding and nesting (Holloran 2005). Although construction impacts are generally short term, many impacts would continue during routine maintenance and operation of the ROWs. Gunnison sage-grouse would likely avoid habitat in the vicinity of infrastructure (Holloran et al. 2010), resulting in indirect habitat loss. In addition, noise and an increase in traffic during ROW operation and maintenance would disturb and likely displace GUSG (Lyon and Anderson 2003; Holloran 2005). Avoidance of habitat would be most prevalent during levels of high human activity, such as ROW construction. Gunnison sage-grouse may avoid otherwise suitable habitat as the density of roads and infrastructure increases (Holloran 2005). Avian predators, particularly raptors and corvids (i.e., crows, ravens, and magpies), are attracted to overhead utility lines because they provide perches for various activities, including hunting (Avian Power Line Interaction Committee 2006). Increased predation and harassment of GUSG may occur from new ROW projects involving power lines or other tall structures (Connelly et al. 2004). However, the RMP includes management to remove or modify raptor perches, thereby reducing this threat. In addition, road ROWs may increase mammalian predator densities. Construction and operation of ROW facilities may also lead to direct mortality of GUSG. The potential for GUSG mortality from project construction would be low and likely limited to nesting hens or young chicks that have limited mobility. Direct mortality may occur from collisions with turbines, power lines, or meteorological towers or their supporting infrastructure, such as guy wires (Connelly et al. 2004; Beck et al. 2006). In addition, an increase of traffic on roads from ROW maintenance and operations can lead to direct mortality through vehicle collisions.

The RMP includes ROW exclusion areas, which are any areas within a 0.6-mile radius of any sage-grouse lek. Additionally, all occupied sage-grouse habitat and areas within a 4-mile radius of sage-grouse leks are identified as ROW avoidance areas. These measures would reduce or eliminate the above described impacts on GUSG and their habitat by restricting new ROWs.

Lands

Renewal of existing authorizations will incorporate sage-grouse conservation measures to the extent possible with the existing use. Some authorizations may necessitate the removal of GUSG habitat and may cause other indirect effects. There is no reasonable means available to predict the timing or location of rights-of-way requests, and we are unable to meaningfully predict an approximate habitat impact from such requests. However, we believe that the revised RMP directs the BLM to reduce the negative impacts of such requests, and is unlikely to result in significant losses of GUSG habitat within the planning area. This allows the BLM to require retrofitting of existing power lines with raptor perch deterrents when reauthorizing ROW permits. In addition, NSO stipulations will limit new disturbances within GUSG habitat by requiring co-location of infrastructure within existing ROW.

Energy and Mineral Development

No fluid mineral development potential occurs within or near established GUSG populations in the GJFO planning area, and no existing fluid mineral leases overlap with designated critical habitat. All occupied GUSG habitat (currently 10,600 acres) will be closed to leasing. As stated in the BA, no energy or mineral development is expected within critical habitat in the Glade Park/Pinon Mesa area. Therefore, we do not anticipate negative effects to GUSG or its critical habitat to result from energy and mineral development within the analysis area.

Species Response to Proposed Action

The nature of such a broad reaching programmatic analysis makes evaluating the species response to the proposed action difficult if not impossible to predict. The revised RMP contains direction to minimize impacts to the GUSG thus reducing the potential for adverse effects. However, project level decisions will occur with occupied habitat for GUSG habitat that will result in some of the effects detailed above. Implementation of the revised RMP is likely to result in low levels of adverse effects to GUSG, primarily as indirect effects from project level decisions. However, given the uncertainty of the timing, location, size, and extent of future actions it is not possible to meaningfully predict adverse effects caused by implementation of the revised RMP at this programmatic scale. All subsequent actions that affect GUSG will be subject to future section 7 analysis and consultation requirements.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The majority of the planning area occurs within Mesa County, Colorado which has experienced significant population growth since 1987, and population forecasts expect the growth trend will continue (Colorado Division of Local Government, State Demography Office 2013). As such, continued use and development within the planning area is expected to continue. Past, present, and reasonably foreseeable future actions and conditions on non-Federal lands in the action area that will likely continue to affect Gunnison Sage-Grouse are as follows:

- Mineral exploration and development
- Agricultural development
- ROW and infrastructure development
- Livestock grazing
- Recreation
- Road construction
- Weed invasion and spread
- Wildland fires
- Drought
- Farming

We are not aware of any specific non-Federal actions within the action area that are reasonably certain to occur that will negatively affect GUSG.

CONCLUSION

Colorado Hookless Cactus

After reviewing the current status of the Colorado hookless cactus, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's BO that implementation of the RMP, as proposed, is not likely to jeopardize the continued existence of the Colorado hookless cactus. The Service's rationale is presented below.

Implementation of the revised RMP, including the conservation measures, will reduce multiple threats to the Colorado hookless cactus by, significantly curtailing off-road and off-trail mechanized and motorized travel; implementing standard operating procedures and best management practices for soil disturbances; applying No Surface Occupancy (NSO) stipulations on steep slopes, and NSO 2 on riparian zones; incorporating conservation measures contained in the programmatic grazing BA/BO of November 15, 2012 (BLM, 2012; Service BO number ES/GJ-6-CO-12-F-006); designation of ROW exclusion and avoidance areas; and, the designation of the Pyramid Rock and Atwell ACECs.

The biggest change in the proposed action is the specific designation of routes for motorized travel. Cross-country motorized travel will not be allowed under the proposed action. Off-route motorized travel will be restricted to two specific designated areas with the GJFO, totaling 10,200 acres, a significant reduction form the 445,400 acres of cross-country travel authorized in the 1987 RMP. In addition, the GJFO proposes to close and rehabilitate 47.9 miles of existing routes within GJFO that are within 200 meters of known occurrences of the cactus.

We anticipate a low level of adverse effects to Colorado hookless cactus, but the majority of these effects will be widely distributed across cactus habitat in the GJFO and likely of low intensity and severity. Any subsequent action implemented under the revised RMP that may affect the Colorado hookless cactus or future critical habitat designations must go through separate section 7 consultation.

DeBeque Phacelia

After reviewing the current status of the DeBeque phacelia, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's BO that implementation of the RMP, as proposed, is not likely to jeopardize the continued existence of the DeBeque phacelia. The Service's rationale is presented below.

Implementation of the RMP, including the conservation measures, will reduce multiple threats to the DeBeque phacelia by significantly curtailing off-road and off-trail mechanized and motorized travel; implementing standard operating procedures and best management practices for soil disturbances; applying NSO stipulations on steep slopes; designation of ROW exclusion and avoidance areas; and, the designation of the Pyramid Rock and South Shale Ridge ACESs. Fluid minerals development will require surveys and inventories of listed plants; significant avoidance measures and stipulations are available to avoid direct impacts for most activities. In our opinion, these conservation measures are adequate to protect DeBeque phacelia from most effects & impacts. However, the BLM anticipated continuing or new adverse impacts from livestock grazing and travel management (motorized and mechanized travel).

In localized areas where DeBeque phacelia is found, 1.4 miles of routes open to public use (including 0.9 miles of county- maintained roads) occur within 200 meters of known DeBeque phacelia populations; no routes occur within 20 meters of known occurrences. Given the limited extent of nearby routes, and the general restrictions on off-road/trail motorized and mechanized travel, we expect travel related impacts on DeBeque phacelia to be lower under the RMP than previously.

The RMP will retain the 1,300 acre Pyramid Rock ACEC and designate the 28,200 acre South Shale Ridge ACEC; both contain critical habitat for the DeBeque phacelia, specifically the Pyramid Rock and Sulphur Gulch CH Units. (The Pyramid Rock ACEC contains only a small portion of the Pyramid Rock CH Unit, but the South Shale Ridge ACEC includes all of the Sulphur Gulch CH Unit.) Stipulation NSO-12 (ACECs) prohibits surface occupancy and surface-disturbing activities within each ACEC. All nine critical habitat units will be subject to Stipulations CSU-9 (Sensitive Plant Species Occupied Habitat), NSO-13 (Critical Habitat), LN-3 (Biological Inventories in known or suspected habitat) and LN-4 (Botanical Inventories in known habitat of T & E plant species).

With the travel restrictions and ACECs in place, we believe that implementation of the RMP will not jeopardize the existence of the DeBeque phacelia.

DeBeque phacelia Critical Habitat

After reviewing the current status of the critical habitat for the DeBeque phacelia, the environmental baseline for the action area, the effects of the proposed action, and any cumulative effects, it is the Service's BO that the BLM's proposed action to revise the RMP is not likely to result in destruction or adverse modification of critical habitat for DeBeque phacelia. We conclude that critical habitat will likely maintain its functionality to serve the intended conservation role for DeBeque phacelia. The proposed action will not appreciably diminish the value of critical habitat for both the survival and recovery of DeBeque phacelia.

We anticipate a low level of adverse effects to DeBeque phacelia, but the majority of these effects will be widely distributed across DeBeque phacelia habitat in the GJFO and usually of low intensity and severity. Any subsequent action implemented under the revised RMP that may affect the DeBeque phacelia or its critical habitat must go through separate section 7 consultation.

Gunnison Sage-grouse

After reviewing the current status of the GUSG, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's BO that implementation of the RMP, as proposed, is not likely to jeopardize the continued existence of the GUSG. The Service's rationale is presented below.

Implementation of the RMP, including the conservation measures and use stipulations, will reduce multiple threats to the GUSG and could restore the species to formerly occupied range through proposed habitat improvement projects. Designation of the Glade Park and Timber Ridge Wildlife Emphasis Areas will help ensure GUSG needs are considered in site-specific management decisions. However, we anticipate some low level of adverse effects to GUSG, but the majority of these effects would be widely distributed across GUSG habitat in the GJFO and likely be of low intensity and severity. Any subsequent actions implemented under the revised plan that may affect the GUSG or critical habitat must go through separate section 7 consultations.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

A. Amount or Extent of Take Anticipated

The "Effects of the Action" section above includes findings that implementation of the proposed action has the potential to cause biological effects to the GUSG that conform to the regulatory definition of take. However, the mere potential for take is not a legitimate basis for a take exemption. The Service must provide a reasoned basis for a likelihood of take in order to anticipate and exempt it. At this broad programmatic level, the best information available is not

sufficient to determine any specific level of anticipated take. However, project specific section 7 consultation analyses, subsequent to the proposed action, will reexamine this issue. Since the best information available does not permit us to determine a specific level of take, we are not exempting any take associated with implementation of the proposed action. Therefore, no reasonable and prudent measures and terms and conditions are provided below. If take is anticipated during authorization of a project level action, we will exempt such take at the project level as appropriate.

B. Effect of the Take

Not applicable

C. Reasonable and Prudent Measures and Terms and Conditions

Because there are no take exemptions provided under section 7(o) of the Act in the Opinion, the Service is not providing Reasonable and Prudent Measures or Terms and Conditions

F. Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We envision recovery for the Colorado hookless cactus includes sizable, stable populations maintained on conserved suitable habitat, with acceptable levels of connectivity between subpopulations for pollinator movement, gene flow, and seed dispersal. Populations will be maintained to provide sufficient representation, resiliency, and redundancy to ensure a high probability of survival for the foreseeable future. Meeting these goals will require that threats be sufficiently understood and abated. Range-wide monitoring will be necessary.

The Recovery outline for the Colorado hookless cactus is as follows:

Recovery needs for Colorado hookless cactus include: (1) survey to accurately document populations and suitable habitat; (2) protect and restore habitat including pollinator habitat and corridors to provide connectivity; and (3) protect individual plants and populations from direct and indirect threats. Specific actions include:

Surveys and Monitoring

- Completion of a comprehensive survey throughout the species' range. This would include areas that are not likely to be disturbed. Survey results will provide an accurate population estimate and allow us to identify core population areas so we can more effectively protect the species. This will require evaluation of habitat components likely to support Colorado hookless cactus.

- Surveys also should more accurately delineate the Colorado hookless cactus range relative to other *Sclerocactus* species.
- Locate possible population connectivity corridors.
- Continue ongoing monitoring efforts and expand monitoring to include a larger and more representative sample of occupied sites. This data should improve our understanding of trends.

Threats Abatement

- Identify sites in urgent need of habitat protection, set protection priorities, and implement protective measures. In the long run, land management agencies should establish formal land management designations to provide for long-term protection of important populations and habitat.
- Oil and gas leasing and other mineral extraction activities should avoid occupied sites and other important habitat.
- Develop and implement standard conservation measures to minimize future project and use impacts.
- Coordinate with land management agencies, project proponents, and other partners early in the planning process to limit direct and indirect impacts of planned activities.
- Prevent the collection of Colorado hookless cactus plants from natural populations.

Research

- Resolve the taxonomic status of Colorado hookless cactus regarding the species relationship with *S. parviflorus*. Secondarily, this study would assess genetic differences between Colorado hookless cactus populations.
- Continue research into Colorado hookless cactus life history and ecology, including pollinators.
- Study population dynamics and conduct a population viability analysis.
- Encourage investigations that project *Sclerocactus* species' vulnerability and response to climate change.
- Improve our understanding of livestock and native (e.g., rodent) grazing impacts.
- Monitor cactus-borer beetle (*Moneilema semipunctatum*) infestations, and study the relationship of episodic infestations with drought and other environmental factors.

Monitor changes in invasive species prevalence and impacts on Colorado hookless cactus. Additionally, continue to explore approaches to minimize the risk posed by invasives and associated remediation actions.

DeBeque phacelia

DeBeque phacelia is listed as threatened throughout its range. Conservation efforts should be to develop and implement proactive conservation measures that reduce threats to the species to the point that it no longer requires the protections of the Act and may be removed from the Federal

List of Endangered and Threatened Wildlife and Plants (delisted). Recovery efforts will focus primarily on Federal lands, since over 86.6 percent of the species' habitat occurs on these lands. By priority number, we envision recovery for DeBeque phacelia to include:

Potential criteria #1: Protect and maintain all extant populations

Potential criteria #2: Prevent or minimize habitat-disturbing threats

Potential criteria #3: Develop and implement rangewide monitoring

Gunnison Sage-grouse

The GJFO should consider full implementation of the conservation strategy presented in the GUSG Rangewide Plan. The purpose of the RCP is to identify measures and strategies to achieve the goal of protecting, enhancing, and conserving GUSG and their habitats.

Range-wide Conservation planning strategies, include, but are not limited to, the following:

1) Protect occupied habitats from permanent loss. If permanent habitat loss from development (primarily) or conversion is not addressed, successful implementation of all the other conservation strategies is not likely to be successful in conserving GUSG. An equally important strategy is preventing significant degradation, whatever the cause, of existing habitat that is seasonally important to grouse.

2) Coordinate with CPW in their effort to stabilize existing populations demographically and genetically through augmentation, and establish new populations in historically occupied habitats which are evaluated and deemed suitable.

3) Improve habitat within currently occupied and adjacent potential habitats.

4) Protect from permanent loss historically used habitats that are not currently occupied by grouse.

Additional recommendations are as follows:

- Any activity that results in the permanent loss of proposed critical habitat should include mitigation of offset such losses.
- Extend the timing restrictions on disturbances to breeding activities within areas from 0.6 to 4 miles from March 1 to July15 to protect lekking, nesting, and early brood rearing.
- Recreation - Only allow special recreation permits that have neutral or beneficial affects to occupied habitat areas.
- Lands/Realty – Retain public ownership of proposed critical habitat. Subject to valid, existing rights, co-locate new rights-of-way within existing ROWs
- Range Management - Within proposed critical habitat, incorporate GUSG habitat objectives and management considerations into all BLM grazing allotments through allotment management plans or permit renewals. Work cooperatively on integrated ranch

planning within GUSG habitat so operations with deeded/BLM allotments can be planned as single units. Design any new structural range improvements and location of supplements (i.e. salt or protein blocks) to conserve, enhance, or restore GUSG habitat through an improved grazing management system relative to GUSG objectives. When developing or modifying water developments, use best management practices to mitigate potential impacts from West Nile virus.

- Fluid Minerals - When permitting Application for Permit to Drill (APDs) on existing leases that are not yet developed, consider the development of disturbance caps to limit impacts to GUSG proposed critical habitat at local scales (e.g. within habitat units), unless compensatory mitigation demonstrates an offset of resulting habitat loss. Consider full implementation of the suggested management practices listed in RCP, Appendix L for all APD decisions.
- Incorporate "Available Conservation Measures" and "Overarching Conservation Objectives" found in the GUSG final listing rule (79 FR 69192, p. 69305-69309).

Instruction Memorandum No. CO-2013-033 provides a surface disturbance avoidance buffer for unmapped winter habitat within 4-miles of a lek. Consistent with the RCP, we recommend a 6-mile avoidance area around a lek for unmapped winter habitat.

G. Reinitiation-Closing Statement

This concludes formal consultation for the potential effects of the implementation of the revised RMP. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action (50 CFR §402.16).

We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species. If you have questions regarding this letter or your responsibilities under the Act, please contact Kurt Broderdorp at the letterhead address or phone 970-628-7186.

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