



United States Department of the Interior



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December 17, 2018

Memorandum

To: Field Manager, Uncompahgre Field Office, Bureau of Land Management,
Montrose, Colorado

From: Western Slope Supervisor, U.S. Fish and Wildlife Service, Ecological Services,
Grand Junction, Colorado

Ann Timberman 12/17/2018

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

This responds to your July 31, 2018, submission of a biological assessment, 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 Uncompahgre Field Office located in Delta, Gunnison, Mesa, Montrose Ouray, and San Miguel Counties, Colorado. We received your request on July 31, 2018.

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 Uncompahgre Field Office in Colorado. The biological assessment describes the effects caused by implementing the RMP. The revised RMP replaces the previous 1989 Uncompahgre Basin Resource Management Plan.

The UFO determined there are 10 federally listed species affected by the proposed action. Table 1 provides a list of species identified by the BLM as potentially affected by the proposed action. The Uncompahgre Field Office also contains designated critical habitat for six of the identified species, and proposed critical habitat for one of the species.

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

Common Name	Species Name	Federal Status¹
Listed Species for Consultation		
<u>Plants</u>		
Colorado hookless cactus	<i>Sclerocactus glaucus</i>	T
Clay-loving wild buckwheat	<i>Eriogonum pelinophilum</i>	E
<u>Fish</u>		
Colorado pikeminnow ²	<i>Ptychocheilus lucius</i>	E
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	T
Razorback sucker ²	<i>Xyrauchen texanus</i>	E
Bonytail ²	<i>Gila elegans</i>	E
Humpback chub ²	<i>Gila cypha</i>	E
<u>Birds</u>		
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T
Gunnison sage-grouse ²	<i>Centrocercus minimus</i>	T
Western yellow-billed cuckoo ³	<i>Coccyzus americanus</i>	T

¹Status: E = Endangered; T = Threatened; P = Proposed for listing; C = Candidate for listing

²Critical Habitat

³Proposed critical habitat

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:

- Greenback cutthroat trout
- Mexican spotted owl
- Western yellow-billed cuckoo
- Colorado pikeminnow*
- Razorback sucker*
- Bonytail*
- Humpback chub*

May affect, likely to adversely affect:

- Colorado hookless cactus
- Clay-loving wild buckwheat*
- Gunnison sage-grouse*

*Includes critical habitat.

In email correspondence dated October 25, 2018, determinations for the fish species potential affected by the plan were revised to, may affect, but not likely to adversely affect. 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 greenback cutthroat trout, Mexican spotted owl, western yellow-billed cuckoo, Colorado pikeminnow, razorback sucker, bonytail, humpback chub.

We also agree with your determination of may affect, and likely to adversely affect, for the following species and designated critical habitat (as appropriate): Colorado hookless cactus, clay-loving wild buckwheat, Gunnison sage-grouse. We address these species and designated critical habitat in the enclosed biological opinion.

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. The biological assessment concluded that the proposed action is not likely to destroy or adversely modify proposed critical habitat for the western yellow-billed cuckoo. Since conferencing is not required, we will not address proposed critical habitat issues for this species.

Attachment(s)

Programmatic Biological Opinion Regarding the Effects from the implementation of the revised
Resource Management Plan within the Uncompahgre Field Office of the
Bureau of Land Management

Species and Critical Habitat (if designated or proposed) Addressed include

Gunnison sage-grouse *Centrocercus minimus* and CH
Clay-loving wild buckwheat *Eriogonum pelinophilum* and CH
Colorado hookless cactus *Sclerocactus glaucus*

Prepared by the
U.S. Fish and Wildlife Service
Western Colorado Office
Grand Junction, Colorado
December 2018

INTRODUCTION

The Proposed Resource Management Plan (RMP) planning area includes approximately 3.1 million acres of lands administered by the Bureau of Land Management (BLM), U.S. Department of Agriculture, Forest Service, National Park Service, State of Colorado lands, and private property. The decision area is a subset of the planning area, which includes only BLM-administered lands and Federal mineral estate under BLM jurisdiction. The RMP provides management direction within the decision area (675,800 acres of BLM-administered lands), which includes withdrawn lands, and 971,220 acres of Federal mineral estate under BLM jurisdiction. Withdrawn lands include the Dominguez – Escalante National Conservation Area and the Gunnison Gorge National Conservation Area (see Figure 1 in biological assessment, page 24).

CONSULTATION HISTORY

The Service issued two programmatic section 7 biological opinions 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-0006), 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). On December 26, 2017, the Service issued a third PBO (TAILS 65413-2008-F-0073-R001), which superseded PBO number ES/GJ-6-CO-08-F-0006. Both biological opinions 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 implemented under the revised RMP. Water depletions resulting from oil and gas exploration and other water development on the UFO fall under the two respective BLM PBOs. Therefore, BLM has fulfilled their section 7 consultation requirement for water depletion effects to the Colorado River fishes.

In addition, the UFO requested consultation for their Integrated Weed Management Plan, Tails: 06E24100-2013-F-0040 and, livestock grazing on three Field Offices including the UFO, Tails: 06E24100-2012-F-0020. Service issued two programmatic biological opinions for listed plant species (see tails numbers above), and the Service concurred that the effects of the Integrated weed management plan and livestock grazing would not adversely affect the GUSG, Tails: 06E24100-2013-F-0040 or its designated critical habitat, Tails: 06E24100-2013-F-0040-R001 .

- January 9, 2018—Meeting between the BLM and USFWS to present a general PRMP overview. The group discussed some specific management, including open off-highway vehicle (OHV) areas and potential conservation measures to reduce effects.
- March 16, 2018—Meeting between the BLM, USFWS, and Environmental Management and Planning Solutions, Inc. (EMPSi; contractor) to review species to be analyzed in the BA. The group reviewed management actions that could affect listed species and methods for analysis.
- June 14, 2018—Meeting between the BLM, USFWS, and EMPSi to discuss comments

on the first draft of the BA and resolve team questions.

During the consultation project, the Service requested clarification of the effects analysis and determinations for the Colorado River fishes, and the greenback lineage cutthroat trout. In an email dated October 25, 2018, BLM revised their determination for all fish species, concluding that implementation of the proposed RMP may affect, but is not likely to adversely affect these species, and in our cover memorandum, concur with the revised determinations.

At the request of the Service, BLM provided a clarification for the biological assessment regarding the federally list plant species potentially affected by PRMP implementation (K. Holsinger, BLM pers comm.).

The Service based this biological opinion on the BA prepared for the proposed action, 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), 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 Proposed Resource Management Plan (RMP) for the Uncompahgre Field Office of the BLM. The RMP provides strategic guidance for future management of BLM lands managed by the UFO. 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.

Proposed Resource Management Plan

Table 3-1 in the BA (page 3) describes the goals, objectives, and actions by resource and resource use of the RMP that are relevant to the protection of biological resources. The full RMP and list of best management practices (BMPs) for other resource and resource use programs appear as appendices to the BA (Appendices A and B). Below is a list of the resources and resource uses described in BA table 3-1 (page 3). The BA describes the specific goals, objectives, and actions, which we incorporate here by reference.

Special Status Species

Special Status Plants

Special Status Fish and Aquatic Wildlife

Special Status Terrestrial Wildlife

Special Status Terrestrial Wildlife—Western Yellow-Billed Cuckoo

Special Status Terrestrial Wildlife—Gunnison Sage-Grouse

Special Status Terrestrial Wildlife—Mexican Spotted Owl

Climate
Land Health
Soils and Geology
Water Resources
Vegetation
Areas of Critical Environmental Concern
Fish and Wildlife
Wildland Fire Ecology and Management
Forestry and Woodland Products
Livestock Grazing
Recreation and Travel Management
Lands and Realty
Fluid Leasable Minerals (Oil and Gas and Geothermal Resources)
Mineral Materials and Non-energy Leasable Minerals

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 Uncompahgre Field Office, the 675,800 acres of BLM-administered lands and 971,220 acres of Federal mineral estate within the UFO planning area. Bureau of Land Management manages lands within the Dominguez-Escalante and McInnis Canyons National Conservation Areas by separate RMPs. Therefore, these areas were not included in the UFO RMP revision. The action area includes the area described in the project biological assessment (BA).

STATUS OF THE SPECIES

We summarized the species descriptions and life histories below. We incorporated the detailed description of the species and life histories herein, where appropriate, by reference.

Colorado Hookless Cactus

The Service listed the Unita Basin hookless cactus as a threatened species in 1979. 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). In April 2010, the Service released a recovery outline (Service 2010), which provided an overview of the known information for Colorado hookless cactus and serves to guide recovery efforts, and inform consultation and permitting activities until we approve a comprehensive recovery plan for the species. The Recovery Outline also provided an updated and thorough review of the species’ status.

Colorado hookless cactus is a small ball or barrel-shaped cactus endemic to Montrose, Delta, Mesa, and Garfield Counties in western Colorado. This species has two population centers, one associated with the Gunnison River and its tributaries near Delta, Colorado, and the other with the Colorado River and its tributaries near DeBeque, Colorado. During the development of the

Recovery Outline, data indicate 98 occurrences totaling with approximately 19,000 individuals (Service 2010). These occurrences cover approximately 1,700 square miles, with an estimated 618,000 acres of potential habitat (Service 2010). Current data indicate 93 element occurrences with approximately 23,000 individuals, however, about one third of the occurrences have very few individuals, and many others are considered historical (NatureServe © 2018).

Colorado hookless cactus grows primarily in the salt desert shrub community on alluvial terraces associated with the Gunnison and Colorado Rivers. Soils commonly consist of 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. Mancos shale communities that favor the cactus have little resilience to disturbance due to soil chemistry and structure and limited available moisture (BLM 2002). The Service did not designate critical habitat for this species.

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 (Service 2010).

In addition to the known 98 occurrences recorded by CNHP, recent surveys for another project documented more than 6,000 individual plants. These additional 6,000 plants bring the estimated range-wide abundance to approximately 19,000 (FWS 2010). The Colorado Natural Heritage Program would likely rank these 6,000 individuals A-B, with the result that at least 37 percent of the estimated known individuals are in occurrences currently considered viable or ecologically intact.

Clay-loving Wild Buckwheat

The Service listed the clay-loving wild buckwheat as endangered in 1984, with a concurrent critical habitat designation (49 FR 28562). Thought to be confined to one occurrence at the time of listing, the species is currently known from 14 element occurrences totaling approximately 278,600 individuals. There are seven historic element occurrences that have not been revisited to verify continued species presence; based on past estimates, these unverified occurrences may contain 3,500 individuals (74 FR 49835). In 2013, BIO-Logic mapped an estimated 6,350 individuals of clay-loving wild buckwheat on private land within the action area (BIO-Logic 2013). Occupied habitat totaling over 582 acres is distributed across a range of approximately 11.5 miles wide (east to west) and 28.5 miles long (north to south) (74 FR 49835).

Clay-loving wild buckwheat is a low, slow-growing, and long-lived subshrub known only from Delta and Montrose Counties, Colorado. Plants bloom from late May to early September, with fruits maturing from late June through October. Mature clay-loving wild buckwheat plants grow four to eight inches in height, forming a densely branching, and low, rounded subshrub with a

woody base. The deciduous leaves are very short and narrow, typically less than one centimeter long and several millimeters wide, and appear needle-like. Flowers are hermaphroditic, with a mixed mating system requiring an insect vector for pollen transfer (Bowlin et al. 1992). Large pollinators such as common bees, wasps, flies, and ants have been observed visiting flowers (Tepedino 2009).

Clay-loving wild buckwheat is endemic to clay soils derived from Mancos shales, locally known as adobe soils; these soils are alkaline due to high concentrations of calcium carbonate, are high in selenium, and highly erosive. The soils display a dramatic shrink-swell capacity, resulting in a lumpy, uncompacted surface due to freeze-thaw expansion. The soils may be particularly sensitive to compaction when wet. Within Mancos shale soils, this species occurs in mat saltbrush (*Atriplex corrugate*) or black sagebrush (*Artemisia nova*) dwarf shrublands. Matt saltbrush and black sagebrush are the dominant species associates; other associates include charming woodyaster (*Xylorhiza venusta*), shadscale saltbrush (*Atriplex confertifolia*), Gardner's saltbrush (*Atriplex gardneri*), and bud sagebrush (*Picrothamnus desertorum*). Within these communities, buckwheat is typically found in the basin portions of the adobe badland system of draws and ridges, at elevations ranging from 5,180 to 6,350 feet (1,579 to 1,935 meters) (Service 2009). At a finer scale, plants are often concentrated on the north or east face of small hummocks where snow drifts remain later into the spring.

Critical habitat for clay-loving wild buckwheat consists of approximately 121 acres on two private working ranches near Austin in Delta County, Colorado. Two conservation easements held by the Colorado West Land Trust (formerly Black Canyon Regional Land Trust) protect the entirety of designated critical habitat. One purpose of the conservation easements is to conserve clay-loving wild buckwheat populations on the properties (Barger 2018, cited in BA). At the time of listing, critical habitat encompassed the entire known populations of the species. We define the primary constituent elements of critical habitat as, those factors associated with the whitish clay soils within the sparsely vegetated badlands of Mancos shale (49 FR 28562).

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 a threatened 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).

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). Trends in the high-male count indicate declines in all populations over the last three years with some increasing since 2011. The largest population, the Gunnison Basin population, while showing variation over the years, has been relatively stable through the 1996-2018 period (CPW 2018). 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, less than 50 males counted on leks (communal breeding areas)) (CDOW 2009b; CPW 2018). The San Miguel population is the second largest and comprises six fragmented subpopulations.

ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed State or Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State 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 BLM documented 314 distinct Colorado hookless cactus occurrences (i.e. populations) occupying greater than 0.25-acre, and 950 occurrences occupying less than 0.25-acre, (BA, page 30). This does not include the Dominguez-Escalante or Gunnison Gorge National Conservation Areas (NCAs), both of which contain significant occurrences adjacent to the action area. Currently identified Colorado hookless cactus occurrences occupy more than 3,000 acres within the action area (BA, page 30).

Numerous point-in-time population estimates conducted between 2012 and 2017 suggest that historic Element Occurrence Records drastically underestimate the size of the occurrences. Since the publication of the 2010 USFWS Recovery Outline, BLM documents 94 new distinct occurrences within the action area, totaling well over 2,000 individuals. Continued survey is likely to add additional occurrences within the action area.

On November 15, 2012, the Service issued biological opinion 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 UFO. 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 PRMP implementation. Therefore, this BiOp will not address the effects of livestock grazing on these two species.

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

Clay-loving wild buckwheat

Clay-loving wild buckwheat has an extremely limited range of approximately 890 acres within the action area, and is at a high risk of habitat loss. Fragmentation of clay-loving wild buckwheat habitat and populations into potentially nonviable sizes is the greatest threat to the species (USFWS 1988). Habitat loss and degradation have resulted from habitat conversion to irrigated agricultural land and residential development, as well as subsequent road building and off-road vehicle use. Other threats include ROWs for utilities and land access, pipelines, and new irrigation canals, which often skirt the bases of clay-loving wild buckwheat habitats (CNHP 2014). As stated in the BA, BLM consulted on two previous actions within the action area for their Integrated Weed Management Plan, and livestock grazing, where the effects of these actions adversely affect the species.

Gunnison Sage-grouse

Status of the Species within the Action Area

The action area for the proposed RMP encompasses lands within the UFO including GUSG habitat designated as “occupied,” and “unoccupied” critical habitat as described in the final rule (79 FR 69312). Within the UFO, GUSG occur in the Crawford, San Miguel Basin, and Cerro Summit-Cimarron-Sims Mesa population areas. Table 1 displays GUSG designated habitat acreage figures within the respective populations.

Table 1. GUSG Habitat on the Uncompahgre Field Office

Population	Occupied Critical Habitat			Unoccupied Critical Habitat		
	BLM Surface	Split Estate	Total	BLM Surface	Split Estate	Total
CSCSM	4,526	8,332	12,858	3,888	4,375	8,262
Crawford	0	0	0	2,727	4,159	6,887
Gunnison	0	0	0	326	21	347
San Miguel	821	6,790	7,610	0	1,228	1,228
Total	5,347	15,122	20,469	6,941	9,784	16,725

The Crawford population is located in Montrose and Delta Counties, about eight miles southwest of the town of Crawford and north of the Gunnison River. The primary area this population uses is west of Poison Spring Gulch to Green Mountain, and between the Gunnison River on the south and Red Canyon on the north. Most of this population falls within the Gunnison Gorge NCA RMP. There are currently five known active leks; BLM-administered land within this area. Colorado Parks and Wildlife (CPW) has monitored these leks for the past 27 years. Recently, the population trend appears to be declining (CPW 2018), CPW augmented this population with 74 birds from Gunnison Basin (2011-2013).

The San Miguel Basin population is patchy and consists of six subpopulations located in Montrose and San Miguel Counties, Colorado.

The Cerro Summit-Cimarron and Sims Mesa population consists of two subpopulations. The Sims Mesa area is located approximately seven miles south of Montrose, Colorado. Habitat consists of small patches of sagebrush heavily fragmented by pinyon-juniper woodland, residential and recreational development, and agricultural lands. Land use in the Sims Mesa area is primarily ranching. There is one known lek site in the Sims Mesa subpopulation on BLM-administered land; however, the lek is currently vacant (Phillips pers. comm., cited in BA)

The BLM evaluated habitat in the Cerro Summit-Cimarron in 2015 and Sims Mesa populations in 2016 per the Habitat Assessment Framework (Stiver et al. 2015). The results of the assessments are displayed in Tables 2 and 3 respectively.

Table 2

Cerro Summit-Cimarron Habitat Assessment Habitat Suitability			
Suitability Description	Nesting/Brood Rearing	Winter	Summer
Unsuitable	32 percent	81 percent	32 percent
Marginal	52 percent	15 percent	20 percent
Suitable	15 percent	14 percent	48 percent

Table 3

Sims Mesa			
Suitability Description	Nesting/Brood Rearing	Winter	Summer
Unsuitable	31 percent	38 percent	55 percent
Marginal	60 percent	40 percent	43 percent
Suitable	9 percent	22 percent	1 percent

As displayed in the tables, most nesting/brood rearing and winter habitats are marginal or unsuitable for both subpopulations. The Cerro Summit-Cimarron subpopulation has more suitable summer habitat, whereas most summer habitat is unsuitable or marginal for the Sims Mesa subpopulation.

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 are 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.

The BLM's BA included the following assumptions:

- Effects on listed species can occur from actions that result in direct mortality, loss of habitat or modifications to habitat suitability, and actions that displace individuals or disrupt behavior. Because threatened and endangered species have specific habitat requirements, and their habitats are often diminishing, disturbance of the species or their

habitat could result in population declines, which could adversely affect viability of local populations.

- The health of threatened and endangered species populations is directly related to the overall health and functional capabilities of upland, aquatic, riparian, and wetland resources, which in turn are a reflection of overall watershed health.
- Ground-disturbing activities could lead to positive or negative modification of habitat and loss or gain of individuals, depending on the nature of the activity, the intensity of the surface disturbance, the amount of area disturbed, the location of the disturbance, and the species affected.
- Species' health, population levels, and habitat conditions fluctuate in response to natural factors. Periods of drought or excessive moisture and outbreaks of diseases that affect species directly or affect habitat (e.g., Ips beetle) would likely affect threatened and endangered species population levels.
- BLM will assess Implementation-level actions on an appropriate spatial and temporal scale. Additional field inventories would likely be needed to determine whether any such species could be present in the action area.
- Manage land uses to maintain or move toward meeting the BLM Colorado Public Land Health Standards (BLM 1997) on a landscape basis. Site-specific analysis would assess whether management actions would contribute to the maintenance or achievement of land health standards or risk causing a decline in land health conditions.
- All permitted activities that may affect federally threatened or endangered species would undergo ESA Section 7 consultation with the Service. Mitigate the effects of activities to ensure that threatened or endangered species would not be jeopardized on a project-specific basis or at a cumulative level.
- The BLM would implement the standard operating procedures and mitigation measures from the UFO Weed Management Strategy. These would mitigate the potential effects from herbicide treatments.
- Success of mitigation depends on the proper implementation of specific protective measures employed. Adaptive management, such as changing techniques, would be used until success is achieved.
- Many of the resources and uses have NSO or CSU stipulations that extend beyond or overlap the NSO or CSU stipulations listed for protection of special status species. Although NSO or CSU stipulations for other resources and uses may offer additional benefits (e.g., reduced erosion, sedimentation, and weed invasion) and indirectly support special status species management, in most cases, these benefits would be negligible or redundant to the protections provided by stipulations for special status species. For these reasons, effects on special status species from NSO or CSU stipulations associated with other resources will only be addressed if they are anticipated to provide substantial additional protection.
- Stipulations, including NSOs, CSUs, TLs, and SSRs, could be excepted, modified, or waived by the BLM Authorized Officer as described and defined in Appendix B of the FEIS. Waivers, exceptions, and modifications are rare in the UFO, and there is no known waiver, exception, or modification that was granted where listed species were present. While BLM assumed they would not grant waivers, exceptions, or modifications unless there were changed conditions or new information leading to the conclusion that there would be no effect on listed species. However, the Service cannot rely of this assumption

for our effects analysis.

The BA stated that although data on known locations and habitats in the action area are available, the data are neither complete nor comprehensive. The BA considered known and potential species and habitat locations in the analysis. However, the BA also considered the potential for species to occur outside designated critical habitat areas. The BLM quantified effects when possible. In the absence of quantitative data, we applied best professional judgment based on scientific reasoning to determine the severity of effects. Additionally, the analysis of effects are programmatic in scope, which does not address site-specific proposals or projects. Consequently, we describe the general effects to the species of implementing RMP activities.

Effects of the Action within the Action Area

Colorado Hookless Cactus and Clay-loving Wild Buckwheat

The proposed action (revised RMP) will not cause additional effects from grazing or weed management beyond the effects documented in previous consultations (see consultation history). Therefore, we will not discuss these effects further. However, 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 UFO is likely to result in negative effects to these species. In addition, adverse effects to the plants are likely to occur from the presence of wild horses and the issuance of permits to drill on existing leased lands.

Below, we describe the general effects to federally listed plants anticipated by implementation of the PRMP.

Direct mortality can result from crushing, trampling, or physically removing plants. Contact with herbicides or other chemicals may 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 anthropogenic disturbances.

Trampling or coming in contact with chemicals may result in loss of vigor or reduced reproductive success, but may not always result in mortality. However, reduced vigor, may affect the plant's ability to reproduce and sustain the population. Herbivory can reduce reproductive success, or in some cases result in death. Fugitive dust deposited on federally listed plants may reduce their photosynthetic ability, or the ability of pollinators to transfer pollen between plants.

We define direct habitat loss as the physical destruction or conversion to a condition that no longer supports the 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 federally listed 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 plant species, such as the Colorado hookless cactus, to germinate and establish. Shrubs may protect some 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. Cheatgrass dominated areas appear to inhibit seedling cactus germination, thereby threatening the long-term viability of occupied Colorado hookless cactus habitat. 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 clay-loving wild buckwheat, 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 listed 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 occurs 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 federally listed plants. Smaller populations receive fewer pollinator visits, so seed production is lower in small populations.

Small population size decreases reproductive success, 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 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.

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. Sedimentation may bury listed plants resulting from disturbances upslope of plant populations.

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 can restore hydrologic function, remove invasive species, restore historic fire regimes, alter grazing management, or other methods. However, design of habitat restoration projects for listed plants must focus on the individual plant species and its specific habitat and site conditions. Generalized habitat restoration projects that do not focus on listed plant needs can have negative effects on these species.

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 and the clay-loving wild buckwheat within the UFO. The proposed RMP provides stipulation NSO-22, and manages habitat for federally listed plant species as ROW avoidance that will reduce loss of individual plants. Since designated critical habitat for clay-loving wild buckwheat only occurs on private lands, BLM concluded that implementation of the RMP will not affect critical habitat (BA p. 97).

Gunnison sage-grouse

Table 4 displays the overlap between some of the activities under the RMP.

Table 4.

Resource Management/Allocation	Unoccupied Habitat	Occupied Habitat
Closed to fluid mineral leasing	0	0
Open to fluid mineral leasing, subject to standard lease terms and conditions	0	0
Open to fluid mineral leasing, subject to NSO stipulation	2,800	20,470
Open to fluid mineral leasing, subject to CSU stipulation	13,930	0
Open to ROW development	0	0
ROW avoidance areas	6,941	5,347
ROW exclusion areas	1,330	0
Habitat management areas	2,330	2,680
Open to livestock grazing	5,920	4,590
Closed to livestock grazing	1,020	760
Acres within SRMAs	350	210
Acres within ERMA	1,280	0

This biological assessment assumes three types of disturbance cause changes to listed fish and wildlife habitats: disruption from casual use, disruption from permitted activities, and disturbance to habitat condition.

Casual uses, such as recreation and motorized vehicle use, are not subject to site-specific environmental review and monitoring requirements. Some species may adapt to disturbances over time and could recolonize disturbed habitats. Effects are more likely to occur in easily accessible areas, where visitation would be high, and in areas open to intensive motorized use. Effects still occur in areas limited to designated routes due to noise disturbance, human presence, potential for weed spread and habitat degradation, and potential for injury or mortality to wildlife from vehicle collisions. In general, the more acres of routes that are designated in the action area, the greater the likelihood of habitat fragmentation and disturbance to species and habitats.

The BA concluded, implementation of the RMP where the following resources or issues occur will not affect the GUSG or its critical habitat: air quality, areas of critical environmental concern, cultural resources, lands with wilderness characteristics, land tenure, paleontological resources, visual resources, National Trails and Byways, Native American Tribal interests, public health and safety, watchable wildlife viewing sites, wild horses, wild and scenic rivers,

and wilderness and wilderness study areas. Management of these resources and resource uses do not occur in designated critical habitat, or will not adversely modify designated critical habitat, or disturb Gunnison sage-grouse. Therefore, we will not be further addressed these issues within this biological opinion.

Timing limitation TL-16 prohibits surface use and surface disturbing and disruptive activities within all designated critical habitat from December 1 to March 15. Timing limitation TL-18 prohibits surface use and surface disturbing and disruptive activities within designated occupied critical habitat from March 1 to July 15. These timing limitations also apply to areas outside of designated critical habitat but occupied by GUSG. Stipulation NSO-31 prohibits surface occupancy and use within designated occupied critical habitat, and application of site-specific relocation requirements within occupied but undesignated habitat. The BLM may apply Stipulation CSU-29/SSR-34 to relocate activities within unoccupied designated critical habitat, which could limit surface disturbing activities. The majority of GUSG habitat falls under the ROW avoidance scenario, which allows for surface disturbing activities, and approximately 1,330 acres under ROW exclusion, which prohibits surface disturbing activities.

Sagebrush habitats within the range of GUSG are becoming increasingly fragmented by 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 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

Road impacts to GUSG 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 fragment GUSG habitat, when birds avoid roads 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. These stressors further reduce the amount of functional habitat availability. 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). Landscape-scale spatial modeling predicted GUSG nest site selection showed strong avoidance of areas with high road densities of paved highways through primitive roads with 2-wheel drive sedan clearance (i.e. class 1 through 4) 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 declined 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). Younger males will not be drawn to the lek and eventually leks will become inactive if noise from roads interferes with mating displays, and thereby female attendance (Amstrup and Phillips 1977; Braun 1986). However, other information (CPW 2013) suggests GUSG in the Gunnison Basin may be somewhat tolerant of roads, even 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 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. 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 chrysaetos*) predation on sage-grouse at 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 affect sage-grouse habitats even if raptors are not present. Use of otherwise suitable habitat decreased within 600 m (660 yd) of powerlines (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, the presence of powerlines appears correlated to extirpation of sage-grouse (Wisdom et al. 2011).

Livestock Grazing

Livestock grazing can adversely affect nesting and brood-rearing habitat by decreasing vegetation available for concealment from predators. Decreases in vegetation may result in nest failure, or reduced or lost productivity. Grazing activity may 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 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). In addition, 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.

Implementation of the grazing program is unlikely to result in large-scale detrimental effects to

GUSG. Substantial localized negative effects may occur from over-utilization of forage. However, 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.

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 understand the 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 UFO. In addition, the mere presence of livestock in an area 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.

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 (WNV), which has been known to cause population declines in wild bird populations, including sage-grouse (GSRSC 2005). We are aware of three WNV caused mortalities of captive bred GUSG, so it is reasonable to assume that they are susceptible to the virus based on known infection and mortality in greater sage-grouse. Therefore, in situations where ponds are developed to provide for livestock water, there is a risk for production of mosquitoes that transmit WNV, resulting in the possible infection, and mortality to GUSG associated with water development project within and near 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 limited. 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, including 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.

Vegetation Management

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. Implementation of timing limitations will avoid impacts to GUSG during sensitive periods, avoiding direct effects to GUSG. 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 habitat. Timing restriction in the PRMP will reduce the effects to breeding, nesting, and wintering habitats.

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 are not currently under consideration 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. We consider restrictions on motorized access to existing roads and trails 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.

Off-highway vehicles would be limited to designated trails on portions of the Kinikin Hills and Dry Creek SRMAs, where GUSG designated critical habitat occurs. Due to the open nature of the landscape, however, this travel management action could be difficult to enforce, and effects on Gunnison sage-grouse designated critical habitat could result.

Open cross-country motorized use would be allowed on 3,950 acres within the action area (54 percent fewer than under current management), which would reduce effects to Gunnison sage-grouse compared to previous management. While areas closed to motorized travel would be reduced compared to current management (880 acres, 93 percent fewer acres than under current

management), 57,400 acres would be closed to motorized and mechanized travel (30 percent more than under current management) and 613,570 acres would be limited to designated routes (4 times more acres than under current management). Overall, this management would reduce the potential for effects on Gunnison sage-grouse associated with motorized and mechanized travel to a greater extent than under current management.

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. Reclaimed ROWs, such as those for pipelines or buried power lines, may lead to a more short-term loss of habitat. 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, permitted ROW would cause impacts on GUSG and their habitat 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 functional 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 (Table 4). Additionally, BLM identified all occupied sage-grouse habitat, or areas within a 4-mile radius of sage-grouse leks as ROW avoidance areas. These measures would reduce or eliminate impacts on GUSG and their habitat by restricting new ROWs.

Lands

New ROW 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.

Energy and Mineral Development

Fluid Mineral development potential occurs within or near established GUSG populations in the UFO planning area. However, the proposed management plan includes an NSO stipulation within occupied GUSG habitat, which will limit effects to approximately 20,470 acres of occupied critical habitat, and 2,800 acres of unoccupied critical habitat. The Plan also provides a controlled surface use stipulation on approximately 13,930 acres of unoccupied critical habitat, which could avoid or eliminate effects.

We recognize that the PRMP includes exceptions, modifications, and waivers to stipulations, controlled surface uses, and timing limitations. For the purposes of this biological opinion, 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 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 we cannot reasonably predict or quantify 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.

Species and Critical Habitat Response to Proposed Action

The nature of such a broad reaching programmatic analysis makes evaluating the species and critical habitat response to the proposed action difficult if not impossible to predict. The revised RMP contains direction to minimize impacts to the GUSG (as described in the proposed plan) thus reducing the potential for adverse effects to the species and its designated critical habitat. However, project level decisions will occur within occupied critical habitat for GUSG that will result in some of the effects detailed previously. Implementation of the revised RMP is likely to result in low levels of adverse effects to GUSG, and equally low levels of effect to designated critical habitat, 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 quantify adverse effects caused by implementation of the revised RMP at this programmatic scale. Therefore, 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 conference opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

The planning area occurs within Delta, Gunnison, Mesa, Montrose, Orray, and San Miguel Counties Colorado, which have 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, we anticipate continued use and development within the planning area. 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, Colorado hookless cactus, and the Clay-loving wild buckwheat 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 the species or critical habitats discussed herein.

CONCLUSION

Colorado Hookless Cactus and Clay-loving Wild Buckwheat

After reviewing the current status of the Colorado hookless cactus and clay-loving wild buckwheat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that implementation of the RMP, as proposed, is not likely to jeopardize the continued existence of the Colorado hookless cactus and the Clay-loving wild buckwheat. 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, and clay-loving wild buckwheat by, significantly curtailing off-road and off-trail mechanized and motorized travel; implementing standard operating procedures and best management practices; applying No Surface Occupancy (NSO) stipulations; 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 right-of way exclusion and avoidance areas.

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.

We anticipate a low level of adverse effects to Colorado hookless cactus, and clay-loving wild buckwheat, but the majority of these effects will be widely distributed across cactus habitat in the UFO and likely of low intensity and severity. Any subsequent action implemented under the revised RMP that may affect the Colorado hookless cactus, clay-loving wild buckwheat or future critical habitat designations 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 biological opinion 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. 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 UFO 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

Endangered Species implementing regulation 50 CFR § 402.14 (i) (6) states, "for a framework programmatic action, an incidental take statement is not required at the programmatic level; any incidental take resulting from any action subsequently authorized, funded, or carried out under

the program will be addressed in subsequent section 7 consultation, as appropriate.” Since the proposed RMP constitutes a framework programmatic action, we are not providing an incidental take statement.

Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations 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.

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*. Secondly, 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.

Recovery Plan for clay-loving wild buckwheat

The recovery plan made the following recommendation to BLM for conservation and moving towards recovery of the clay-loving wild buckwheat. The BLM has completed most if not all of these actions.

Remove threats to the clay-loving wild-buckwheat and secure populations and their ecosystems.

- Protect populations on land administered by the Bureau of Land Management.
 - Develop a Bureau Habitat Management Plan.
 - Establish Areas of Critical Environmental Concern and/or State Natural Areas on viable sites (completed).
 - Eliminate off-road and all-terrain vehicle use within populations (completed).
 - Designate areas closed to off-road and all-terrain vehicles (completed).
 - Conduct intensive management in problem areas.
 - Consider mineral withdrawals and no-surface-occupancy stipulations for leases (completed).

Additional measures identified in the recovery plan include Inventory all potential habitat, monitor populations and habitat, conduct minimum viable population modeling study feasibility of population augmentations if desirable. It is currently unclear whether these additional measures were completed; however, we recommend continued survey effort and monitoring of populations to determine long-term population trends.

Investigate the advantages of establishing critical habitat on Federal sites.

Gunnison Sage-grouse

The UFO should consider full implementation of the conservation strategy presented in the GUSG Rangewide Conservation 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 GUSG.
- 2) Coordinate with CPW in their effort to stabilize existing populations demographically and genetically through augmentation, and establish new populations in suitable historically occupied habitats (i.e. unoccupied critical habitat).
- 3) Improve habitat within currently occupied and adjacent potential habitats.
- 4) Protect suitable unoccupied habitat areas from permanent loss.
- 5) Improve habitat conditions within unoccupied habitat, which will accommodate item 2 above.

Additional recommendations are as follows:

- Any activity that results in the permanent loss of proposed critical habitat should include mitigation of offset such losses.
- 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 considering waivers, exceptions, and modifications within NSO designated areas, we recommend implementing the criteria developed for the Northwest Colorado Greater Sage-Grouse RMPA as follows:

**Exceptions or modifications may be considered if, in consultation with the State of Colorado, it can be demonstrated that there is no impact on Gunnison sage-grouse based on one of the following:

1. Topography/areas of non-habitat create an effective barrier to impacts
2. No additional impacts would be realized above those created by existing major infrastructure (for example, State Highway 50).
3. The exception or modification precludes or offsets greater potential impacts if the action were proposed on adjacent parcels (for example, due to landownership patterns).

**In order to approve exceptions or modifications to this lease stipulation, the Authorized Officer must obtain: agreement, including written justification, between the BLM District Managers and CPW that the proposed action satisfies at least one of the criteria listed above

Waivers - No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.

- Incorporate “Available Conservation Measures” and “Overarching Conservation Objectives” found in the GUSG final listing rule (79 FR 69192, p. 69305-69309).

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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