

Biological Assessment For Federally Listed Terrestrial and Aquatic Species

For

Weminuche Landscape Grazing Analysis

San Juan National Forest,
Columbine Ranger District,
Hinsdale, La Plata and San Juan Counties,
Colorado



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INTRODUCTION

The purpose of this Biological Assessment (BA) is to evaluate the potential effects to species designated by the USDI Fish and Wildlife Service (USFWS) as Threatened, Endangered or Proposed for federal listing by re-authorizing grazing of domestic livestock in the Weminuche Landscape. The species evaluated are known to occur or have the potential to occur on the San Juan National Forest and/or have the potential to be affected by actions occurring on the San Juan National Forest.

This BA will address only terrestrial and aquatic species designated by the USFWS as Threatened, Endangered, or proposed for listing under the Endangered Species Act (ESA). Federally listed plant species will be addressed in a separate BA by the project's plant ecologist.

Terrestrial species designated as Candidates for federal listing are also designated by the Rocky Mountain Regional Forester as Sensitive in the USFS Rocky Mountain Region. Therefore, effects to Candidate species will be addressed in a separate Biological Evaluation (BE), in accordance with standards established in 50 CFR 402.12, and Forest Service Manual Direction (FSM 2672.4).

Federally listed species addressed in this BA are from the most recent list received from the USFWS (USDI Fish and Wildlife Service 2011). There are no species proposed for listing under ESA, nor is there any designated critical habitat for any listed species in the project area.

Analyzing and disclosing the effects of this grazing analysis project on federally listed species is needed to meet the objectives of the Endangered Species Act (ESA) of 1973 (16 U.S.C.1531 et seq.), as amended; the National Forest Management Act (NFMA) of 1976 (including FS Manual 2670 direction for threatened, endangered, and sensitive species management); and the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C.4321 et seq.), as amended.

Grazing of domestic livestock has occurred in the Weminuche Landscape for over a century, and grazing has been authorized by the Forest Service since the early 1900's. Prior to the establishment of the San Juan Forest Reserve in 1905, the San Juan Mountains were used as summer range by large bands of domestic sheep from both Colorado and New Mexico. The first small bands of sheep arrived in the Bayfield/Durango area in 1882. It is estimated that by 1902, there were about 268,000 sheep grazed in the San Juan Mountains each season.

Livestock grazing was unregulated prior to the establishment of Forest Reserves, with season of use based on weather and vegetative development. Generally, sheep would begin slowly working their way up into the high country in May or June, eventually arriving on the highest elevation summer ranges in early July. They started to leave the high country sometime between September 15 and October 1.

Early reports indicated that prior to 1903 large numbers of sheep had already left definite trails through some alpine areas – especially in topographic constrictions (narrow, steep or rocky terrain). Sheep also caused damage to previously well-defined trails by widening the trails, causing braiding of the trails and making the actual trail difficult to locate.

Following the establishment of the San Juan Forest Reserve in 1905, many changes in management were implemented in an effort to properly manage the rangeland resource. Some of the noteworthy changes included dividing the sheep range into distinct grazing districts (allotments) and assigning these areas to specific permittees with designated numbers and seasons of use, including the designation of specific trailing areas to be used to access the allotments. Other important management changes implemented during this time included the

adoption of open herding, which allowed sheep to spread out and graze with a minimum of driving, which resulted in less overgrazing and less trampling. Use of bed grounds was also restricted to no more than 3 nights in one place in order to reduce adverse impacts to soils and vegetation.

Although it is difficult to precisely track historic sheep stocking rates, a search of historic records gives a general picture of the early days of regulated grazing on the San Juan National Forest. The earliest grazing reports located were from the Annual Grazing Report for the San Juan National Forest, 1908, and show 109,359 sheep and goats authorized to graze on the San Juan National Forest (in the area now covered by the Columbine and Pagosa Ranger Districts). Historic records show the stocking of domestic sheep and goats on the San Juan National Forest peaked in 1920 at about 198,400 animals. From that period on, there were steady declines in stocking. By 1940, there were roughly 104,000 sheep. By 2010, only six sheep allotments were still being stocked in the Weminuche Landscape, with a total of about 2,850 ewes, not counting their associated lambs. Because each ewe has from one to three lambs, the total number of permitted sheep is about 8,550 animals.

Many factors have contributed to the decline in sheep stocking on the Columbine Ranger District, the most important of which is a steady decline in demand for wool and lamb. In addition, many portions of the Weminuche Landscape that were grazed historically are no longer grazed. Also, many current allotments are combinations of several previous smaller allotments. For these reasons, grazing intensity in currently active sheep allotments is generally much less than in previous decades. Evidence of past high historic sheep grazing intensities remains visible across the Landscape, and on all active sheep allotments. Because of much reduced grazing intensities, reduced seasons of use (currently July, August and mid-September), and reduced sheep stocking levels, alpine vegetation is continuing to slowly recover from past grazing practices. Recovery of vegetation in the alpine zone however is slow due to very short growing seasons, the small stature of most alpine plants, and the harsh climate of the alpine zone where most sheep grazing occurs.

The current San Juan National Forest Land and Resource Management Plan (Forest Plan) of 2013, along with Allotment Management Plans (AMP's) and Grazing Permits, regulate the numbers and type of livestock, dates of use, salting, vegetation manipulation and other activities undertaken for the purpose of livestock grazing on public lands.

Sheep are the primary domestic livestock currently permitted to graze in the Weminuche landscape, and their principle forage areas are in the alpine zone, although substantial amounts of time are spent in lower elevation zones enroute to alpine summer pastures, or in lower elevation allotments such as Spring Gulch and Burnt Timber. Even higher elevation allotments, such as Virginia Gulch and East Silver Mesa, have substantial portions of the allotment below the alpine zone in habitats such as spruce-fir and mixed conifer habitats. One allotment, Canyon Creek, was converted administratively from sheep to cattle in winter 2012 and grazed by cattle in summer 2013. This conversion was done at the request of the permittee. For this reason, the Canyon Creek Allotment will be analyzed in one of two potential configurations, as a cattle allotment or as a sheep allotment, but not both simultaneously.

Alpine rangelands of southwestern Colorado have been used for grazing domestic sheep, and to a much lesser extent cattle, since the mid-1800s. Prior to government control, sheep were herded in tightly grouped bands and continuously bedded in the same location for several nights in a row, which resulted in large forage losses through trampling and soil damage from excessive trailing. Some sites in the Weminuche Landscape still display these historic effects.

Loosely herded sheep, like the ones currently grazed in this Landscape, will aggregate in large groups when resting or drinking, then gradually split up into smaller groups as they graze away from water or bed grounds. Sheep are considered “intermediate feeders” meaning they utilize grasses, forbs, and shrubs, and have the ability to adjust their feeding habits to whatever is available. Sheep generally prefer forbs but readily utilize grasses, and depending on the season, may consume roughly equal amounts of forbs and grasses, including some sedges. Leaves are the most readily grazed portion of most plants. Selectivity of forage species may vary with the stage of plant maturity, location, weather, and availability of plants.

PURPOSE OF THIS DOCUMENT

The purpose of this BA is to evaluate the potential effects to federally listed terrestrial and aquatic species from the proposed continued authorization of domestic livestock grazing in the Weminuche Landscape. This BA will review proposed management actions associated with domestic livestock grazing in sufficient detail to identify the level of effect that may occur to federally listed species.

FIELD RECOGNIZANCE

Table 1. Field Survey results.

Cite dates when field visits were conducted

X	Field surveys were completed on numerous dates in 2010, 2011, and 2012 including: June 17, July 20-21, 26-29, August 10-12, 17, 23-27, September 14-17, 21, and October 16, 2010; December 4, 11, 28, and 31, 2011; January 5, 15, 21, 28, February 18 and 25, 2012 by Chris Schultz, District Wildlife Biologist.		
	No field survey is required.		
	A field survey is needed, but cannot be completed by required date due to:		
	Inappropriate season	Inadequate lead time	Higher priorities

Reviews of records and biological files were conducted on numerous dates in 2010, 2011, and 2012.

PROJECT INFORMATION

LOCATION

The Weminuche Landscape is located Hinsdale, La Plata and San Juan Counties, Colorado. The area is located northeast of Durango in Townships 36-40 North, Ranges 4-9 West, N.M.P.M., and is within the Columbine Ranger District of the San Juan National Forest (see Figure 1, below).

Most of the Weminuche Landscape analysis area is within the congressionally designated Weminuche Wilderness, the largest single wilderness area in the state of Colorado.

The Weminuche Landscape includes about 166,613 acres, of which about 161,077 acres (98%) is National Forest System (NFS) land. The remaining 3,983 acres are split out between Durango Reservoir Grant lands (City Reservoir) at 2,962 acres, and private lands at 1,021 acres. On National Forest System lands, 85% of the analysis area is in the Weminuche Wilderness. The remaining 15% is on non-wilderness lands.

Within the Weminuche Landscape, domestic sheep grazing is currently permitted on about 57,983 acres (36%) of National Forest System lands in 6 active allotments (Burnt Timber, Canyon Creek, East Silver Mesa, Spring Gulch, Tank Creek, and Virginia Gulch), and 7 vacant allotments (Cave Basin, Fall Creek, Flint Creek, Johnson Creek, Leviathan, Pine River, and Rock Creek). Cattle grazing is not currently permitted within the Weminuche Landscape. A small portion of the West Needles Allotment, which was closed to grazing in the Silverton Grazing Analysis, is proposed for re-authorizing sheep grazing under this decision.

The majority of the Weminuche Landscape analysis area is located west and south of the Continental Divide, in extremely rugged and colorful volcanic mountains, with elevations ranging from about 7,200 feet to 14,100 feet. The Florida and Pine Rivers as well as Vallecito Creek have ~~their headwaters in the analysis area. The analysis area is principally alpine tundra, mountain grassland, and spruce-fir forest.~~ There are smaller areas of aspen, mixed conifer, ponderosa pine, and mountain shrub communities. Cirques and talus slopes, along with numerous streams, fens, and lakes add diversity to the rugged landscape.

Various sections of roads and trails may be used for trailing livestock. Some of these trailing routes are outside the Weminuche Landscape but they have been included in this analysis because they are integral to the function and effective management of the Landscape's allotments.

The trailing routes include the following:

U.S. Hwy 160, County Roads 151, 172, 240, 243, 318, 319, 421, 501, 502, 521, 523, 527, Forest Roads #076 (Red Rim #2), #081 (Lime Mesa), #595 (Red Rim), #597 (Endlich Mesa), #602 (Pine River), #682 (Missionary Ridge), #724 (Middle Mountain), #775 (Saul's Creek), and sections of the Pine River Trail #523, Vallecito Creek Trail #529, Cave Basin Trail #530, Young's Canyon Trail #546, and Lime Mesa Trail #676. This analysis also includes a pre-existing right of way across MacDonald Becket Family Trust properties, and their successors, for access to the Canyon Creek allotment and cattle allotments in an adjacent Landscape (Missionary).

PURPOSE AND NEED

The purpose of this action is to continue to authorize livestock grazing on all or portions of the Weminuche Landscape in such a manner that will meet or move existing resource conditions toward desired conditions, and be consistent with Forest Plan direction, standards and guidelines. Not all lands in the project area currently meet this direction. The site-specific need for change for those areas which are not meeting or moving toward desired conditions is to bring existing conditions up to, or moving towards, the desired conditions. The site-specific need for those areas where desired conditions are currently being met is to maintain or improve current conditions.

This action is needed at this time because in the early 1990's, courts determined that livestock grazing permits should not be re-issued without sufficient environmental analysis conducted

under the National Environmental Policy Act (NEPA). This put many livestock operations at risk until such time as NEPA analyses could be completed. In response, Congress passed the Rescissions Act of 1995 (P.L. 104-19 1995) which provided for continuation of permit issuance if the only reason they could not be issued was lack of a NEPA analysis. The Act required federal agencies to develop and adhere to a schedule for completion of NEPA analysis on all grazing permits. The Weminuche Landscape grazing analysis is being undertaken to meet the Recision Act schedule mandated by law. This BA analyzes the effects of domestic livestock (sheep and cattle) grazing in the Weminuche Landscape on species listed as Threatened, Endangered, or Proposed under the Endangered Species Act.

The need for change in management is identified by comparing what currently exists on the landscape in the project area to specific descriptions of what should exist (desired conditions) in the different community types across the project area. The interdisciplinary analysis team defined project-specific desired conditions for this landscape. If project-specific desired conditions are being met, then Forest Plan Direction will also be met.

The need for action (change) is created by the disparity between the existing condition and desired condition. Where desired conditions are currently being met, the need is to maintain current conditions. Where desired conditions are not being met, the need is to change management actions such that conditions meet or move toward desired conditions in an acceptable timeframe. ~~The methods used to determine existing conditions are described in the Weminuche Landscape Grazing Analysis Environmental Analysis (EA).~~

Desired Conditions:

The desired conditions listed in the Forest Plan, and the 1998 Wilderness Amendment, provide a basis for the definition of site-specific desired condition goals. For this project, landscape scale desired conditions are defined for the entire analysis area, and site-specific desired conditions are defined for benchmark sites and/or key areas. Benchmark areas are sites sensitive to changes in land management activities, represent the key resources and concerns associated with the project, and are used to measure long-term conditions and trends relative to project activities. Key areas are implementation monitoring sites and serve as annual monitoring sites. Key areas may also serve as benchmark sites for long-term trend monitoring. Benchmark and/or key areas do not necessarily represent conditions over entire allotments. Some benchmark areas and key areas have been established and more may be established as needed in the future. Benchmark areas and key areas will generally be open meadows or other areas in suitable range most likely to be grazed by permitted livestock. The desired conditions defined by the ID team are as follows:

At the Landscape Scale:

- **Bighorn Sheep:** Reduce or eliminate the likelihood of contact between bighorn sheep and domestic sheep. Manage domestic sheep to achieve effective separation from bighorn sheep.
- **Allowable Use:** Utilization guidelines will be met across the analysis area.
- **Noxious Weeds:** No increase in noxious weeds in the analysis area as a result of domestic sheep grazing activities.

At the Site-specific Scale:

- **Plant Community:** Native grass and forb species will continue to dominate in both the short and long term.
- **Rangeland Health:** Rangelands will be healthy. Vigor and production on all grass and forb species will be high. There will be no increase in noxious weeds as a result of domestic sheep grazing activities. There will be no soil loss off-site, and no pedestaling or gully formation will occur as a result of domestic sheep grazing activities. Riparian conditions will be healthy and functioning properly.

- **Trend:** The apparent trend will be stable to upward in the long term.

Existing Conditions:

The need for a change in management is identified by comparing specific descriptions of what is desired across the landscape (desired conditions) to what currently exists on the landscape in the analysis area (existing conditions). In 2009-2011, the FS collected data to document existing conditions across the landscape.

Existing Conditions for Riparian and Upland Vegetation: Of a total of 31 upland data points and 10 riparian data points (includes PFC, RHM, and ocular), 35 (85%) were meeting desired conditions, with the other 6 in an upward trend.

Examination of the body of available data reveals that, for the project area at the overall landscape level, vegetative conditions are meeting desired conditions. However, there are isolated areas of concern noted by FS personnel, specifically at bed grounds and trailing "choke points." More detailed descriptions of the data can be found in Affected Environment of the Water and Vegetation sections of the EA in Chapter 3.

Existing Conditions for Bighorn: There are currently about 45,928 acres of potential mapped ~~overlap between domestic sheep and bighorn sheep in the Weminuche Landscape. A total of 2,457~~ acres are in active allotments, and 43,471 acres are in vacant allotments. This existing condition is undesirable due to potential for physical contact between domestic sheep and wild sheep, with the potential for contact leading to the possibility of disease transmission to bighorn sheep.

Existing Conditions for Wilderness: Because the desired conditions for wilderness are related primarily to vegetation conditions, the conclusions for existing wilderness conditions are generally the same as for vegetative existing conditions. However, there were isolated locations within wilderness (Emerald and Pearl Lakes along the Lime Mesa Trail, Stump Lakes, and Burnt Timber Trail) where conditions were noted to be of concern.

Temporal Scale:

Two time frames are referred to throughout this analysis, short-term and long-term. Short-term refers to the immediate 10-year period (2012-2022) and long-term is considered beyond ten years (2022+).

PROPOSED ACTION

Four alternatives are being evaluated by this Environmental Assessment (EA):

- 1 - No Action Alternative** whereby domestic livestock grazing would not be reauthorized on these allotments;
- 2 - Current Management Alternative** involving traditional livestock management using a predefined number of livestock (domestic sheep only) and specific grazing dates and allotment configurations;
- 3 - Adaptive Management Alternative, the Proposed Action.** This is the alternative that will be evaluated in detail in this BA, and consulted on with the USFWS. The proposed action is to continue to permit domestic livestock grazing on NFS lands by incorporating a variety of Adaptive Management strategies. Adaptive Management strategies are "tools" or management actions designed to maintain suitable resource conditions, or move unacceptable resource conditions towards desired conditions. Adaptive Management is designed to be flexible in regards to livestock numbers and season dates.

4 - Adaptive Management Alternative/Closing Vacant Allotments. This alternative would incorporate all the adaptive management options of Alternative 3 for the active grazing allotments (Burnt Timber, Canyon Creek, East Silver Mesa, Spring Gulch, Tank Creek and Virginia Gulch), including boundary adjustments, allotment re-naming, trailing, and design criteria. The difference between this Alternative and Alternative 3 is that all seven currently vacant allotments (Cave Basin, Fall Creek, Flint Creek, Johnson Creek, Leviathan, Pine River, and Rock Creek) would be entirely closed to all livestock grazing. No forage reserves would be authorized.

Alternative 2 - Current Management:

Under Current Management, livestock grazing continues with current AMP's or under the Annual Operating Instructions (AOI's). Permitted livestock numbers are shown below in Table 2.

Table 2. Current Domestic Sheep Grazing, by Allotment, in the Weminuche Landscape.

Allotment	Total Acres	Permitted Numbers	Actual Use (5-Year Average)	On Date Range	Off Date Range	Days of Use	Last Year of Actual Use
Burnt Timber-Tank Creek Band	5,148	700	700	6/25 - 7/5	9/18 - 9/24	18	2011
Burnt Timber-Virginia Gulch Band	*	850	775	6/26 - 7/6	9/16 - 10/1	27	2011
Burnt Timber-Canyon Creek Band	*	600	600	6/24 - 7/4	9/14 - 9/30	27	2010
Canyon Creek	6,328	600	600	5-July	13-Sept	71	2010
East Silver Mesa	9,718	700	775	1-July	25-Sept	87	2011
Spring Gulch	3,077	700	700	6/15 - 6/30	9/22 - 10/5	16	2011
Tank Creek	10,954	700	700	6-July	14-Sept	71	2011
Virginia Gulch	14,375	850	775	10-July	15-Sept	68	2011
Cave Basin	22,452	750	**	1-July	15-Sept	77	1988
Fall Creek	10,939	1000	**	1-July	15-Sept	77	1969
Flint Creek	16,359	950	**	1-July	15-Sept	77	1972
Johnson Creek	9,456	388	**	16-July	15-Sept	62	1968
Leviathan	6,530	582	**	1-July	15-Sept	77	1970
Pine River	38,843	850	**	1-July	15-Sept	77	1980
Rock Creek	10,880	850	**	1-July	15-Sept	77	1970
Total	165,059	5,700	5,625				

**N/A, allotments vacant more than previous 5 years

~Active allotments are shaded in the table~

Existing improvements continue to be maintained as assigned in Term Livestock Grazing Permits and may be re-constructed once the useful life has been met and the need identified. New improvements would not be developed unless they are authorized in a NEPA decision.

Alternative 3 – Adaptive Range Management - Proposed Action:

The proposed action (Alternative 3; see Figure 2, below) is to continue to permit livestock grazing in the Weminuche Landscape by incorporating adaptive management strategies that will allow the lands within the landscape to meet or move towards meeting Forest Plan direction, standards, and guidelines and desired conditions identified in this EA. Adaptive management is a process where land managers implement management practices that are designed to meet Forest Plan standards and guidelines, and would likely achieve the desired conditions in a timely manner. However, if monitoring shows that desired conditions are not being met, or if movement toward achieving the desired conditions in an acceptable timeframe is not occurring, then an alternate set of management actions, as described and evaluated under this NEPA analysis, would be implemented to achieve the desired results. Adaptive Management is designed to be flexible in nature, and is based on conditions on the ground; not regulated by fixed livestock numbers or seasons of use. It can be compared to a performance-based contract that is written with specifications for the end results, rather than written with detailed specifications on how to accomplish the job.

The proposed action is to continue to permit livestock grazing on six active allotments (Burnt Timber, Canyon Creek, East Silver Mesa, Tank Creek and Virginia Gulch; see Table 3, below) by incorporating adaptive management strategies. Boundary adjustments would be made to Canyon Creek, Tank Creek and Virginia Gulch Allotments to reduce the potential for contact between domestic sheep and bighorn sheep, more accurately reflect natural geographic and vegetation boundaries, and better reflect potential and actual domestic sheep use areas on the ground. As part of the boundary adjustments, the western most parts of Tank Creek and Canyon Creek would be closed to grazing. The East Silver Mesa allotment would be re-named to Endlich Mesa to correctly reflect land features within the allotment.

The northern 2/3 of Rock Creek allotment (7,344 acres), all of Leviathan allotment (6,530 acres), and most of Johnson Creek allotment (7,757 acres) would be designated as sheep forage reserves (see forage reserve discussion below). The remaining parts of Johnson Creek (1,699 acres) and Rock Creek (3,536 acres) allotments would be closed to grazing. Three other vacant allotments would be closed to all livestock grazing: Fall Creek, Flint Creek and Pine River. The entire Cave Basin allotment would be closed to sheep grazing. However, the southern quarter of the Cave Basin allotment would be designated a cattle forage reserve allotment. Access to allotments would continue through trailing from private lands to National Forest System lands. The USFS has no authority to authorize, or not authorize, use of trailing routes on non-National Forest lands.

Forage reserve is a specific designation for an allotment on which there is no current term permit, but for which a determination has been made to permit occasional livestock use (maximum 3 years out of any 10 consecutive years) for the purpose of enhancing management flexibility in other USFS allotments. Forage reserve allotments are reserved for occasional use by livestock authorized in another allotment, when their allotment has a loss of forage availability due to a variety of potential factors such as drought, fire, rangeland restoration activities, or resource conflicts.

Generally, grazing of forage reserves is authorized through the issuance of temporary permits, but these temporary permits may be converted to term permits administratively under certain circumstances. Typically, a forage reserve would be expected to be used no more than two years out of ten, and would not exceed a total of 3 years out of any 10 consecutive years. If use is

proposed to exceed this, then an inter-disciplinary team would verify whether allotment conditions were sufficient to support continued above average use.

Table 3. Status of allotments under current management, and under the proposed action (Alternative 3) in the Weminuche Landscape grazing analysis area.

Allotment	Current Management	Proposed Action
Burnt Timber-Tank Creek Band	Active Sheep	Active Sheep
Burnt Timber-Virginia Gulch Band	Active Sheep	Active Sheep
Burnt Timber-Canyon Creek Band	Active Sheep	Active Sheep
Canyon Creek	Active Sheep	Active Cattle
East Silver Mesa	Active Sheep	Active Sheep
Spring Gulch	Active Sheep	Active Sheep
Tank Creek	Active Sheep	Active Sheep
Virginia Gulch	Active Sheep	Active Sheep
Cave Basin	Vacant Sheep	Cattle Forage Reserve
Fall Creek	Vacant Sheep	Closed
Flint Creek	Vacant Sheep	Closed
Johnson Creek	Vacant Sheep	Sheep Forage Reserve
Leviathan	Vacant Sheep	Sheep Forage Reserve
Pine River	Vacant Sheep	Closed
Rock Creek	Vacant Sheep	Sheep Forage Reserve

~Active allotments are shaded in the table~

In response to a request from the Permittee, the Proposed Action for the Canyon Creek Allotment is to convert the allotment from domestic sheep to cattle grazing. However, it is possible this conversion would not occur and domestic sheep would continue to be permitted to graze the allotment. For this reason, the proposed action for the Canyon Creek Allotment will analyze effects from grazing either cattle or sheep, but not both simultaneously.

This Proposed Action would also include meeting certain resource conditions using monitoring and a variety of "tools", or actions, to reach or maintain those conditions. Adaptive Management is designed to be flexible in regards to livestock numbers, season dates, and class of livestock. Also included in the proposed action are specific action items included in site-specific Design Criteria, and other general Design Criteria (see Tables 4 and 5, below).

Design Criteria for Proposed Action (Alternative 3):

The Forest Service uses many measures to reduce or prevent negative impacts to the environment in the planning and implementation of management activities. The application of these measures begins at the planning and design phase of a project. The Forest Plan standards and guidelines and the direction contained in the Watershed Conservation Practices Handbook (FSH 2509.25) and the Range Management Handbook (FSH 2200) are the first protection measures to be applied to the project. These sources are incorporated by reference and are not reiterated here. Other

Project Design Criteria are then developed, as the need is identified by FS specialists and the authorized officer.

In response to internal and public comments on the proposal, design criteria were developed to ease some of the potential impacts and to help achieve the Desired Conditions. Some of the design criteria presented in Table 4 below have been used for years or are commonly used practices throughout the western United States and have been found to be effective in reducing potential impacts. These criteria apply to all active allotments across the landscape at all times and are part of the Proposed Action. The list of design criteria has been organized into logical categories. Each bullet statement applies to a specific action alternative as indicated by an "x" in the far right columns.

Table 4. Project Design Criteria for General Management of Permitted Domestic Sheep.

Livestock Herding and Salting	Current Condition	Proposed Action
<ul style="list-style-type: none"> ▪ Livestock will be herded and distributed across the allotment(s) in order to achieve proper grazing utilization of key forage species. (1.1) 	X	X
<ul style="list-style-type: none"> ▪ Permittees will spend as much time as needed to move livestock away from identified areas of concern and into areas of normally light use. This allows livestock to make use of forage that otherwise will not be grazed before allowable use standards are met in the key areas and the livestock are required to be removed from the area. Sheep movements should progress around an allotment in such a way to minimize back and forth trailing over the same ground to prevent permanent visual sheep trailing impacts. (1.2) 		X
<ul style="list-style-type: none"> ▪ At least one herder is required to be with the sheep. The main band will never be left unattended, except at night and short periods when the herder is accomplishing other tasks in the immediate area. A herder must remain in close proximity during the night. (1.3) 	X	X
<ul style="list-style-type: none"> ▪ Move sheep to a new grazing area every 5-7 days. (1.4) 		X
<ul style="list-style-type: none"> ▪ Wet areas with saturated soils (seasonal wetlands, snow-banks) will be avoided until they are dry enough to prevent livestock trampling impacts. (1.5) 	X	
<ul style="list-style-type: none"> ▪ Permittees will spend as much time as needed to move livestock away from areas of concern (meadows, riparian areas, key areas, and so forth) and into areas of normally light use, provided that such herding does not result in increased potential for contact. This benefits permittees since it allows livestock to make use of forage that otherwise will not be grazed before allowable use standards are met in the key areas and the livestock are required to be removed from a pasture. (1.6) 	X	X
<ul style="list-style-type: none"> ▪ Livestock grazing will be managed in riparian areas and willow carrs (a wetland willow thicket) to maintain or achieve mid-seral or higher condition to provide cover and forage for prey species within Canada lynx habitat (from Ruediger et al. 2000). (1.7) 	X	X
<ul style="list-style-type: none"> ▪ Livestock will not be close-herded to and from water. Livestock will be moved away from water sources after animals have finished drinking. (1.8) 		X

<ul style="list-style-type: none"> All trailing on federal land for ingress and egress to the permitted allotment will be within the period of use specified in the permit. (1.9) 	X	X
<ul style="list-style-type: none"> Salt should be placed in such a way as to distribute livestock use throughout the area. Place salt well away (>1/4 mile) from any water sources, or key areas that traditionally receive heavy use such as roads, parks, and riparian areas. Salt in areas of light use to draw livestock to those areas. The best distribution can be obtained by scattering one-half block chunks in areas of light use. Salt or supplement will not be placed near areas where such placement is liable to result in conflicts with other Forest users. Pick-up your salt after livestock are rotated to the next unit. (1.10) 		X
<ul style="list-style-type: none"> Grazing schedules will be developed so that areas are used at different times of the year if at all possible to maximize the opportunity for plant regrowth and recovery. Grazing schedules will be developed in the Annual Operating Instructions based on any or all of the following: the season of use, allowable use standard, residual stubble height, stocking rate, timing of livestock use. (1.11) 		X
Disposal of Dead Livestock	Current Condition	Proposed Action
<ul style="list-style-type: none"> When an animal covered by this permit dies from any cause, including contagious or infectious disease, the carcass must be buried in a location greater than 200 feet from water, out of view of roads or trails, and away from any areas of significant public use, within 24 hours of discovery, or notification by forest personnel. Off road travel or the use of heavy equipment must be authorized by the Forest Service, in advance. The preferred method for burial is simply by the use of a pick and shovel. Carcasses may be burned under certain circumstances when authorized by forest service personnel on a case by case basis. (1.18) 	X	X
Livestock Bedding	Current Condition	Proposed Action
<ul style="list-style-type: none"> Sheep will be bedded on new ground every 1-2 nights and moved to fresh feed daily in accordance with the current routing schedule. Permit requirements for bedgrounds allow for one night in each location. This is referring to closed bedding, or bedding when the sheep are bunched into one area. Two days use on bedgrounds is allowed if open bedding management is practiced. Open bedding is not bunching the sheep for the evening and letting them stay on the hillside where they finished grazing. Open bedding is preferred. (1.12) 	X	X
<ul style="list-style-type: none"> Sheep will be bedded on uplands or rocky ground, where possible, but not on canyon edges or canyon rims. Sheep will be bedded no closer than 100 feet from the herder's camp (200 to 300 feet is preferred). If predators are a problem, teepee out with the sheep at night, Do not bed near water sources or recreation trails. (1.13) 		X
<ul style="list-style-type: none"> Sheep bedding, trailing, salting, or intentional grazing is not permitted in the Uncompahgre fritillary butterfly (UFB) restriction area polygon. (1.14) 		X

<ul style="list-style-type: none"> ▪ Sheep should be bedded at least 300 feet from all water sources, including lakes, ponds, tarns, springs and seeps, system trails, campgrounds, picnic grounds, and the remains of historic structures. There may some exceptions due to topography on the allotment but these will be approved in advance by the Forest Officer. (1.15) 		X
<ul style="list-style-type: none"> ▪ Bedgrounds in some areas may be closed or relocated in the Annual Operating Instructions on an annual basis, based on impacts. Locations of and frequency of use will be one of annual monitoring indicators. (1.16) 		X
<ul style="list-style-type: none"> ▪ Herders will be vigilant to domestic sheep movement off of bedgrounds during the night due to lunar phase or predation. These strays will be located and returned to the band the next day. (1.17) 		X
Herder Camps	Current Condition	Proposed Action
<ul style="list-style-type: none"> ▪ Sheep herder camps will be moved every 5 to 10 days and regularly rotated on an annual basis. By changing camps each year, bed grounds will be used only once every several years. (1.19) 	X	X
<ul style="list-style-type: none"> ▪ Camps and salting areas will be not be placed in wetlands or fens and placed at least 200 feet from all surface water sources, including lakes, ponds, tarns, springs and seeps. (1.20) 	X	X
<ul style="list-style-type: none"> ▪ Camps will be kept and left clean. All flammable refuse will either be burned or packed put. Unburnable refuse, including cans, bottles, etc., will be packed out. Native materials may be left at site (firewood, log ridgepoles, etc), but everything else must be packed out. (1.21) 	X	X
<ul style="list-style-type: none"> ▪ Camps will be placed at least 200 feet from any system trail. (1.22) 	X	X
<ul style="list-style-type: none"> ▪ Sheep herders will not be allowed to excavate campsites. (1.23) 		X
<ul style="list-style-type: none"> ▪ Sheep herders will not be allowed to cut krummholz (dwarf spruce trees at timberline) for firewood. (1.24) 		X
<ul style="list-style-type: none"> ▪ All fires built for any purpose by the permittee and/or herder will not be left unattended and will be completely extinguished. Each camp must be equipped with a serviceable shovel and ax. During periods the FS has enacted fire restrictions, these restrictions will be observed. (1.25) 	X	X
Working Dogs and Pack Stock	Current Condition	Proposed Action
<ul style="list-style-type: none"> ▪ Working dogs are used at the discretion of the livestock owner under appropriate State and County laws and regulations. The Forest Service neither permits nor authorizes the use of working dogs. If the livestock owner chooses to use working dogs, the following are best management practices for the livestock operator to avoid conflicts with people: working dogs will be under the herder's control and must be non-threatening to recreation or other visitors. Threatening for this purpose will be defined as a dog that comes within approximately 20 feet of a person in an aggressive manner, (i.e. barking and snarling) and continues to follow the person as they attempt to retreat. This applies only if the visitor is not within the 		X

bounds of the grazing sheep band. (1.26)		
▪ Working dogs that do not meet the above requirements will be immediately removed by the permittee from the Forest. (1.27)		X
▪ The permittee will institute an upper limit on the maximum number of dogs that will be allowed to be used in conjunction with the sheep operation. No more than eight dogs in combination (guard dogs and border collies or other working dogs) will be allowed per sheep band. (1.28)		X
▪ Signs may be placed at trailheads giving public notice of the presence of sheep herder working dogs in the Analysis Area if the Public raises the concern of working dogs in the area (posted by the FS). (1.29)	X	X
▪ Pack and saddle stock as allowed in the permit are to be used for management of permitted livestock only. Stock may be waived only when the entire grazing permit is waived. (1.30)	X	X
Animal Damage Management	Current Condition	Proposed Action
▪ Animal damage management activities will be conducted in accordance with both Federal regulations and State law. Requests for assistance will be done in compliance with the current Animal and Plant Health Inspection Service (APHIS) Animal Damage Management Plan (for example, APHIS 2005) and must be in compliance with the Forest Plan. (1.31)	X	X
▪ Predator control (i.e., black bears, mountain lions, bobcats, and coyotes) will not be conducted without following the correct State, APHIS, and Forest Service procedures. These procedures will be provided to permittees in writing (part of the Annual Operating Instructions). (1.32)	X	X
▪ It is illegal to kill a grizzly bear, Canada lynx, wolverine, wolf, or any birds of prey. Publications will be made available to permittees to help distinguish the difference between certain protected species and several look-alike species as follows: ▪ Grizzly bear and black bear – a bear identification sheet will be given to permittees upon request. ▪ Canada lynx and bobcat – an identification sheet will be given to permittees upon request. ▪ Wolves and dogs – an identification sheet will be given to permittees upon request. (1.33)	X	X
Noxious Plants/Invasive Species	Current Condition	Proposed Action
▪ Any hay, straw or other feeds used on the allotment will be either certified as being free of noxious plants (also called noxious weeds), or will consist of heat-treated pelletized feeds. (1.34)	X	X
▪ Any seed used on the allotment will be tested for “all states noxious weeds” according to Association of Official Seed Analysts (AOSA) standards and will be certified by a Registered Seed Technologist or Seed Analyst as meeting the requirements of the Federal Seed Act (7	X	X

<p>U.S.C. Chapter 37: Sections 1551-1611) and the Rules and Regulations of the Colorado Seed Act pursuant to 35-27-101 through 125, C.R.S. (1993 Supp. as amended by Senate Bill 93-17). (1.35)</p>		
<ul style="list-style-type: none"> ▪ Permittees will make every effort to ensure that livestock do not contribute to the transport of noxious plants onto the allotment(s). Permittees will be given identification information on State of Colorado “noxious weeds” during annual meetings with the FS. The Colorado noxious weed list is available on the internet at: http://www.ag.state.co.us/CSD/Weeds/statutes/weedrules.pdf ▪ Noxious plant photos are available at: http://kiowa.colostate.edu/cwis109/noxious_weeds/Noxious_weeds.cfm. (1.37) 		X
<p>Note: in addition to Project Design Criteria, the following are recommended practices that will be discussed with permittees at the time of the Annual Operating Instructions meeting with agency personnel:</p> <p>Permittees are asked to help in locating noxious plant sites and reporting them to the Agency Officer. Permittees willing to assist in treating noxious plants should communicate with the Agency Officer before taking any action.</p> <p>Livestock coming onto the Forest from lands known to contain noxious plants should be held on clean forage or fed weed-free hay for several days to allow the majority of seeds to pass before turn on.</p> <p>Any equipment used in the transport of livestock, including horse trailers and stock trucks, should be washed before coming onto the allotment if they have been used in areas where noxious plants were present.</p>		
Access and Travel Management	Current Condition	Proposed Action
<ul style="list-style-type: none"> ▪ Permittees are required to abide by all FS road and trail restrictions and closures. Use of closed roads, and use of motorized equipment in areas designated as non-motorized requires a separate road use permit to be obtained prior to use. (1.38) 	X	X
Wilderness	Current Condition	Proposed Action
<ul style="list-style-type: none"> ▪ Livestock management in wilderness requires special consideration of the wilderness values. Livestock will be managed within wilderness to minimize impacts on the wilderness environment and to minimize potential conflict with other users of the area. (1.39) 	X	X
Information Notifications	Current Condition	Proposed Action
<ul style="list-style-type: none"> ▪ Provide the public information about the presence of working dogs and the “Dos and Don’ts” when recreating near domestic sheep bands. (1.40) 		X
<ul style="list-style-type: none"> ▪ Information will be made available at the Columbine Ranger District about livestock grazing rotation schedules so that those recreation visitors who wish to, may avoid encounters with domestic sheep and 		X

the resultant activities. (1.41)		
Permittee Instructions	Current Condition	Proposed Action
<ul style="list-style-type: none"> Annual Operating Instructions (AOIs) will be provided concerning proper management practices, so that this information can be passed on to non-English speaking/reading herders (if applicable). Permittees will be responsible for ensuring that their herders understand and comply with FS requirements. (1.42) 		X
<ul style="list-style-type: none"> The earliest turn on date and latest removal date will be based on allotment conditions relative to wet soils or snow, range readiness, vegetative phenology, and on minimizing conflicts with other uses. These annual dates will be communicated through the AOIs. Even when these conditions are met, the dates of livestock grazing will not exceed June 15 – October 15. (1.43) 		X
Permittee Monitoring	Current Condition	Proposed Action
<ul style="list-style-type: none"> Permittees are responsible for monitoring the following: livestock numbers; pasture entry and exit dates; allotment entry and exit dates; and maintenance activities for assigned improvements. This information will be furnished to the agency office within 30 days of livestock removal. This information will be verified by periodic agency inspections. (1.44) 	X	X
<ul style="list-style-type: none"> Permittees will keep a weekly log of specific locations where they encounter certain species of wildlife and will turn it in to the Agency Officer upon request or at the end of the grazing season. The species to be reported will include special status species such as bighorn, lynx, wolverine, etc. (1.45) 		X
<ul style="list-style-type: none"> Agency personnel may conduct annual permit administration consisting of monitoring such compliance with AOIs, general livestock locations and use levels, plant phenology of important forage species, noxious weed mapping, soil conditions, riparian conditions and water quality, and impacts from other uses. (1.46) 	X	X
<ul style="list-style-type: none"> Any monitoring outcome, when part of the ten-year interval monitoring, that does not meet Desired Condition will require the application of adaptive management strategies to livestock grazing practices to recover and maintain desired conditions, when livestock are a contributing factor to the condition. (1.47) 		X
Heritage Resources	Current Condition	Proposed Action
<ul style="list-style-type: none"> All persons associated with operations under this authorization must be informed that any objects or sites of cultural, paleontological, or scientific value such as historic or prehistoric resources, graves or grave markers, human remains, ruins, cabins, mining relics, rock art, fossils, or artifacts shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with operations under this authorization, any of the above resources are 		X

damaged, the proponent shall immediately suspend all operations that might further damage such materials and notify the Columbine Public Lands authorized officer. (1.48)		
<ul style="list-style-type: none"> Areas of intensive activity such as salt licks, bedding areas, and herder camps will not be located within 100 feet of the boundaries of previously identified significant cultural resources. Range managers will work with archaeologists to select locations that avoid known significant cultural resources and are likely to avoid unidentified sites in areas that lack cultural resource surveys. (1.49) 		X
Watershed Resources	Current Condition	Proposed Action
<ul style="list-style-type: none"> Wetlands and fens should be avoided at all times to prevent livestock trampling and grazing impacts. (1.50) 		X
<ul style="list-style-type: none"> Sheep movement around the allotment should minimize reoccurring trailing locations to prevent soil compaction and terracing, which result in altered hydrologic function. (1.51) 		X

Table 5. Project Design Criteria for General Management of Permitted Cattle.

General Design Criteria	Current Condition	Proposed Action
<ul style="list-style-type: none"> Meet Forest Plan guidelines in General Direction for utilization: Mainly seed reproduction - 40% on first used and 50% on last used pastures. Mainly vegetative reproduction - 45% on first used and 55% of last used pastures. (3.1) 	X	X
<ul style="list-style-type: none"> Keep livestock distributed as evenly as possible throughout suitable rangelands within pastures or allotments. Once the utilization standard is reached, livestock must be moved to the next pasture, or in the case of the last pasture, they will be removed from the allotment. (3.2) 		X
<ul style="list-style-type: none"> Permittees will spend as much time as needed to move livestock away from identified areas of concern and into areas of normally light use. This allows livestock to make use of forage that otherwise will not be grazed before allowable use standards are met in the key areas and the livestock are required to be removed from the area. (3.3) 		X
<ul style="list-style-type: none"> Keep livestock in the proper pasture during the time periods specified in the Annual Operation Instructions. (3.4) 		X
<ul style="list-style-type: none"> Wet areas with saturated soils (seasonal wetlands, snow-banks) should be avoided until they are dry enough to prevent livestock trampling impacts. (3.5) 	X	X
<ul style="list-style-type: none"> Permittees will spend as much time as needed to move livestock away from areas of concern (meadows, riparian areas, key areas, and so forth) and into areas of normally light use, provided that such herding does not result in increased potential for contact. This benefits permittees since it allows livestock to make use of forage that otherwise will not be grazed before allowable use standards are 	X	X

met in the key areas and the livestock are required to be removed from a pasture. (3.6)		
<ul style="list-style-type: none"> Livestock grazing will be managed in riparian areas and willow carrs (a wetland willow thicket) to maintain or achieve mid-seral or higher condition to provide cover and forage for prey species within Canada lynx habitat (from Ruediger et al. 2000). (3.7) 	X	X
<ul style="list-style-type: none"> The earliest turn on date and latest removal date will be based on allotment conditions relative to wet soils or snow, range readiness, vegetative phenology, and on minimizing conflicts with other uses. Even when these conditions are met, the dates of livestock grazing must occur between July 1 - Oct. 1. (3.8) 		X
<ul style="list-style-type: none"> Any monitoring outcome, when part of the five-year interval monitoring, that does not meet Desired Condition will require the application of adaptive management strategies to livestock grazing practices to recover and maintain desired conditions, when livestock are a contributing factor to the condition. (1.9) 	X	X
<ul style="list-style-type: none"> Salt should be placed in such a way as to distribute livestock use throughout the area. Place salt well away (>1/4 mile) from any water sources, or key areas that traditionally receive heavy use such as roads, parks, and riparian areas. Salt in areas of light use to draw livestock to those areas. The best distribution can be obtained by scattering one-half block chunks in areas of light use. Salt or supplement will not be placed near areas where such placement is liable to result in conflicts with other Forest users. Pick-up your salt after livestock are rotated to the next unit. (3.10) 		X
<ul style="list-style-type: none"> Grazing schedules will be developed so that areas are used at different times of the year if at all possible to maximize the opportunity for plant regrowth and recovery. Grazing schedules will be developed in the Annual Operating Instructions based on any or all of the following: the season of use, allowable use standard, residual stubble height, stocking rate, timing of livestock use. (3.11) 		X
Riparian Design Criteria	Current Condition	Proposed Action
<ul style="list-style-type: none"> Applicable management measures and design criteria from the Region 2 Watershed Conservation Practices Handbook will be followed. These items address the need to provide for stream health. (3.12) 	X	X
<ul style="list-style-type: none"> If livestock graze a riparian area before September, the residual stubble height standard would be four inches on riparian graminoids. This assumes that in an average year, the plants would re-grow to meet the residual stubble height standard during the rest of the growing season. (3.13) 	X	X
<ul style="list-style-type: none"> Once the residual stubble height standard is reached, livestock must be moved to the next pasture, or in the case of the last pasture, they will be removed from the allotment. (3.14) 	X	X
<ul style="list-style-type: none"> Exclude livestock from riparian areas and wetlands that are not meeting or moving towards desired condition objectives where monitoring information shows continued livestock grazing would 	X	X

prevent attainment of those objectives. (3.15)		
Noxious Plants/Invasive Species	Current Condition	Proposed Action
<ul style="list-style-type: none"> Any hay, straw or other feeds used on the allotment will be either certified as being free of noxious plants (also called noxious weeds), or will consist of heat-treated pelletized feeds. (3.16) 	X	X
<ul style="list-style-type: none"> Any seed used on the allotment will be tested for "all states noxious weeds" according to Association of Official Seed Analysts (AOSA) standards and will be certified by a Registered Seed Technologist or Seed Analyst as meeting the requirements of the Federal Seed Act (7 U.S.C. Chapter 37: Sections 1551-1611) and the Rules and Regulations of the Colorado Seed Act pursuant to 35-27-101 through 125, C.R.S. (1993 Supp. as amended by Senate Bill 93-17). (3.17) 	X	X
Monitoring	Current Condition	Proposed Action
<ul style="list-style-type: none"> Permittees are responsible for monitoring the following: livestock numbers; pasture entry and exit dates; allotment entry and exit dates; and maintenance activities for assigned improvements. This information will be furnished to the agency office within 30 days of livestock removal. This information will be verified by periodic agency inspections. (3.18) 	X	X
<ul style="list-style-type: none"> Agency personnel may conduct annual permit administration consisting of monitoring such compliance with AOIs, general livestock locations and use levels, plant phenology of important forage species, noxious weed mapping, soil conditions, riparian conditions and water quality, and impacts from other uses. (3.19) 	X	X
<ul style="list-style-type: none"> Any monitoring outcome, when part of the ten-year interval monitoring, that does not meet Desired Condition will require the application of adaptive management strategies to livestock grazing practices to recover and maintain desired conditions, when livestock are a contributing factor to the condition. (3.20) 	X	X
Watershed Resources	Current Condition	Proposed Action
<ul style="list-style-type: none"> Wetlands and fens should be avoided at all times to prevent livestock trampling and grazing impacts. Livestock should be actively herded away from these areas. (3.21) 	X	X
<ul style="list-style-type: none"> Sheep movement around the allotment should minimize reoccurring trailing locations to prevent soil compaction and terracing, which result in altered hydrologic function. (3.22) 	X	X
Heritage Resources	Current Condition	Proposed Action
<ul style="list-style-type: none"> All persons associated with operations under this authorization must be informed that any objects or sites of cultural, paleontological, or scientific value such as historic or prehistoric resources, graves or grave markers, human remains, ruins, cabins, mining relics, rock art, fossils, or artifacts shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with 	X	X

operations under this authorization, any of the above resources are damaged, the proponent shall immediately suspend all operations that might further damage such materials and notify the Columbine Public Lands authorized officer. (3.23)		
▪ Areas of intensive activity such as salt licks, bedding areas, and herder camps will not be located within 100 feet of the boundaries of previously identified significant cultural resources. Range managers will work with archaeologists to select locations that avoid known significant cultural resources and are likely to avoid unidentified sites in areas that lack cultural resource surveys. (3.24)	X	X
Special Design Criteria	Current Condition	Proposed Action
▪ Site-specific ground disturbance such as installation of water developments, pipelines, fences or exclosures will require site specific heritage and threatened and endangered species clearances. These activities may also need 404 permits.	X	X

Site-Specific Design Criteria for the Proposed Action

The design criteria above are applicable to the entire project area. During field analysis, some locations were identified as having a "need for change" and therefore additional site specific design criteria would be applied to address these areas of concern. These criteria apply to all active allotments across the landscape at all times.

Burnt Timber Allotment:

- No bedding within ¼ mile of Burnt Timber Trail.
- Minimize the number of times sheep cross the trail.
- Boundary adjustment: About 55 acres would be moved to Virginia Gulch Allotment since this sheep band is the only one that uses this area.

Canyon Creek Allotment - Sheep:

- No bedding within ¼ mile of Henderson Lake (Henderson Lake when trailing to allotment).
- Boundary adjustments to reflect actual use and topography features: Closure of the western most part of the allotment (1,588 acres) due to topography, vegetation, and proximity to overlap with mapped bighorn sheep range (see Figure 2 and Figure 5, below).

Canyon Creek Allotment - Cattle:

- Boundary adjustment same as above for sheep.
- If the use of the allotment administratively switches from sheep to cattle, then follow design criteria for cattle. Cattle grazing may occur only between July 1st and October 1st.
- A range rider would be required 5 days per week until fences are up and a rotational grazing system is working.
- Fencing for cattle would be needed on the north and west boundaries to prevent cattle from drifting into Tank Creek allotment. An additional pasture fence would be needed to create a third pasture. Fencing could be electric, traditional 4-wire fence, or 4 wire lay-down style fence. Maintenance of existing water developments may also be needed.
- Stocking of allotment with cattle would occur slowly over time. Initial herd size would be 40-50 head. The herd size would be allowed to increase up to 130 head once control of

cattle is demonstrated and an effective 3 pasture rotation is established. A total of 130 head is the upper cattle stocking limit, based on historical numbers of livestock and suitable acres within the allotment.

Cave Basin Allotment (Cattle Forage Reserve):

- Boundary adjustments to potential use and topographic features: only graze southern 1/4 of allotment, the rest would be closed to grazing (16,252 acres) (see Figure 2 and Figure 5, below).
- Cattle grazing could occur only between July 15th and October 1st.
- A Range rider would be required to be used 4-5 days per week to improve distribution and minimize impacts to riparian areas, fens, and wetlands.
- The upper limit for stocking the forage reserve would be 200 cow/calf pairs. This is based on historical numbers of livestock and suitable acres within the forage reserve. The authorized number of livestock could vary depending upon on current conditions on the ground.
- See design criteria for cattle.

Endlich Mesa Allotment:

- No bedding within ¼ mile of lakes (City Reservoir, Stump Lakes, Castillia Lake, and Lake Marie).
- Boundary adjustments to reflect actual use and topographic features: 1.) Remove south-east section of allotment to grazing use due to topography and lack of vegetation (mainly rock). Add this section to the closed Fall Creek allotment. 2.) Adjust northern boundary to include portions of Virginia Gulch allotment near City Reservoir, also portions of the western edge of Fall Creek allotment (see Figure 2 and Figure 5, below).

Rock Creek, Leviathan, & Johnson Creek Allotments (Sheep Forage Reserves):

- Trailing to these three allotments would be through Endlich Mesa or Burnt Timber and Virginia Gulch Allotments. Then, take access through Trimble Pass and Columbine Pass down to Johnson Creek, then up Vallecito Creek Trail beginning at the confluence with Johnson Creek, to the Rock Creek Allotment. Sheep trailing would not be permitted on the lower 7 miles of Vallecito Creek Trail (to minimize conflicts with recreation, and potential for physical contact with bighorn sheep). Domestic sheep would stay west of the Vallecito Creek Trail at all times, where possible, when travelling to/from Rock Creek Allotment (to minimize conflicts with recreation, and potential for physical contact with bighorn sheep (see Figure 2 and Figure 5, below)).
- Only one band of domestic sheep would be allowed to use the group of forage reserves in a given year.
- Prior to stocking each season, the entire group of forage reserve allotments must be aerially surveyed for the presence of bighorn sheep for a total of two survey periods (estimate a minimum of 2 days helicopter flight time per survey period), with one week lapse time between survey periods. Helicopter surveys would be conducted by Colorado Parks and Wildlife biologists, FS biologists, or a qualified biological contractor agreed upon in advance. Surveys must be conducted the season of stocking, and immediately prior to stocking. This aerial survey requirement is intended to document the degree of risk of physical contact with bighorn sheep immediately prior to stocking by domestic sheep. The authorized officer could decline to allow stocking the forage reserve allotments if these surveys detected the presence of bighorn sheep in an area that presented a high risk for physical contact with domestic sheep. This aerial survey requirement was agreed to be a satisfactory protocol with CPW and with permittees. Other survey methods were considered but determined to be

insufficient to detect the presence of bighorn sheep due to the ruggedness of the topography and remoteness of the forage reserves.

Spring Gulch Allotment:

- Re-build existing water sources on the allotment to improve sheep distribution.
- Re-open trailing routes that have closed in due to aspen re-generation following the 2002 from Missionary Ridge Fire.

Tank Creek Allotment:

- Sheep would be required to stay west of the Lime Mesa Trail, and no camps would be permitted within 200 yards of the Trail.
- Boundary adjustments to reflect actual use and topographic features: 1.) Closure of the western most part of the allotment (3,529 acres) due to topography, vegetation, and proximity to overlap with mapped bighorn sheep range. 2.) Adjust northern boundary to include portions of Mountain View Crest and areas near Emerald, Ruby, and Pear Lakes (formerly part of Needles Mountain allotment) that are west of the Lime Mesa Trail (see Figure 2 and Figure 5, below).
- No bedding within ¼ mile of lakes (Dollar, Emerald, Pear and Ruby).
- Minimize time spent near lakes north of Mountain View Crest (Emerald, Pear and Ruby). If needed, spend more time on west side of Burnt Timber allotment.

Virginia Gulch Allotment:

- Grazing rotations would be designed to minimize conflict with recreation use, to the extent possible, in the following areas: Burnt Timber Trail, Lime Mesa Trail, City Reservoir Trail, and City Reservoir, especially during high traffic times, holiday weekends, wildflower season etc. Minimize the number of times sheep cross the trail. Keep sheep away from the trails as much as possible.
- Sheep would be required to stay east of Lime Mesa Trail, and no camps within 200 yards of the Trail.
- Boundary adjustments to reflect actual use and topographic features: 1.) Adjust eastern boundary of allotment in correlation with the Endlich Mesa northern boundary expansion. 2.) Adjust northern boundary to include portions of areas near Emerald, Ruby, and Pear Lakes (formerly part of Needles Mountain allotment) that are east of Lime Mesa Trail. 3.) Adjust western boundary in correlation with Burnt Timber northern boundary adjustment (see Figure 2 and Figure 5, below).
- No bedding within ¼ mile of lakes (Dollar, Emerald, Ruby, City Reservoir, and Lake Marie).

Table 6. Potential Adaptive Options (for all classes of livestock) - Livestock Grazing Management Actions.

Livestock Grazing Management Actions*
<u>Possible Non-Structural Actions:</u>
Reseed with native grass, shrub and forb species (plow and seed, or broadcast seed)
Planting native shrubs
Interseed or furrow for native grass enhancement
Fertilize existing meadows to stimulate herbaceous cover
Use of integrated methods to control noxious and/or non-native plant species

Livestock Grazing Management Actions*
(including selective herbicides, biological control agents, and mechanical methods authorized under a separate EA)
Possible Structural Actions:
Construct fence to create riparian unit – allow livestock grazing under riparian livestock grazing guidelines
Construct fence to exclude livestock from areas of concern (riparian, streams, springs, wetlands, mesic meadows, etc.)
Construct temporary electric fence to control livestock distribution patterns
Construct permanent fence to control livestock distribution patterns
Control livestock distribution patterns using water (turn water on or off at developed water sites)
Construct livestock water development (pipeline, tanks, windmill, sediment traps, well, stock dam, submersible pumps, solar)
Construct water gaps to control livestock access to riparian areas
Construct armored stream crossings
Remove existing water development (pipeline, tanks, windmill, well, stock dam)
Remove existing fence line (electric, standard, permanent or temporary)
Possible Management Actions:
Adjust livestock grazing system (i.e. – rest rotation, deferred rotation, rest, high intensity/short duration. etc.)
Adjust use of salt or supplement to draw livestock toward or away from specific areas
Incorporate a range rider to control livestock distribution (herding)
Incorporate use of herding dogs to control livestock distribution
Adjust season of use
Adjust animal numbers
Adjust number of days of livestock utilization
Rest from livestock grazing for one or more seasons
Do not allow livestock grazing
Adjust/combine allotment boundaries
Change pasture design
Track domestic sheep bands with GPS collars to fine tune AOI's (as funding allows)
Implement multiple unit rotation with permittees' private land

* Possible actions should adhere to Wilderness Structural and Nonstructural Guidelines when inside wilderness boundary.

Monitoring will occur and results evaluated by the Interdisciplinary Team and the Line Officer to determine what adjustments are needed to ensure adequate progress toward meeting desired conditions. Monitoring is discussed in detail in the EA.

Monitoring for Proposed Action (Alternative 3):

Monitoring and evaluation leads to improved management and informed management decisions. Monitoring helps determine how the Forest Plan and NEPA Decisions are being implemented, whether AMP implementation is achieving desired outcomes, and whether assumptions made in

the planning process are valid. Monitoring and evaluation are key elements in adaptive management, allowing the Forest Service to measure the effectiveness of applied prescribed management actions and if that management is being effective in meeting or moving toward desired conditions within the appropriate timeframes. Through adaptive management, AMPs become dynamic, relevant and useful documents.

Two types of monitoring are associated with AMPs; *implementation* monitoring and *effectiveness* monitoring. Implementation monitoring occurs at key areas and will measure whether or not permit stipulations and Forest Plan guidelines are being met. Effectiveness monitoring occurs at benchmark sites and will evaluate how effective management actions are at moving toward or achieving desired conditions.

Monitoring is both the responsibility of the Forest Service and range permittee. If at any time, the results of monitoring indicate guidelines, or desired resource conditions are not being achieved as predicted, then adaptive management strategies will be implemented to move towards and/or meet desired conditions.

Implementation (Short-Term) Monitoring:

Annual monitoring techniques will be used in a dynamic and cyclic process. As results are received and analyzed each year, adjustments to the Annual Operating Instructions (AOI) are made for the following year. The AOI's clearly explain how each allotment is to be managed on a year-to-year basis. These instructions become part of the Term Livestock Grazing Permit for each permittee and responsibility for carrying out the instructions falls to the permit holder. The AOI's include instructions for pasture rotations, numbers to be grazed, pasture on and off dates, standards for and determination of allowable use, improvement maintenance and construction, and general allotment operating procedures. This allows annual livestock grazing management to adapt to fluctuations in short-term factors such as range readiness, precipitation, and other local events like fire. By allowing these short-term adjustments to livestock grazing, Forest Plan Direction is likely to be met.

Range Implementation Monitoring: Allotment Inspections are typically conducted annually as part of rangeland administration (based on budget constraints). Annual monitoring includes a combination of the following, but this list may be revised should other techniques be developed that are more effective in monitoring permit compliance and desired conditions.

- *Compliance with the Terms and Conditions of the Grazing Permits:* Representative areas of the allotment are checked to verify that permittees are in compliance with the terms and conditions of their grazing permits.
- *Rangeland Readiness:* Representative areas of the allotments are checked for rangeland readiness. Indicators used to determine rangeland readiness are soil and vegetation conditions. Rangeland is generally ready for grazing when soil has become firm after winter and spring precipitation, and when plants have reached the defined stage of growth at which grazing may begin under the specific management plan without long-lasting damage.
- *Compliance with Annual Operating Instructions (AOI):* The AOI's explain how each allotment is to be managed on a year-to-year basis. These instructions become part of the Term Grazing Permit for each permittee and responsibility for carrying out the instructions falls to the permit holder. The AOIs include instructions for routing schedules, numbers to be grazed, entrance and exit dates, standards for and determination of allowable use, improvement maintenance needs, improvement construction and re-construction, and general allotment operating procedures.

- **Allowable Use Guides:** Allowable use monitoring methods typically used have been ocular estimates on key areas. This method provides ocular estimates of upland herbaceous species within one of six utilization classes. Allowable use monitoring in riparian areas measures stubble height.
- **Actual Use Reports:** Permittees are responsible for reporting actual use of the allotment at the end of each livestock grazing season. When combined with analysis of other factors such as allotment inspections, the need for annual adjustments to livestock grazing strategy can be determined.
- **Utilization Surveys:** Common forage utilization monitoring methods used consist of employing utilization gauges or ocular estimates. In addition, riparian stubble heights will be visually assessed (4-6 inch trigger point) to assure that stream bank conditions are not deteriorating. Shrubs and saplings will also be visually assessed to ensure they are not over-utilized by domestic sheep during dormancy. This may be accomplished by annual on-the-ground inspections (including photo points) that document current conditions (measure of riparian health).
- **Bighorn Sheep:** Aerial surveys for bighorn sheep would be conducted on all sheep forage reserve allotments prior to stocking to determine presence or absence of bighorn sheep, and on an annual basis when forage reserves are stocked. If bighorn sheep are detected at any time, a determination would be made if design criteria are sufficient to reduce risk of potential for physical contact between domestic sheep and bighorn sheep. If it is determined that design criteria are not adequate to reduce risk of physical contact, then adaptive management options would be implemented to reduce risk of contact, which could include adjustment of allotment boundaries, or not stocking the allotments. Monitoring efforts would be coordinated with CPW and the Pagosa Ranger District, due to bighorn distribution across administrative boundaries.

Effectiveness (Long-Term Trend) Monitoring:

Role of Effectiveness Monitoring: An important role of monitoring is to determine whether management and identified design criteria are successful at moving rangeland resources towards desired conditions. Determining trend toward or away from allotment desired condition objectives allows rangeland managers to determine the relative success of the management system and to adjust management to accomplish objectives.

What Will be Monitored and Where: The long-term health of riparian and upland herbaceous resources will be monitored at benchmark areas selected by the ID Team. These sites may be key areas or other primary range sites where resource concerns have been identified or where resource concerns have arisen due to changing ground conditions as noted from annual monitoring results. Long-term trend monitoring will not be conducted if the allotments are not stocked, or for temporary grazing permits.

Monitoring Methods and Frequency: The long-term health of riparian and upland vegetative resources may be monitored at benchmark sites on each allotment using one or more of the following methods as needed. All methods listed are approved methods described in the Region 2 Rangeland Analysis and Management Training Guide (RAMTG). The list below may be revised should other techniques be developed that are better at monitoring the effectiveness of design criteria.

- *Rooted Nested Frequency Transects (1 out of 10 years):* Rooted Nested Frequency transects will be established at benchmark sites within the analysis area as needed. Rooted Nested Frequency transects analyze changes in frequency of individual species over time on a specific site. Increases or decreases in frequency of species within the plant community can be monitored. An increase in a species that is sought-after in the desired plant community can be interpreted as desirable or trending toward the desired plant community. A decrease in a sought-after species can be interpreted as undesirable and considered trending away from the desired plant community.
- *Cover-Frequency Transects (1 out of 10 years):* These transects are used to monitor changes in canopy cover and relative frequency of herbaceous species. This method provides estimates of canopy cover by species, frequency, ground cover, and production by life form through replicated sampling of plot frame transects. Combining cover and frequency data helps overcome variability in the data due to climate changes. This method is mostly used to determine change in composition over time.
- *Rangeland Health Evaluation Matrix (1 out of 10 years):* This evaluation gives the examiner a general look at critical rangeland health features. Qualitative evaluation of these features can lead the examiner towards an accurate initial assessment of the rangeland and subsequent management of that land. Comparison of future rangeland health evaluations to initial evaluations provides a glimpse of trend in overall rangeland health as evidenced by a series of health indicators.
- *Photographs and Photo-points (1 out of 10 years):* Photographs are extremely useful in documenting change on the landscape. Photos should capture the essence of the plot, point or transect, including important characteristics and features of the site. Photos need to include enough of the horizon-line to allow the photographer to easily repeat the photograph from the same angle at a different time.

The long-term health of *riparian areas* will be monitored at riparian sites on active allotments at approximately at varying intervals using a variety of methods, such as:

- *The line intercept method (1 out of 10 years):* This method consists of horizontal linear measurements of plant intercepts along the course of a line (tape). It is used primarily for quantitative measurements of shrub canopy cover, and is used to calibrate ocular estimates of shrub canopy cover. This method will be used to determine the canopy cover percent of willows needed to determine seral stages.
- *Cover Frequency Transects (1 out of 10 years):* This inventory method provides quantitative measurements of canopy cover and frequency by plant species, ground cover, and production by life form. It is useful when a replicated sampling design and statistical analysis is required. It is also used to calibrate ocular estimates of canopy cover.
- *Proper Functioning Condition (PFC) (1 out of 10 years):* This assessment process classifies riparian as being in "Proper Functioning Condition"; "Functional-at risk", with either an upward or downward trend; "Non-functional"; or "Unknown." These ratings evaluate riparian condition based in part on presence/absence and abundance of specific vegetation and the interactions of that vegetation with geology, hydrology, and soils.
- *Photographs and Photo-points (1 out of 5 of 10 years):* Photographs are extremely useful in documenting change on the landscape. Photos should capture the essence of the plot, point or transect, including important characteristics and features of the site. Photos should

include enough of the horizon-line to allow the photographer to easily repeat the photograph from the same angle at a different time.

- *Green Line Vegetation Composition (1 out of 10 years):* This method samples community type composition along edges of live water. There is a strong relationship between amount and kind of vegetation along the water's edge and bank stability. This method provides a good indication of the general health of the riparian system.

Application of Monitoring Results through Adaptive Management:

If the results of implementation or effectiveness monitoring determine that the desired conditions of riparian and/or upland herbaceous resources are not being met, and satisfactory progress is not occurring in moving toward the desired conditions, the ID Team will determine which management actions identified in the design criteria are ineffective. The Team will then determine which adaptive management technique(s) should be implemented to reverse the undesirable trend and which the Team believes will begin moving the site resource(s) of concern towards the desired conditions. The ID Team will make its recommendations to the District Ranger who, after discussions and input from the affected permittee, will decide what action(s) should be taken. The effectiveness monitoring cycle will begin again to monitor the implementation and effectiveness of the newly applied adaptive management actions.

Adaptive management options that may be used are as follows:

- Adjust livestock herding to manage specific areas of concern;
- Adjust livestock grazing intensity and/or duration, or change livestock numbers or season of use;
- Require livestock grazing in specified areas, or restrict livestock grazing in specified areas;
- Rest specified areas from livestock grazing or enact non-use for resource protection;
- Adjust livestock trailing routes or time spent on stock driveways or other trailing routes;
- Install barriers on trails to prevent livestock from cutting switchbacks;
- Use or exclusion of a grazing area;
- Adjust grazing area or allotment boundaries, including potentially combining allotments;
- Close allotments, or portions of allotments, to grazing.

EXISTING VEGETATION

See the vegetation affected environment sections of the Environmental Assessment (EA) for a detailed description of current vegetation conditions in the Landscape. Table 7 (below) shows the amount of wildlife habitat in each general wildlife habitat type in the Weminuche Landscape, and the percentage of the Landscape comprised by each general wildlife habitat type, based on Geographic Information System (GIS) habitat modeling.

The Weminuche Landscape contains about 163,224 acres of wildlife habitat on National Forest System lands. An additional 583 acres of National Forest outside the Landscape would be crossed by sheep and cattle trailing across lower elevation lands enroute to permitted allotments within the Landscape. Domestic sheep and cattle graze far less than the total amount of habitat in the Landscape. Sheep are estimated to graze only about 36% (57,983 acres) of the Landscape under current management, but would only graze about 17% of the Landscape under the proposed action. Cattle would be permitted to graze only about 5% of the Landscape under the proposed action. Current management does not permit cattle grazing within the Weminuche Landscape. The

preferred alternative proposes to allow the Canyon Creek Allotment to be grazed by either cattle or domestic sheep. Under current management, Canyon Creek Allotment is an active sheep allotment. The livestock permittee has requested to convert Canyon Creek from sheep to cattle grazing, and such a conversion would reduce the risk of physical contact between domestic sheep and Rocky Mountain bighorn sheep.

Table 7. Acres of wildlife habitat on National Forest System lands in the Weminuche Landscape analysis area. Acres suitable for domestic sheep grazing are counted for active, vacant, and forage reserve livestock allotments only.

Wildlife Habitat Type	Total FS Acres in Analysis Area		Acres Suitable for Grazing under Current Management		Acres Suitable for Grazing under Proposed Action		Percent of Habitat Suitable for Grazing under Proposed Action	
	Grazing	Trailing	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle
Alpine	49,344	0	16,050	0	9,028	1,459	18%	3%
Aspen	2,418	65	1,676	0	1,570	65	65%	3%
Aspen with Conifer	9,222	89	4,836	0	2,110	984	23%	11%
Barren Rock/Soil	3,851	0	140	0	101	1	3%	<1%
Cool-moist Mixed Conifer	7,573	2	1,081	0	183	200	2%	3%
Mountain Grasslands	7,688	141	4,245	0	2,964	601	39%	8%
Mountain Shrublands	5,052	5	1,339	0	238	34	5%	<1%
Pinon-Juniper	3	3	0	0	0	0	0%	0%
Ponderosa Pine	1,305	31	210	0	124	0	10%	0%
Riparian	3,090	3	1,344	0	404	172	13%	6%
Sagebrush	22	22	0	0	0	0	0%	0%
Spruce-fir	70,759	161	26,406	0	11,697	4,072	17%	6%
Warm-dry Mixed Conifer	2,033	42	652	0	208	1	10%	<1%
Water	864	21	3	0	1	0	<1%	0%
Total Acres	163,224	583	57,983	0	28,628	7,589	17%	5%

The wildlife habitat type with the most acres considered suitable for domestic sheep and cattle grazing in the Weminuche Landscape is spruce-fir forest. Overall, about half (46%) of the acres considered suitable for livestock grazing in the Weminuche Landscape are comprised of spruce-fir forests (26,406 acres). Under current management, about 37% of all spruce-fir forests in the Landscape are considered suitable for grazing by domestic sheep. Under the proposed action, only about 17% of spruce-fir forests would be suitable for sheep grazing, and an additional 6% would be suitable for cattle grazing, totaling about 23% of all spruce-fir forests in the Landscape (15,769 acres). Therefore compared to current management, the proposed action would reduce the amount of spruce-fir forests in the Weminuche Landscape considered suitable for livestock grazing by 14%.

The spruce-fir forest type is generally found between 9,000 feet and 12,000 feet elevation. These forests are dominated by a varying mixture of Engelmann spruce and subalpine fir trees. In mature stands, these forests generally display high tree densities and closed canopy covers, which limits forage production on the forest floor. In the Weminuche Landscape however, most spruce-fir stands (85%) have moderate to low canopy cover and therefore tend to have higher forage production on the forest floor. In this Landscape, 66% of spruce-fir forests have moderate tree densities with canopy closures of 40-70%, and an additional 19% of spruce-fir stands have low canopy closures (less than 40%). Many of the spruce-fir stands with moderate to low canopy cover were created by timber harvests from the late 1960's through early 1990's. These previously

harvested stands provide most of the acres considered suitable for livestock grazing in the Landscape.

Domestic sheep often pass through krummholz scattered in the alpine zone. Krummholz, which is dominated by dwarfed conifers (mostly spruce) and herbaceous species, is a transition type that occurs between spruce-fir forests of the subalpine zone and the treeless alpine zone. Sheep foraging in this type is relatively minor. Cattle grazing can occur in this type when it is in close proximity to parks. Current species composition and distribution in this type are likely similar to conditions found during the reference period.

Sheep also pass through mature spruce fir stands on their way to and from alpine pastures. However, sheep prefer to spend as little time as possible in dense stands of spruce fir forest because of the generally poor forage conditions under closed-canopy stands. In general, cattle also spend little time in mature spruce-fir stands because of the lack of forage under closed canopy stands. Usually, cattle impacts in closed canopy conifer forests are small in scale and limited in scope as livestock rest near the edges of parks or travel along well-worn trails between adjacent parks or to nearby water sources.

Domestic sheep spend much of their time in the alpine zone (28% of suitable grazing acres in the Landscape), with minor amounts of time spent in mountain grasslands (about 7% of suitable acres in Landscape), and passing through aspen forests (about 5% of suitable acres in Landscape) and aspen forests mixed with conifer (about 7% of suitable acres in Landscape) on their way to and from alpine pastures. About 43% of riparian habitats in the Landscape are considered suitable for sheep grazing under current management, compared to 13% under the proposed action.

Overall, about one third (28%) of the acres considered suitable for livestock grazing in the Weminuche Landscape (16,050 acres) are comprised of alpine habitats. Under current management, about 33% of all alpine habitats in the Landscape are considered suitable for grazing by domestic sheep. Under the proposed action, only about 18% of alpine habitats would be suitable for sheep grazing, and an additional 3% would be suitable for cattle grazing, totaling about 21% of all alpine habitats in the Landscape (10,487 acres). Therefore compared to current management, the proposed action would reduce the amount of alpine habitats in the Weminuche Landscape considered suitable for livestock grazing by 12%.

Sheep obtain most of their forage in the alpine zone and spend most of their time in the alpine zone, although they pass through other habitat types to reach the alpine zone. Cattle however, spend little time and obtain little forage in alpine habitats. Alpine habitats are also potentially the most sensitive habitats to livestock grazing because of their very short annual growing seasons, harsh environmental conditions, frequently shallow soils, and often long time span for vegetation recovery. For these same reasons, wildlife species whose primary habitats occur in the alpine zone have the potential to be significantly affected by livestock grazing impacts in alpine habitats.

Within the alpine zone of the Weminuche Landscape there are four general alpine vegetation types: fellfield, turf, riparian-wetland, and dwarf willow. Other noteworthy but relatively minor vegetation types in this landscape include a tall willow type on mountain side slopes, and a talus type.

The alpine fellfield type occurs on harsh, wind-swept sites with shallow, rocky, well drained soils. Surface rock (gravel and cobble) and patches of bare soil are common. It is dominated by short cushion plants (forbs) often with a relatively low canopy cover. In the Weminuche Landscape, the fellfield type commonly occurs as small patches mixed within the matrix of the alpine avens turf type.

The dwarf willow alpine type is dominated by both snow willow (*Salix nivales*) and alpine willow (*Salix petrophila*). Both are small, prostrate-growing plants that occur in separate or mixed patches. This type occurs on relatively dry protected sites on well drained, shallow soils (less than 20 inches to bedrock), moderately steep slopes, and northerly aspects, and where surface rock and patches of bare soil are common.

Sheep foraging in the dwarf willow and fellfield types is minor because the dominant plants that occur there are not preferred forage species. Current species composition and distribution in both types are likely similar to conditions found during the reference period. Effects from sheep trailing and trampling (sloughing, sheet erosion) however can be substantial in the fragile soils of these vegetation types. Cattle grazing effects can occur locally where dwarf willows occur in or adjacent to parks and spruce-fir stands. Cattle typically avoid fellfield types.

The third alpine vegetation type, the turf type, occurs on protected sites away from excessive wind and tends to have relatively deep (greater than 20 inches to bedrock), moist, moderately well developed soils. It is dominated by forbs and grasses, and usually displays a relatively high canopy cover. There are a number of distinct community types within the turf type of the Weminuche landscape, including an alpine avens type, a *Kobresia myosuroides* type, and a Parry rush type. The most common is the alpine avens type in which alpine avens is the dominant or co-dominant species. Small patches or individual willows also occur in this type.

Sheep foraging is heavy in the alpine avens type because many of the common plants are preferred forage species. Alpine avens is not a preferred forage species until fall following a severe frost. Sites that have experienced heavy long-term sheep grazing display less diversity of preferred forage species, particularly of forbs. Sheep trailing and trampling (sloughing, sheet erosion) in this type are evident in some places, but they are generally minor due to the high density and canopy cover of plants that protects the soils from hoof action. Most sheep trails visible today are likely remnants of those created decades ago when sheep numbers and grazing intensity were much higher than recent years.

Sheep bedgrounds commonly occur in the alpine avens type which results in sheep spending significant amounts of time there, including multiple consecutive days, year after year. In some places in the Weminuche landscape this pattern of past domestic sheep use resulted in overgrazing leading to a decrease in forb species diversity, reduced forb vigor, and increased sheet erosion.

The fourth and final alpine vegetation type is the general riparian-wetland type. It occurs primarily on low-lying sites with poorly drained soils. This type contains high plant community diversity including tall willow shrublands that occur in wetlands and along riparian areas. A general riparian-wetland type may contain patches of multiple plant communities. Sheep browsing on both of the willows of this type (*Salix planifolia* and *Salix brachycarpa*) is heavy in some places and sheep readily forage on sedges and other plants found in this community.

A tall willow type found on mountain side slopes is associated with springs and/or sites with a heavy snowpack that extends late into the summer. It differs from the tall willows found in riparian zones by its better-drained soils and its upland landscape position. Sheep readily browse on both of the willows of this type, but *Salix planifolia* seems to be preferred. Most willow plants and plant communities are vigorous, but some heavy browsing was observed. It is unknown how much of the browsing observed was due to elk using the same areas, and how much was due to domestic sheep grazing. Some sheep trailing is evident in this vegetation type, however, current species composition and distribution are likely similar to conditions found during the reference period.

General Impacts of Livestock Grazing:

In general, effects of livestock grazing to listed species may result from the direct competition between livestock and wildlife for food or cover. Other effects may result from the short- or long-term reduction in habitat quality or capability, or reduced habitat effectiveness for listed species, potentially affecting breeding and foraging habitats, and habitats used by primary prey species such as insects and small mammals. A potential negative effect of grazing activities is browsing impacts to upland willows of moderate to low stature, reducing hiding cover and food availability for listed species or their primary prey species.

Operational activities by livestock permittees such as fence construction and replacement, construction or maintenance of water developments, and managing livestock distribution can also affect listed species. In most cases, construction or replacement of fences and construction or maintenance of water developments may require the removal of very small amounts of grassland, shrub, or forested vegetation at small and localized scales. For these reasons, no measureable negative effects to habitat for listed species are expected from these typically small scale livestock management activities. Although vegetation removal can result in small losses of habitat with potential to support listed species, these projects can also provide some benefit to listed species by mitigating grazing impacts such as reducing the timing and extent livestock graze in and near primary rangelands. Moving livestock from pasture to pasture or across allotments may cause minor disturbance to individuals of listed species, temporarily displacing individuals, such as with the use of domestic sheep herding and protection dogs. In some localized areas, repetitive use of certain routes by livestock can reduce habitat capability for listed species, but such disturbances typically occur at very small scales and last for a very limited duration of time. Invasive species such as noxious weeds may be introduced during all livestock management activities and weeds may expand into previously disturbed and undisturbed areas, potentially negatively affecting forage quantity and quality for listed species and/or their primary prey.

Based on the considerations described above, listed species associated with grassland, shrubland and riparian/wetland habitats, and forested species that prefer more open stand conditions, are expected to have greater potential to be affected by livestock grazing activities. The reduction or alteration of grassland, shrubland, or riparian/wetland habitats has potential to negatively affect listed species associated with these habitats, and/or their primary prey. Generally, less habitat impacts are expected under rest rotation grazing systems, followed by deferred rotation systems, and more traditional rotation system. Generally, listed species associated with dense mixed conifer and spruce-fir forests are less likely to be affected by livestock grazing activities due to the general dislike of these habitats by cattle and sheep, and generally minimal overlap of grazing activities with habitats used by these species.

There are a variety of operational strategies used in managing livestock in the Weminuche Landscape. Some livestock, both cattle and sheep, are trailed to designated allotments, while others are transported by truck. In some instances, range improvement projects are conducted to manage and improve livestock distribution, such as the construction of fencing (brush, wire, and pole), and water developments (spring development, stock ponds, and reservoirs) and associated maintenance, and salting, range riding, and domestic sheep herding and protection dogs.

Vegetation Condition Monitoring:

Examination of the body of available data reveals that, for the project area overall, vegetative conditions are generally meeting the project's desired conditions. There are areas of concern however, specifically at bed grounds and trailing "choke points." These areas of concern are generally limited in scale and localized in their extent. Many of these areas of concern are due to management practices from decades past when sheep stocking rates and intensity of use were

much higher than under current management practices. For example, evidence of sheep trails that were created decades ago can still be seen in some areas. The management practices that created these conditions changed many years ago but evidence of their use still remains in some places.

Table 8 and Figure 3 display the results of vegetation monitoring sampling conducted in the Weminuche Landscape, primarily during the 2010, 2011 and 2012 field seasons. In Table 8 (below), points in black text and in blue text were meeting the project’s desired conditions; points in red text were not meeting the project’s desired conditions. Due to limited monitoring resources, the inter-disciplinary team conducted vegetation monitoring only in those allotments that would be open to livestock grazing under the proposed action.

A total of 53 vegetation monitoring points were sampled across 11 of the 13 livestock allotments in the Weminuche Landscape, including all of the allotments that would be open to domestic sheep grazing under any action alternative, and the Cave Basin allotment that would be available to cattle grazing as a forage reserve under the proposed action (see Figure 3). No monitoring points were conducted in the Flint Creek or Fall Creek Allotments because these two allotments are proposed to be closed under all of the action alternatives.

Of the 53 vegetation monitoring points, a total of 38 (72%) were upland monitoring points and 15 (28%) were riparian monitoring points. All 38 upland monitoring points were rangeland health matrix (RHM) samples, and all 15 riparian monitoring points were proper functioning condition (PFC) samples.

Of the 53 monitoring points, 51 (96%) met the project’s desired conditions, and 2 (4%) did not meet the project’s desired conditions. Of the 51 points that met the project’s desired conditions, 45 (85%) were rated “Healthy” with a “Stable” trend, and 6 (15%) were rated “At Risk” with an “Upward” trend (5 upland points, and 1 riparian point). All six points that were rated “At Risk” with an “Upward” trend met the project’s desired conditions because, although in need of improvement, their condition was judged to be getting better over time and progressing toward those expected for their particular site. The reasons for sites being in need of improvement varied among sites, but included past management practices unrelated to current domestic sheep management practices, topography concentrating livestock use and recreational use into the same narrow areas, soil conditions and steep slopes, and wildlife use of the same areas. Range management practices have the potential to influence and improve conditions related to some of these factors, but have only limited ability to influence and improve conditions related to other factors.

The two monitoring points (4%) that did not meet the project’s desired conditions were an upland point in Canyon Creek Allotment (CC-RHM5) and a riparian point in Virginia Gulch Allotment (VG-PFC1). These two points did not meet the project’s desired conditions because they were rated “At Risk” with “No Trend Apparent” (VG-PFC1), or trend “Downward” (CC-RHM5). Conditions at these two points are in need of improvement and they were judged to be lacking evidence of improvement. For these two points, site specific design criteria/adaptive options and monitoring recommendations were incorporated into the proposed action to improve conditions over time. Neither of these points are in areas mapped as lynx habitat.

Table 8. Weminuche Landscape vegetation sampling points and results.

Allotment	Sample Site	Vegetation Type	Sample Type*	Results, Trend*	Lynx Habitat?
Burnt Timber	BT-RHM1	Mt Grassland	RHM	Healthy, Stable	No
	BT-RHM2	Aspen with Conifer	RHM	At Risk, Upward	Yes, Unsuitable

Allotment	Sample Site	Vegetation Type	Sample Type*	Results, Trend*	Lynx Habitat?
	BT-RHM3	Spruce-fir	RHM	Healthy, Stable	Yes, Unsuitable
Canyon Creek	CC-RHM1	Aspen with Conifer	RHM	Healthy, Stable	Yes
	CC-RHM2	Spruce-fir	RHM	Healthy, Stable	Yes
	CC-RHM3	Spruce-fir	RHM	Healthy, Stable	Yes
	CC-RHM4	Aspen with Conifer	RHM	Healthy, Downward	Yes
	CC-RHM5	Mt Grassland	RHM	At Risk, Downward	No
	CC-PFC1	Riparian/Spruce-fir	PFC	PFC, Stable	No
Cave Basin	CB-RHM1	Alpine	RHM	Healthy, Stable	No
	CB-RHM2	Cool-moist Mixed-conifer	RHM	Healthy, Stable	No
East Silver Mesa	ESM-RHM1	Mt Grassland	RHM	Healthy, Stable	No
	ESM-RHM2	Spruce-fir	RHM	Healthy, Stable	Yes, Unsuitable
	ESM-RHM3	Spruce-fir	RHM	Healthy, Stable	Yes, Unsuitable
	ESM-RHM4	Spruce-fir	RHM	At Risk, Upward	Yes, Unsuitable
	ESM-RHM5	Mt Grassland	RHM	Healthy, Stable	Yes, Unsuitable
	ESM-RHM6	Alpine	RHM	Healthy, Stable	No
	ESM-RHM7	Alpine	RHM	Healthy, Stable	No
	ESM-PFC1	Riparian/Spruce-fir	PFC	PFC, Stable	Yes, Unsuitable
	ESM-PFC2	Riparian/Willows	PFC	At Risk, Upward	No
Johnson Creek	JC-RHM1	Spruce-fir	RHM	Healthy, Stable	Yes
	JC-PFC1	Riparian/Spruce-fir	PFC	PFC, Stable	Yes
Leviathan	LE-RHM1	Aspen/Spruce-fir	RHM	Healthy, Upward	Yes
	LE-PFC1	Riparian/Spruce-fir	PFC	PFC, Stable	Yes
Pine River	PR-PFC1	Riparian/Grassland	PFC	PFC, Stable	No
Rock Creek	RC-RHM1	Spruce-fir	RHM	Healthy, Stable	Yes
	RC-PFC1	Riparian/Willows	PFC	PFC, Stable	Yes
	RC-PFC2	Riparian/Spruce-fir	PFC	PFC, Stable	Yes
Spring Gulch	SG-RHM1	Aspen	RHM	Healthy, Stable	No
	SG-RHM2	Aspen	RHM	Healthy, Stable	No
Tank Creek	TC-RHM1	Mt Grassland	RHM	Healthy, Stable	Yes, Unsuitable
	TC-RHM2	Alpine	RHM	Healthy, Stable	No
	TC-RHM3	Spruce-fir	RHM	Healthy, Stable	Yes, Unsuitable
	TC-RHM4	Alpine	RHM	Healthy, Stable	No
	TC-RHM5	Alpine	RHM	Healthy, Stable	No
	TC-RHM6	Spruce-fir	RHM	Healthy, Stable	Yes, Unsuitable
	TC-RHM7	Spruce-fir	RHM	At Risk, Upward	Yes
	TC-PFC1	Riparian/Alpine	PFC	PFC, Stable	No
	TC-PFC2	Riparian/Alpine	PFC	PFC, Stable	No
	TC-PFC3	Riparian/Alpine	PFC	PFC, Stable	No
Virginia Gulch	VG-RHM1	Alpine	RHM	Healthy, Stable	No
	VG-RHM2	Mt Grassland	RHM	Healthy, Stable	No
	VG-RHM3	Alpine	RHM	Healthy, Stable	No
	VG-RHM4	Alpine	RHM	Healthy, Stable	No
	VG-RHM5	Alpine	RHM	At Risk, Upward	No
	VG-RHM6	Mt Grassland	RHM	Healthy, Stable	No
	VG-RHM7	Alpine	RHM	Healthy, Stable	No

Allotment	Sample Site	Vegetation Type	Sample Type*	Results, Trend*	Lynx Habitat?
	VG-RHM8	Alpine	RHM	Healthy, Stable	No
	VG-RHM9	Alpine	RHM	At Risk, Upward	No
	VG-PFC1	Riparian/Willow	PFC	At Risk, No Trend Apparent	No
	VG-PFC2	Riparian/Grassland	PFC	PFC, Stable	No
	VG-PFC3	Riparian/Grassland	PFC	PFC, Stable	No
	VG-PFC4	Riparian/Alpine	PFC	PFC, Stable	No

~Active allotments are shaded in the table~

*Sample Type:

- RHM = Rangeland Health Matrix.
- PFC = Riparian Proper Functioning Condition.

*Results:

- Meeting = Healthy, or, At Risk with Upward trend;
- Not Meeting = Unhealthy, or, At Risk with No Trend Apparent.

SPECIES CONSIDERED

The following tables list species considered in this report, a summary of how the proposed action may affect each species and their key habitat components, and affect determinations for each species. Specific project affects are discussed in more detail for those species with habitat present in the project area and that are likely to be affected (positively or negatively) by the proposed action. The process used to evaluate the potential effects the proposed action could have on threatened, endangered, or proposed species is described in the U.S. Fish and Wildlife Service's endangered species consultation handbook (USDI Fish and Wildlife Service 1998).

This BA will address federally listed terrestrial and aquatic species. Federally listed plant species will be addressed in a separate BA authored by the project's plant ecologist.

BIOLOGICAL ASSESSMENT FOR FEDERALLY-LISTED TERRESTRIAL AND AQUATIC SPECIES

Consultation History

In February of 2013, the SJNF completed a Biological Assessment (BA) for the Forest Plan of 2013 that included water depletions occurring on National Forest System Lands in the upper Colorado River Basin and the San Juan River Basin (USDA Forest Service 2013). The BA addressed the adverse effects of water depletions to four of the listed species, the Colorado pikeminnow, the razorback sucker, the humpback chub, and the bonytail, which occupy the upper Colorado River Basin and/or the San Juan River Basin. Specifically, the BA indicated that "it is unknown exactly how many [livestock] grazing facilities might be constructed over the life of the LRMP, but it is expected that the associated cumulative net depletion amount will be less than 5 acre-feet (AF) per year". In August of 2013, the Fish and Wildlife Service provided the Forest with a Biological Opinion (BO) including "reasonable and prudent alternatives" addressing these actions (ES-6-RO-13-F-GJSJ003-TAILS-06E24100-2013-F-0133). The BO acknowledges the anticipated yearly water

depletions within the San Juan River in the amount of "2.5 AF per year of depletions associated with livestock grazing activities, and up to 9 AF per year of depletions associated with road maintenance and construction". Additionally, the BO indicates that "as long as the activities described in this section do not exceed the depletion amount of 11.5 AF per year [2.5 AF for livestock grazing and 9 AF for road maintenance and construction] within the San Juan River, no further section 7 consultation is required".

In January of 1996, the SJNF completed a programmatic BA for water depletions occurring on National Forest System lands in the upper San Juan River Basin. The BA addressed the adverse effects of water depletions to four of the listed species, the Colorado pikeminnow, the razorback sucker, the humpback chub, and the bonytail, which occupy the upper Colorado River Basin and/or the San Juan River Basin. In March of 1996, the Fish and Wildlife Service provided the Forest with a Biological Opinion (BO) including "reasonable and prudent alternatives" addressing these actions (GJ-6-CO-96-F-003). The BA and BO provide a comprehensive description of species life histories, limiting factors, and effects rationale. Please refer to these documents for an in-depth discussion of the effects of water depletions to upper Colorado and San Juan River Basin fish populations. Since the 1996 consultations, the Forest has completed formal consultation on numerous actions that result in water depletion to the upper San Juan River Basin. If needed, we can provide the Service with additional information specific to these actions.

In 2000 the San Juan National Forest consulted with USFWS on the effects to Canada lynx of ongoing livestock grazing activities in the six active sheep grazing allotments within the Weminuche Landscape. In a letter dated May 30, 2000, the USFWS provided "programmatic concurrence for projects with 'not likely to adversely affect' determinations that meet certain conditions and stipulations".

On February 20, 2013, a BA for the Final San Juan National Forest Land and Resource Management Plan (Forest Plan BA) was submitted to the USFWS for Section 7 consultation (USDA Forest Service 2013). A BO was provided by the USFWS on August 14, 2013 (ES-6-RO-13-F-GJSJ003-TAILS-06E24100-2013-F-0133). This BO concurred with the determinations in the Forest Plan BA. The decision regarding livestock grazing in the Weminuche Landscape would be made under the 2013 Forest Plan, and the analysis of effects contained in this BA reflects management direction contained in the 2013 Forest Plan and analysis contained in the 2013 Forest Plan BA. No other consultations with USFWS have been completed for livestock grazing activities in the Weminuche Landscape.

On June 12 and July 10, 2012, and in November 2013, Chris Schultz contacted Terry Ireland and Kurt Broderdorp of the USFWS Grand Junction Field Office to discuss the proposed action for this livestock grazing analysis. Effects to southwestern willow flycatcher and Uncompahgre fritillary butterfly were discussed with Mr. Ireland, and effects to Canada lynx and wolverine were discussed with Mr. Broderdorp. During these discussions it was agreed that the species analysis and effect determinations presented in this BA are appropriate, given the scope and scale of potential effects expected from implementing the proposed action. Analysis and species conservation suggestions provided by Mr. Ireland and Mr. Broderdorp have been incorporated into this BA.

Table 9. Federally listed species for the San Juan National Forest, based on December 10, 2013 species list from the U.S. Fish and Wildlife Service (USDI Fish and Wildlife Service 2013)

Species	Federal Status	Habitat Present In the Landscape?	Probability of Occurrence in the Landscape	Carried Forward for Further Analysis?	Proposed Project Effects Determination
Canada lynx	Threatened	Yes - mature spruce fir and willow - riparian areas; no linkage areas in the Landscape	High, animals known to occur in the Landscape.	Yes, see discussion.	May Effect, Not Likely to Adversely Affect
New Mexico meadow jumping mouse	Proposed Endangered	No - no suitable complex streamside riparian in Landscape.	Low	No, dismissed from further evaluation.	No Impact
North American wolverine	Proposed Threatened	Yes - high-elevation subalpine and spruce/fir forests; also cool-moist mixed-conifer, high-elevation aspen mixed with spruce, or cool-moist mixed-conifer, and willow-riparian adjacent to the above habitats. Is very mobile and utilizes a wide range of habitat types. Not confirmed to occur on San Juan NF since early 1900's.	Low	No, dismissed from further evaluation.	No Impact
Gunnison sage grouse	Proposed Endangered	No - no suitable lek or brood rearing habitat in landscape. Lek sites of low vegetation with sparse shrubs, often surrounded by big sagebrush, below 9,200' elevation. Brood rearing habitat of riparian vegetation and meadows	Low	No, dismissed from further evaluation.	No Impact

Species	Federal Status	Habitat Present In the Landscape?	Probability of Occurrence in the Landscape	Carried Forward for Further Analysis?	Proposed Project Effects Determination
		within upland communities. Not known to occur on Columbine RD.			
Mexican spotted owl	Threatened	No - no narrow rock-walled canyons with mixed-conifer	Low	No, dismissed from further evaluation.	No Effect
Southwestern willow flycatcher	Endangered	Yes - suitable habitat occurs in the Landscape, but not in areas to be grazed annually.	Low - not documented to occur during breeding season in or near the Landscape, but suitable habitat is present.	Yes, see discussion.	May Effect, Not Likely to Adversely Affect
Western yellow-billed cuckoo	Proposed Threatened	No - no gallery cottonwood forest in the Landscape.	Low	No, dismissed from further evaluation.	No Impact
Uncompahgre fritillary butterfly	Endangered	Yes - Known occupied patches, and 1 patch of habitat thought suitable, but insufficient survey effort.	High, known to occur in the Landscape.	Yes, see discussion.	May Effect, Not Likely to Adversely Affect
Bonytail	Endangered	No - does not occur in or downstream of Animas or Pine River basins.	Low - no water depletions from the Upper Colorado River basin.	No, dismissed from further evaluation.	No Effect
Colorado pikeminnow	Endangered	No - does not occur in Animas River watershed in Colorado.	Low - water depletions from the San Juan River basin.	Yes, see discussion.	Previous consultation
Humpback chub	Endangered	No - does not occur in or downstream of Animas or Pine River basins.	Low - no water depletions from the Upper Colorado	No, dismissed from further evaluation.	No Effect

Species	Federal Status	Habitat Present In the Landscape?	Probability of Occurrence in the Landscape	Carried Forward for Further Analysis?	Proposed Project Effects Determination
			River basin.		
Razorback sucker	Endangered	No – does not occur in Animas River watershed in Colorado.	Low – water depletions from the San Juan River basin.	Yes, see discussion.	Previous consultation

SPECIES CONSIDERED AND DISMISSED FROM FURTHER EVALUATION

Table 9 (above) describes the listing status for each species, habitat presence in the Weminuche Landscape, probability of species' occurrence in the Landscape, a brief habitat description, whether the species is carried forward for further evaluation in this BA, and a proposed project effects determination. Habitat descriptions were taken from Andrews and Righter (1992), Fitzgerald et al. (1994), Page and Burr (1991), USDI Fish and Wildlife Service (1994), USDI Fish and Wildlife Service (1995), USDI Fish and Wildlife Service (2000), and USDI Fish and Wildlife Service (2003).

By policy, species that are Candidates for federal listing are also designated as Sensitive in the USFS Rocky Mountain Region (FSM R2 Supplement 2600-2011-1). For this reason, affects to Candidate species will be addressed in the project's Biological Evaluation and will not be addressed here. Therefore all Candidate species are dismissed from further evaluation in this document.

Bonytail (Gila elegans) and Humpback Chub (Gila cypha)

The proposed action would not cause downstream impacts or result in additional water depletions from the Upper Colorado River basin. Due to the absence of suitable habitat in the Weminuche Landscape and lack of downstream impacts off federal lands in the Upper Colorado River basin, the proposed action would have **"no effect"** on bonytail or humpback chub. Bonytail and humpback chub are dismissed from further evaluation.

Mexican Spotted Owl (Strix occidentalis lucide)

Mexican spotted owl prefers habitats that have not been found to occur in the Weminuche Landscape (USDA Forest Service 2006a, USDA Forest Service 2006b). Based on field visits to the Landscape, and GIS queries, no suitable or marginal habitat for Mexican spotted owl has been found in the Weminuche Landscape, and habitat is not thought likely to occur in the Landscape. No narrow rock-walled canyons with mature mixed-conifer forests at low to mid elevations have been found in the Landscape, or are thought likely to occur in the Landscape.

In 1992, the SJNF mapped areas that may provide suitable MSO habitat. This mapping effort was based on the habitat criteria known or suspected for Colorado in the early 1990s (USDA Forest Service 2006a, USDA Forest Service 2006b). A total of about 67,324 acres of habitat in 31 polygons was mapped along the southern boundary of the Forest. None of this habitat is in the Weminuche Landscape. Between 1989 and 2003, a cumulative total of 495,905 acres had been surveyed to protocol standards on the SJNF without detecting a single verified MSO. Many areas were resurveyed several times. There has been only one confirmed occurrence of an MSO on the

SJNF, a nonbreeding second-year male found repeatedly in late-summer 2004 in the same general area on the Pagosa RD, about 20 miles south-southeast of the Weminuche Landscape. Additional surveys in 2005 failed to relocate this individual.

Other than this lone record, no MSOs have been confirmed on the SJNF, and no breeding pairs have been documented. It is therefore unlikely that the MSO occurs on the SJNF as a permanent resident, and if it does occur, it probably occurs at very low densities that do not represent a viable or self-sustaining breeding population. The closest breeding records to the SJNF are at Mesa Verde National Park, about 67 air miles west of the 2004 occurrence, and formerly on the Jicarilla Ranger District of the Carson National Forest in New Mexico, about 15 air miles south of the 2004 occurrence.

Because no suitable or marginal habitat for Mexican spotted owl has been located in the Weminuche Landscape, and the species has never been confirmed or suspected to occur in the Landscape, the proposed action would have **"no effect"** on Mexican spotted owl or its habitats. Due to the absence of suitable habitat and known or suspected occurrences, Mexican spotted owl is dismissed from further evaluation.

North American Wolverine (Gulo gulo lucus)

On February 4, 2013, the USFWS published a proposed rule to list the distinct population segment (DPS) of the North American wolverine occurring in the contiguous United States, as a threatened species under the Endangered Species Act (USDI Fish and Wildlife Service 2013b). The DPS evaluation in the proposed rule concerns the segment of the wolverine species occurring within the contiguous 48 states, including the northern and southern Rocky Mountains, Sierra Nevada Mountains, and North Cascades (USDI Fish and Wildlife Service 2013b). The proposed rule did not propose any critical habitat for the species.

There are numerous historical records of North American wolverines from the Colorado Rocky Mountains. The species is believed to have been extirpated however, from the Southern Rocky Mountains in Colorado, New Mexico, and Wyoming by the early 1900s (Aubrey et al. 2007 cited in USDI Fish and Wildlife Service 2013c). The lack of records for Colorado and Utah after 1921 suggests that the Southern Rocky Mountains population of wolverines was extirpated in the early 1900s, concurrent with widespread systematic predator control by government agencies and livestock interests (USDI Fish and Wildlife Service 2013b).

Based on field visits to the Weminuche landscape and GIS queries, much of the landscape is thought to be suitable habitat for wolverine. Much of the landscape is comprised of high elevation alpine cirque basins, subalpine spruce-fir forests at and just below timberline, and cool-moist mixed-conifer and aspen forests. Extensive areas of snow remain into late spring in protected cirque basins across the Weminuche landscape, likely providing suitable wolverine denning habitat.

The proposed action is not likely to jeopardize the continued existence of North American wolverine because there is currently no wolverine population on the SJNF or in the State of Colorado, and the available scientific and commercial information does not indicate that land management actions associated with the proposed action would pose a threat to the wolverine DPS (USDI Fish and Wildlife Service 2013b). Section 7(a)(4) of the ESA requires conferencing with USFWS 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 proposed action is not likely to jeopardize the continued existence of North American wolverine, conferencing is not required.

Gunnison Sage Grouse (*Centrocercus minimus*)

On January 11, 2013, the USFWS published a proposed rule to list the Gunnison sage grouse as an endangered species under the Endangered Species Act (USDI Fish and Wildlife Service 2013d). In addition, approximately 1,704,227 acres were proposed for designation as critical habitat in Chaffee, Delta, Dolores, Gunnison, Hinsdale, Mesa, Montrose, Ouray, Saguache, and San Miguel Counties in Colorado, and in Grand and San Juan Counties in Utah (USDI Fish and Wildlife Service 2013e).

There is no proposed critical habitat in any of the counties within or near the Weminuche landscape. There are approximately 48 acres of proposed critical habitat on the SJNF in Dolores County. Based on the best available information, there are no Gunnison sage grouse present on the proposed critical habitat location, or on any lands managed by the SJNF. Based on field visits to the Weminuche landscape, there are no sagebrush-dominated habitats within the Weminuche landscape.

The proposed action is not likely to jeopardize the continued existence of Gunnison sage grouse, or adversely modify proposed critical habitat on the SJNF. There are currently no sage grouse present on the SJNF, or within or near the Weminuche landscape. The proposed action is not likely to adversely modify proposed critical habitat. Section 7(a)(4) of the ESA requires conferencing with USFWS 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 proposed action is not likely to jeopardize the continued existence of Gunnison sage grouse, or destroy or adversely modify proposed critical habitat, conferencing is not required.

New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*)

On June 20, 2013, the USFWS published a proposed rule to list the New Mexico meadow jumping mouse as an endangered species under the Endangered Species Act (USDI Fish and Wildlife Service 2013f). In addition, the USFWS also proposed listing 193.1 miles of riparian habitats as critical habitat within Bernalillo, Colfax, Mora, Otero, Rio Arriba, Sandoval, and Socorro Counties, in New Mexico; Las Animas, Archuleta, and La Plata Counties in Colorado; and Greenlee and Apache Counties in Arizona (USDI Fish and Wildlife Service 2013g).

There is no proposed critical habitat within or near the Weminuche landscape. Based on the best available information, New Mexico meadow jumping mouse is not known to be present on lands managed by the SJNF. In the summer of 2010, a study was conducted to detect presence of the species on lands administered by the SJNF. No individuals were detected (Frey 2011). These surveys were conducted in what was believed to be the best habitat available on the SJNF, which is areas of mesic grass, forb, and sedge riparian habitat with perennial streams, no (or very little) livestock grazing, and low elevation (below 7,611 feet).

Based on field visits to the Weminuche landscape, there are no known suitable low- to mid-elevation un-grazed riparian habitats within the Weminuche landscape. Although known jumping mouse populations occur on private lands in proximity to the SJNF, the only habitat thought to be potentially suitable for jumping mouse known on the SJNF is in isolated patches that are believed to be located beyond distances to known populations where natural dispersal and colonization could result (Frey 2011).

The proposed action is not likely to jeopardize the continued existence of New Mexico meadow jumping mouse, or adversely modify proposed critical habitat on the SJNF. There are currently no jumping mouse populations known to be present on the SJNF, or within or near the Weminuche landscape. There is no known habitat thought suitable for jumping mouse in the Weminuche landscape. The proposed action is not likely to adversely modify proposed critical habitat. Section 7(a)(4) of the ESA requires conferencing with USFWS 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 proposed action is not likely to jeopardize the continued existence of New Mexico meadow jumping mouse, or destroy or adversely modify proposed critical habitat, conferencing is not required.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

On October 3, 2013, the USFWS published a proposed rule to list the distinct population segment (DPS) of the western yellow-billed cuckoo occurring in the western portions of the United States, Canada, and Mexico as a threatened species under the Endangered Species Act (USDI Fish and Wildlife Service 2013h). The DPS evaluation in the proposed rule concerns the segment of the species occurring within western North America, including the northern and southern Rocky Mountains (USDI Fish and Wildlife Service 2013h). The proposed rule did not propose any critical habitat for the species.

Primary cuckoo habitat consists of lowland riparian forest and urban areas with tall trees, especially with dense undergrowth and thickets (Wiggins 2005, USDI Fish and Wildlife Service 2013h). Optimum nesting habitat is closed canopy riparian forest stands of 2 to 5 acres or larger with associated dense stands of understory woody vegetation. The western yellow-billed cuckoo is a riparian ecosystem obligate species (USDI Fish and Wildlife Service 2013h). There is no known suitable habitat on the SJNF but habitat patches may occur in limited amounts. There is no documented occurrence of cuckoos on the SJNF, but occurrence has been documented on adjacent non-federal lands at generally lower elevations. Based on field visits to the Weminuche landscape, there are no known habitat patches thought to be suitable for cuckoo occurrence within the landscape. Due to generally higher elevations on the SJNF, especially within the Weminuche landscape, and lack of suitable habitat, cuckoo occurrence on lands managed by the SJNF is not expected and would be considered rare and incidental.

The proposed action is not likely to jeopardize the continued existence of the western yellow-billed cuckoo because there is currently no cuckoo population known on the SJNF. The available scientific and commercial information does not indicate that land management actions associated with the proposed action would pose a threat to the western yellow-billed cuckoo DPS (USDI Fish and Wildlife Service 2013h). Section 7(a)(4) of the ESA requires conferencing with USFWS 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 proposed action is not likely to jeopardize the continued existence of the western yellow-billed cuckoo, conferencing is not required.

FEDERALLY-LISTED SPECIES EVALUATED IN GREATER DETAIL

Colorado Pikeminnow (*Ptychocheilus lucius*) and Razorback Sucker (*Xyrauchen texanus*)

The proposed action includes the development and/or maintenance of five water sources for livestock use in the Spring Gulch Allotment, and nine water sources for livestock use in the Canyon Creek Allotment. The water improvements would result in a net depletion of approximately 1.6 acre-feet per year from the San Juan River Basin. These depletions should be considered a

perpetual use. Water depletions of this nature were covered by the Biological Assessment submitted for Section 7 consultation during the San Juan National Forest's 2013 Forest Land and Resource Management Plan revision process (USDA Forest Service 2013), and therefore also covered by the Biological Opinion provided by the USFWS (ES-6-RO-13-F-GJSJ003-TAILS-06E24100-2013-F-0133) for the Forest Plan revision. For this reason, in agreement with the USFWS, no further consultation is needed for the effect of these water depletions on downstream listed fish.

Canada Lynx (*Lynx canadensis*)

Habitat requirements:

A complete description of Canada lynx life history, habitat requirements, status and distribution, and risk factors is on file at the Columbine Ranger District Office (USDA Forest Service 2004a), and is provided in the Biological Opinion for the Southern Rocky Mountains Lynx Amendment (USDI Fish and Wildlife Service 2008). For these reasons a complete description will not be repeated here. A brief summary of Canada lynx habitat, and species status and distribution across the San Juan National Forest (SJNF), and the project area, is provided below.

Modeled lynx habitat on the SJNF consists of spruce-fir, cool-moist mixed conifer, high elevation aspen mixed with spruce-fir or cool-moist mixed conifer, and willow riparian adjacent to these habitats (Schultz et al. 2006). Modeled habitat on the SJNF, and in the Weminuche Landscape (see Figure 4), was based on existing vegetation and habitat attributes such as tree size and canopy closure within forested stands. Existing vegetation is from the Forest's R2-Veg Geographic Information System (GIS) database. Habitat modeling is consistent with habitat definitions in the Canada Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et al. 2000), the Southern Rocky Mountains Lynx Amendment (USDI Fish and Wildlife Service 2008), and underwent extensive review by the USFWS and local Colorado Parks and Wildlife (CPW) biologists and District Wildlife Managers.

Primary habitat consists of mature and late successional forested stands, and/or younger forests containing trees with branches at the snow surface that provide a source of food and hiding cover for snowshoe hare, and willow riparian corridors (USDA Forest Service 2004a). Mature or older forests with complex physical structure on or near the ground, such as downed logs, fallen trees, rocks, boulders, upturned root wads, and dense short regeneration in the understory provide cover and forest floor structure used by female lynx for denning. Areas suitable for denning may be limited by elevation, slope and aspect (Wait 2005). Forested areas that lack complex physical structure on the ground provide little value for denning.

Status and distribution:

Colorado Parks and Wildlife has released a total of 218 lynx from the Yukon, Alaska, British Columbia, Quebec, and Manitoba into the San Juan Mountains since 1999. (Colorado Division of Wildlife 2008). Prior to CPW's augmentation program, native lynx were considered rare in Colorado. There were only three recorded potential occurrences on the SJNF (USDA Forest Service 2004a). Of the 218 lynx released by CPW, 112 are known dead, 106 are possibly alive, 61 are missing, and tracking is ongoing for 45 (Colorado Division of Wildlife 2008). Reproduction was first documented in 2003, and was also documented in 2004, 2005, and 2006. No reproduction was documented in 2007 or 2008. CPW has recorded the birth of 116 kittens in the State. Lynx sightings are regularly reported in the Weminuche Landscape, and radio telemetry data from animals tracked by CPW shows the entire Weminuche Landscape to be a high density use area for lynx (Colorado Division of Wildlife 2008, Colorado Division of Wildlife 2005).

Environmental baseline:

Following guidance from the LCAS, Lynx Analysis Units (LAUs) were identified to provide the fundamental basis, or smallest scale, to evaluate and monitor the effects of management actions on lynx habitat (Ruediger et. al. 2000). An LAU represents a planning unit that approximates a female lynx home range. The Weminuche Landscape contains parts or all of five LAUs; Lower Pine River (#21333), Missionary-Florida (#21324), Needles (#21308), Upper Pine River (#21335), and Vallecito (#21311). Lynx habitat within the LAUs is located primarily on Federal lands with a very small amount of intermingled non-Federal lands. Table 9 (below) describes existing modeled lynx habitat within the LAUs on lands managed by the SJNF. This information has included all activities on federal lands that have potentially affected lynx habitat. Lynx linkage areas were also mapped, per direction from the LCAS. The Weminuche Landscape does not overlap and is not near any designated linkage areas.

The following is a brief summary of the activities that are included in the environmental baseline and that have affected lynx habitat in the five LAUs that intersect the Weminuche Landscape. Past timber harvest activity in lynx habitat (mostly during the 1970s and 1980s) occurred in the upper Missionary Ridge, upper Middle Mountain, and upper Endlich Mesa areas, primarily in spruce-fir forests. There has been no commercial timber harvest across most of the Weminuche Landscape because most of the Landscape is within congressionally designated Wilderness. Historic livestock grazing since the early 1900's within the Landscape was primarily by sheep, but cattle grazing, heavy at times, occurred in the southern portions of the Landscape. Habitat for lynx and snowshoe hare probably were adversely impacted in localized areas from the 1920's through 1950's when sheep and cattle stocking rates greatly exceeded those permitted today. Since then, rangeland health and condition has greatly improved due to reduced permitted numbers and length of grazing seasons, development of range improvements such as fences, spring developments and stock ponds to better control livestock distribution, and some allotments having remained vacant for the past 30 to 40 years. Today, impacts from livestock grazing are greatly reduced with the application of land management plan standards and guidelines, and from conducting more thorough range analysis and rangeland health monitoring activities.

Most of the Landscape, about 85% (140,000 acres), is within the congressionally designated Weminuche Wilderness. This designation prohibits possession or use of motorized or mechanized travel, as well as permanent structural improvements and some habitat management activities. Livestock grazing is specifically allowed within congressionally designated Wilderness areas. The major types of recreational activities include hiking, backpacking, horseback riding, horse packing, peak climbing, fishing, hunting, viewing wildflowers, scenery and wildlife, seeking solitude, and some winter activities that include snowshoeing and back country skiing.

At about 500,000 acres in size, the Weminuche Wilderness is the largest designated wilderness area in the State of Colorado. Management of the Weminuche Wilderness is shared almost equally by the SJNF and the Rio Grande National Forest. The Weminuche Landscape analysis area contains about 163,000 acres, or about one third of the Weminuche Wilderness. There are two primary wilderness recreation corridors within the Weminuche Landscape analysis area, the Pine River drainage, and the Vallecito Creek drainage. Heavily used trails extend the length of both the Pine River and Vallecito Creek drainages providing foot and horseback access to dozens of miles of recreation areas, as well as access to destination side drainages such as Emerald Lake, Chicago Basin, City Reservoir, Granite Lake, Rock Lakes, Flint Lakes, and climbing access to alpine peaks along the Continental Divide. Some portions of the Weminuche Wilderness, such as Chicago Basin and Emerald Lake, are among the most heavily used wilderness recreation areas in Colorado. However, many other portions of the Weminuche Wilderness receive only infrequent human use.

Southern portions of the Weminuche Landscape, about 15% (23,000 acres), have extensive networks of gravel roads constructed to access timber harvest and mining areas. Most roads were constructed in the mid 1900's. Moderate to large numbers of people use these roads for a wide variety of recreational purposes, mostly during summer, fall, and less so in winter. Today, motorized and non-motorized recreation is very popular across much of the Landscape. Some roads and trails accessed from those roads are becoming increasingly congested with 4-wheel drive and off-highway vehicles and RV campers during the mid-summer through fall seasons. In winter, these same roads, trails and areas are used extensively by snowmobiles to access popular riding areas. Some roads, such as Middle Mountain, Endlich Mesa, and Missionary Ridge roads, are groomed by a local snowmobile club. Many portions of the Landscape are popular with big game hunters during the fall bow and rifle hunting seasons.

Perhaps the greatest current and near-future (5- to 10-years) influence on lynx habitat conditions in the Weminuche Landscape is an expanding spruce beetle (*Dendroctonus rufipennis*) outbreak within the upper Pine River and Vallecito Creek drainages. Within the past five years, the upper third of both drainages have had extensive areas of mortality of mature Engelmann spruce trees, in some areas exceeding 80% to 90% of overstory trees. The spruce beetle is the most significant natural mortality agent of mature spruce. Spruce beetle outbreaks can cause extensive tree mortality and modify stand structure by reducing the average tree diameter, height, and stand density. Infected trees often take a couple years to die, so infestations appear to be more widespread in following years. Beetles grow to adulthood inside trees and then take off to infect new trees. However, most of the spruce-fir forests in the Weminuche Landscape are mixed with subalpine fir, which are not affected by spruce beetles. For this reason, stands with higher fir composition are less affected by beetles than stands with higher spruce composition.

Within stands affected by spruce beetles, there is a high probability that most spruce trees over five inches dbh will die. Within the next five years the beetle outbreak is expected to expand down the Pine River and Vallecito Creek drainages, and is expected to increase in the upper Florida River and Missionary Ridge portions of the Weminuche Landscape. In the near term (5- to 10-years) substantial portions of the suitable lynx habitat in the Landscape's LAUs could be affected by high mortality of overstory spruce trees. However, high mortality of overstory spruce trees may not necessarily result in the loss or conversion of currently suitable lynx habitat into an unsuitable condition.

The effect on lynx habitat capability of the ongoing, and apparently rapidly expanding, spruce beetle outbreak in central portions of the San Juan NF, including the Weminuche Landscape, is not clear. Expanding spruce beetle activity could have both negative and positive consequences for lynx habitat conditions.

Potential negative effects to lynx from beetle-induced spruce mortality would likely be due to losses of snowshoe hare hiding cover and foraging habitat. If a broad-scale reduction in snowshoe hare density were to occur due to broad-scale losses of hiding cover and foraging habitat, then immediate reductions in lynx habitat capability would also be expected. Perhaps equally importantly, red squirrels which are an important alternate prey species for lynx, could be heavily affected in stands with high mortality of overstory cone-bearing spruce trees. If mortality of cone-bearing spruce trees caused declines in red squirrel abundance, and if low squirrel densities occurred during years of low hare abundance, then additional reductions in lynx habitat capability could also occur. It is important to note however, that snowshoe hare and red squirrels generally do not totally disappear from areas of high beetle-induced tree mortality, or from areas of moderate intensity forest management. The abundance of both prey species generally declines but both species persist within the mosaic of remaining smaller live trees, and in areas where suitable stand conditions dominated by subalpine fir remain.

It is also possible that potential beneficial effects to lynx habitat could also occur. High mortality of overstory spruce trees could substantially open the canopy and result in rapid growth of grasses, forbs, shrubs and aspen regeneration in the understory, potentially rapidly improving snowshoe hare cover and forage conditions in the understory. In areas of extensive amounts of forest that are dominated by closed-canopy mature spruce trees, beetle-induced mortality might improve hare habitat conditions by increasing understory forage and hiding cover. Spruce mortality might also provide a greater diversity in stand structure across the landscape by creating greater extents of early-seral stand conditions within a matrix dominated by closed-canopy mature forest conditions.

Direct and indirect effects:

Under the proposed action there would be no direct effects to lynx in areas considered unsuitable for livestock grazing. Areas considered unsuitable for livestock grazing include rock and talus areas, very steep terrain (slope > 60%), and closed canopy forests that provide little useable livestock forage in the understory. About 63% of lynx habitat in the Weminuche Landscape (see Figure 4) occurs in areas considered unsuitable for livestock grazing. Only about 37% of the lynx habitat in the Landscape occurs in areas that are considered suitable for livestock grazing. Most closed canopy forest stands, especially conifer forests, are rarely used by domestic sheep except to pass through on their way to preferred forage areas. In the Weminuche Landscape, spruce-fir stands are primarily dense canopy mature forests, frequently on relatively steep slopes, that provide high quality primary lynx habitat, including denning habitat, but due to lack of forage in the understory and very steep slopes are rarely used by domestic sheep except when passing through on their way to higher alpine pastures.

Domestic sheep grazing is unlikely to have measurable direct or indirect effects to lynx habitat within mature closed-canopy spruce-fir and cool-moist mixed conifer forests, even on gentle slopes. In general, sheep spend little time in these areas because of the lack of forage under closed-canopy mature conifer forests, and the increased potential for losses to predators. Usually, sheep grazing impacts in closed-canopy spruce-fir forests are small in scale and limited in scope to near the edges of parks or alpine areas where sheep may rest briefly during the heat of the day. For this reason, domestic sheep grazing is not likely to substantially adversely impact habitat structure for lynx primary prey, such as younger age class conifers used by snowshoe hare in winter, or downed log piles and other woody debris used as hare cover and lynx denning habitat. In some very limited cases that appeared to be relatively small in scale, some hedging and browsing of riparian willows was observed within and adjacent to spruce-fir forests. Because of their close proximity to primary habitat (mature spruce-fir forests), these willow-dominated riparian areas would be expected to provide suitable habitat for snowshoe hare and thus also lynx habitat.

The generally light forage utilization that occurs within closed-canopy mature spruce-fir forest stands has little measurable effect on forage or winter browse availability for snowshoe hare, or on habitat components used by other lynx prey species such as red squirrel, grouse, mice, voles, and other small mammals. Therefore domestic sheep grazing under closed-canopy spruce-fir forests such as those in the Weminuche Landscape generally results in insignificant and discountable affects to habitat for lynx and their primary prey.

It is possible however, that in areas of high beetle-induced mortality of overstory spruce trees, forage conditions for domestic sheep could be substantially improved, increasing the amount of time sheep spend within spruce-fir stands, thereby increasing the potential for forage competition with snowshoe hare. Conversely, as beetle-killed dead trees begin to fall, travel conditions for domestic sheep is likely to become more difficult, potentially restricting sheep access to beetle-killed stands, thereby reducing the potential for forage competition with snowshoe hare.

Of the 38 vegetation samples taken in upland areas (RHM samples), 17 (45%) were in lynx habitat (see Table 8 above, and Figure 3 below). Of the 17 upland vegetation samples in lynx habitat, a total of 8 points (47%) were in suitable lynx habitat, and 9 points (53%) were in lynx habitat that is currently in an unsuitable condition. All 8 vegetation sampling points conducted in currently suitable lynx habitat met the project's desired conditions. Seven of these 8 sample points were rated as "Healthy" with a stable trend. Only 1 (TC-RHM7) of the 8 upland sample points conducted in suitable lynx habitat was rated as "At Risk". But because the vegetation trend at this point was judged to be "Upward", this point met the project's desired conditions. The reason this sample point was rated "At Risk" was because of higher than expected amounts of bare soil and higher than expected amounts of noxious weeds. This sample point was located on an old logging road and in close proximity to a sheep herder camp. Site specific design criteria were established for the area near this sample point that are intended to improve upland vegetation conditions.

Of the 17 upland (RHM) sample points conducted in lynx habitat, a total of 9 points (53%) were in lynx habitat that is currently in an unsuitable condition (see Table 8, above). Vegetation conditions at all 9 points met the project's desired conditions. Seven of these 9 sample points were rated as "Healthy" with a stable trend. Only 2 (BT-RHM2, and ESM-RHM4) of the 9 upland sample points conducted in currently unsuitable lynx habitat were rated as "At Risk". But because the vegetation trends at these points were judged to be "Upward", both points met the project's desired conditions.

The reason these areas are classified as currently unsuitable lynx habitat is because past timber harvests have not regenerated sufficiently to provide snowshoe hare foraging and hiding cover, especially in winter at the surface of the average mid-winter snowpack. These were areas of mature closed-canopy spruce-fir forests that were harvested primarily in the 1960's and 70's that resulted in very open stand conditions that lack sufficient regeneration to provide sufficient horizontal hare hiding cover, especially at the surface of the snow during mid-winter. Domestic sheep grazing activities in these areas is not believed to have affected conifer regeneration or the progression of these stands back to conditions suitable for supporting snowshoe hare, and thus sheep grazing is not believed to have slowed the progression of these stands back to suitable lynx habitat.

Sheep grazing in aspen forests and stands of aspen mixed with conifer on more gentle slopes, in conjunction with use by native ungulates, may reduce grass-forb availability, thereby limiting forage availability for snowshoe hare in summer. Domestic sheep impacts to aspen understory conditions in the Weminuche Landscape appears limited to a very few small areas and short in duration because sheep pass through these stands quickly on their way to and from higher alpine pastures. Monitoring found no evidence indicating sheep browsing was adversely affecting aspen regeneration. Overall, site visits showed that domestic sheep grazing across aspen stands meets land management plan direction. For this reason, lynx foraging habitat is not likely to be adversely affected by current domestic sheep management practices.

Reductions in snowshoe hare foraging habitat may affect lynx by reducing the abundance and/or productivity of lynx primary prey. In high elevation willow-dominated riparian corridors and upland willow slopes adjacent to spruce-fir stands, sheep browsing may impact willows, thereby reducing snowshoe hare foraging habitat and hiding cover in summer, fall and early winter before deep snow covers the willows and makes them generally unavailable to hares in mid-winter. Domestic sheep are thought to more commonly utilize willows later in summer and early fall when grass/forb abundance and nutritional value declines after the first frosts. Site visits to the Weminuche Landscape found evidence of low to moderate browsing on willows in several allotments. It was unclear however, whether the observed browsing was due primarily to domestic sheep, elk, or a mixture of both. Most of the observed browsing impacts were on willow stands in the alpine zone, well removed from snowshoe hare primary habitat. Because these areas were well

removed from primary lynx habitat, the willow browsing that was observed probably would have little effect on snowshoe hare habitat capability and consequently little effect on lynx habitat capability.

Most of the willow riparian areas in lynx habitat across the Landscape are in upper mid-seral successional stage, or in an upward trend, and therefore meeting land management plan direction for riparian condition. Little evidence of willow browsing was observed in willow dominated riparian areas at or below timberline.

Of the 15 riparian (PFC) monitoring points conducted in the Weminuche Landscape, 5 (33%) were in mapped lynx habitat and 10 (66%) were outside or well removed from primary lynx habitat (see Table 8 above, and Figure 3 below). All 5 riparian sampling points conducted in lynx habitat met the project's desired conditions, and all were rated as being in "Proper Functioning Condition" with a stable trend.

Converting the class of livestock from domestic sheep to cattle has the potential to increase effects to lynx habitat. This is because cattle tend to spend more time than sheep within spruce-fir forests, especially along the margins of parks and near water sources where they often rest during the heat of the day. Cattle also have a greater tendency to create well defined regular use trails through closed-canopy forest stands as they travel to adjacent parks and water sources. Cattle also have the potential for somewhat greater impacts than sheep in riparian areas, especially in areas where they congregate and lounge near preferred water sources. Woody riparian vegetation such as willows, may be negatively affected by the physical action of cattle moving through and around willow stands, and also by browsing on the plants themselves. In comparison, domestic sheep tend to spend less time than cattle within and immediately adjacent to riparian areas and water sources. In addition, because sheep spend much more time than cattle in the alpine zone, and therefore generally at much longer distances away from the spruce-fir forests and their associated willow-riparian areas that provide primary lynx and hare habitat, there tends to be less potential for domestic sheep grazing to have negative effects on lynx habitat. This compares to cattle that spend greater amounts of time within or in much closer proximity to primary lynx and snowshoe hare habitats. Finally, fencing is frequently used in cattle allotments to establish and maintain effective pasture rotation systems but is rarely used in sheep allotments. For this reason, effective management of cattle allotments typically requires the creation and/or maintenance of fences, which often must pass through lynx habitat, sometimes resulting in the permanent loss of lynx habitat. The amount of lynx habitat lost to fence construction and maintenance activities is generally very small and restricted to very narrow corridors (generally about 10 feet in width), but nonetheless minor losses of lynx habitat to cattle fencing may be unavoidable in some allotments after they are converted from domestic sheep to use by cattle.

For all the reasons just described, converting the Canyon Creek Allotment from sheep to cattle has potential to result in greater impacts to lynx habitat than by continued domestic sheep grazing. Similarly, converting the lower portion of the Cave Basin Allotment from a sheep allotment to a cattle forage reserve would also be expected to have increased effects to lynx habitat under the proposed action. More importantly, because the Cave Basin Allotment hasn't been grazed by either class of livestock since 1988, permitting cattle grazing for up to 3 years out of any 10 consecutive years is likely to have some negative consequences for lynx habitat conditions within this allotment. Some of the potential negative consequences to lynx habitat are described in the paragraph above.

Fence construction and maintenance activities necessary to achieve desired conditions, particularly for cattle in the Canyon Creek Allotment, may be undertaken in some places. Fencing is rarely used for sheep pastures in the Weminuche Landscape, except to separate sheep from cattle pastures, or to delineate administrative horse pastures. Under the proposed action about

4.12 miles of new fence would need to be constructed in or immediately adjacent to the Canyon Creek Allotment. These new fences would be necessary to create an effective 3-pasture rotation system within the allotment after converting the allotment from its current use as a sheep allotment to its proposed use as a cattle allotment, as is requested by the livestock permittee. In addition, several short segments of new fence would be needed to provide an effective division between cattle in the Canyon Creek Allotment and cattle in the adjacent Bear Creek Allotment.

Of the 4.12 miles of new fence construction proposed in the preferred alternative, 3.88 miles would be in the Canyon Creek Allotment, and 0.24 miles would be outside the Landscape in the adjacent Bear Creek Allotment. Of the 3.88 miles of new fence construction in the Weminuche Landscape, 3.57 miles would be in primary lynx habitat, and 0.55 miles would be outside lynx habitat. The 3.57 miles of new fence construction through lynx habitat would result in the long-term loss of 4.33 acres of suitable lynx habitat. An additional 0.29 acres of suitable lynx habitat would be lost to construction of the 0.24 miles of new fence just outside the Landscape in the Bear Creek Allotment. The overall affect to lynx habitat likely would be a small and insignificant long-term loss of 4.62 acres of suitable lynx habitat, due to the removal of vegetation along the fence right-of-way.

The long-term loss of 4.62 acres of suitable lynx habitat from fence construction and maintenance activities would likely have an insignificant and discountable effect, compared to the 35,217 acres of suitable lynx habitat (<0.1%) in the Missionary-Florida LAU, or compared to the 27,377 acres of suitable lynx habitat (<0.1%) in the portion of the LAU that is in the Weminuche Landscape. Lynx habitat in the Missionary-Florida LAU is currently at 6.6% unsuitable (Table 10, below), primarily due to the 2002 Missionary Ridge Fire. Constructing all of the new fences in the proposed action would not measurably increase the total percent of unsuitable lynx habitat in the LAU from its current amount of 6.6% unsuitable. In some small areas, fence construction and maintenance activities are expected to protect and maintain lynx habitat capability due to their more effective distribution of livestock within the Canyon Creek Allotment and better controls on forage utilization, thereby reducing the extent and/or number of unintended localized areas of cattle impacts. No new fence construction is proposed for the Cave Basin cattle forage reserve allotment in the proposed action.

Current Forest Service livestock and habitat management practices will not have a measurable effect on the current stable lynx habitat trend across the entire San Juan National Forest (USDA Forest Service 2004a). Selection of the proposed action (adaptive management) may result in improvement in lynx habitat conditions in some very small and localized areas because of the application of adaptive management strategies and project design criteria that are not being fully applied under current grazing management practices. However, improvements in range condition as a result of the adaptive management approach are likely to be too small to affect lynx populations or the total amount of lynx habitat available in the Weminuche Landscape. Implementing the proposed action, or maintaining current domestic sheep management strategies would not affect lynx population trends across the National Forest planning area because lynx populations have been largely influenced by Colorado Parks and Wildlife augmentation efforts rather than by habitat conditions.

The proposed action has greater potential for maintaining suitable lynx habitat conditions in high elevation riparian habitats at or near timberline. By ensuring that specific design criteria and adaptive management actions are implemented on the allotments, the current composition of native grass-forb species should be maintained in the short-term, and maintained or improved in the long-term. Livestock utilization problems are more likely to be corrected in a timely manner using the adaptive management approach, resulting in more rapid improvements in rangeland health conditions. Short term and localized impacts to snowshoe hare foraging habitat may occur under any livestock management strategy, but overall, this impact is expected to be short-term and not result in long-term conversion of currently suitable lynx habitat to an unsuitable

condition. For these reasons, effects of domestic sheep management actions in lynx habitat under the proposed action are expected to be insignificant and discountable in the long term and may result in gradual long term improvement in lynx foraging habitat conditions in some small localized areas in the Weminuche Landscape.

The proposed action would close about 13,276 acres of suitable lynx habitat in the Weminuche Landscape to livestock grazing (see Table 10, and Figure 4, below). These are acres that are available to livestock grazing under current management. For comparison, the average home range of a lynx in Montana was estimated to be about 22,400 acres for females, and about 26,880 acres for males (Squires and Laurion 2000). The proposed action would therefore reduce the amount of suitable lynx habitat available to livestock grazing in the Weminuche Landscape by about half the amount needed to support an average female lynx home range.

There is currently enough suitable lynx habitat in the Weminuche Landscape to support about four female lynx, based on an average home range size of 22,400 acres. Under the proposed action, livestock grazing would be permitted on about the amount of suitable habitat needed to support one female lynx. Under current management, livestock grazing is permitted on about the amount of suitable habitat needed to support 1½ female lynx. Across the five LAU's in the Weminuche Landscape, the proposed action would reduce the amount of suitable lynx habitat available to livestock grazing by a total of 7%, from 22% of suitable lynx habitat under current management to 13% of suitable lynx habitat under the proposed action (see Table 10, below).

Closing to livestock grazing the amount of suitable habitat needed to support half a female lynx home range would theoretically substantially improve lynx habitat conditions across a significant amount of lynx habitat. However, nearly all this habitat is in areas not grazed by livestock since 1974 (Fall Creek, Flint Creek, and Rock Creek Allotments) or 1980 (Pine River Allotment). For this reason, the decision to close these areas to grazing would likely not result in immediate substantial improvements in lynx habitat conditions. Rather, the proposed action would ensure that gradual improvements in lynx habitat conditions that have likely occurred since the 1970's in the absence of grazing would continue, as they have been gradually improving over the past 30 to 40 years that these livestock allotments have remained vacant.

Lynx Analysis Units and the Weminuche Landscape:

The Weminuche Landscape intersects five Lynx Analysis Units: Lower Pine River (#21333), Missionary-Florida (#21324), Needles (#21308), Upper Pine River (#21335), and Vallecito (#21311); see Figure 4, below.

Within the five LAU's in the Weminuche Landscape, current lynx habitat conditions remain well below the 30% unsuitable threshold set by the Lynx Conservation Assessment and Strategy (Ruediger et. al. 2000), and the Southern Rocky Mountains Lynx Amendment (USDI Fish and Wildlife Service 2008). All five of the LAU's in the Weminuche Landscape are at less than 10% unsuitable (Table 10, below). High percentages of unsuitable lynx habitat within a LAU (> 30%) causes concern for the ability of the LAU to provide for the long term survival of a female lynx within an average home range. When unsuitable habitat exceeds the 30% threshold, if livestock utilization exceeded Forest Plan standards, even slight reductions in lynx habitat capability due to livestock grazing could cause concerns about LAU functionality. Domestic sheep grazing conditions in the Weminuche Landscape meet Forest Plan standards and guidelines and therefore also meet the LCAS and SRLA intent for management of livestock in lynx habitat.

Table 10. Modeled lynx habitat in Lynx Analysis Units (LAU's) within the Weminuche Landscape.

LAU Name (Number)	Acres of Suitable Primary Habitat	Acres of Suitable Secondary Habitat	Acres of Suitable Lynx Habitat	Acres of Unsuitable Lynx Habitat	Total Lynx Habitat	Percent of Lynx Habitat Unsuitable
Lower Pine River (21333)	37,155	5,195	42,350	312	42,662	0.7%
Missionary-Florida (21324)	30,460	4,757	35,217	2,477	37,694	6.6%
Needles (21308)	25,063	801	25,864	997	26,861	3.7%
Upper Pine River (21335)	18,720	1,721	20,441	0	20,441	0
Vallecito Creek (21311)	24,608	2,847	27,455	2,893	30,348	9.5%
Total	136,006	15,321	151,327	6,679	158,006	4.2%

The two LAUs where field visits observed the greatest extents of spruce beetle outbreaks were the Upper Pine River and Vallecito Creek LAUs. In some areas, 80% and greater overstory spruce tree mortality was observed. For example, within the past three years there was a rapid and very noticeable expansion of beetle-induced spruce mortality observed in the northern portions of the Upper Pine River LAU. Mortality appeared to become established in the North Fork of the Pine River and Snowslide Canyon areas, then moved west across the Pine River into the Rincon La Vaca and Rincon La Osa drainages, then rapidly expanded down the main stem of the Pine River to south of the Granite Peaks Guard Station. This area of the upper Pine River drainage currently has the greatest extent and highest mortality of spruce stands observed in the Weminuche Landscape. Lesser extent and lower mortality rates were observed in the Vallecito Creek LAU, with most spruce mortality observed upstream of the confluence with Johnson Creek. Spruce mortality in the upper Vallecito Creek drainage appeared more scattered and patchy than that observed in the upper Pine River drainage. In addition, there have been recent reports of patches of spruce mortality appearing in the upper Lake Fork drainage at the north end of the Lower Pine River LAU.

Table 11. Acres of lynx habitat in the Weminuche Landscape by LAU, and acres of lynx habitat suitable for livestock grazing under current management and the proposed action.

Lynx Analysis Unit	Acres of Suitable Lynx Habitat in LAU	Acres (%) of Suitable Lynx Habitat in Weminuche Landscape	Acres (%) of Suitable Lynx Habitat Suitable for Livestock Grazing under Current Management	Acres (%) of Suitable Lynx Habitat Suitable for Livestock Grazing under Proposed Action
Lower Pine River	42,350	18,152 (43%)	3,451 (8%)	1,163 (3%)
Missionary-Florida	35,217	27,377 (78%)	15,293 (43%)	14,720 (42%)
Needles	25,864	356 (1%)	2 (<1%)	174 (<1%)
Upper Pine River	20,441	20,441 (100%)	9,016 (44%)	0 (0%)
Vallecito Creek	27,455	24,173 (88%)	5,814 (21%)	4,243 (15%)
Total	151,327	90,500 (60%)	33,576 (22%)	20,300 (13%)

Only 60% of the suitable lynx habitat in the five LAU's (90,500 acres) is within the Weminuche Landscape (Table 11, above). The remaining 40% of suitable lynx habitat in these five LAU's (60,827 acres) is in adjacent livestock grazing Landscapes that have been mostly closed to grazing in other analysis decisions (e.g. Needles LAU was closed to sheep grazing under the 2009 Silverton decision). Further, under the proposed action only 13% of the suitable lynx habitat in the Weminuche Landscape (20,300 acres) is in areas considered suitable for livestock grazing. Under

the proposed action, about 78% of the suitable lynx habitat in the Weminuche Landscape (70,200 acres) falls outside areas considered suitable for livestock grazing.

Table 12, below, shows the relative contribution of each livestock allotment in the Weminuche Landscape to the amount of suitable lynx habitat that would be considered suitable for livestock grazing in each LAU under the proposed action. In the Missionary-Florida LAU, the five livestock allotments contribute almost equally to the amount of lynx habitat that is considered suitable for livestock grazing, totaling about 42% of the suitable lynx habitat in the LAU (see Table 10, above). Under the proposed action, only 14% of the suitable lynx habitat in the Vallecito Creek LAU would be considered suitable for livestock grazing. About one third of the suitability is from cattle grazing in the Cave Basin forage reserve allotment, while most of the remainder is from sheep grazing in the sheep forage reserve allotments of Rock Creek, Leviathan and Johnson Creek.

It is important to understand which allotments contribute to effects to lynx habitat because under the proposed action forage reserve allotments could be grazed only a maximum of 3 years out of every 10 consecutive years. For this reason, effects to lynx habitat from livestock grazing in the Vallecito Creek LAU are likely to be much less than effects to lynx habitat in the Missionary-Florida LAU where allotments could be grazed annually. For this reason, livestock grazing effects to lynx habitat are likely to be greatest in the Missionary-Florida LAU because this LAU contains the greatest number of allotments, and all allotments could be grazed annually. The remaining four LAU's would have little or no annual grazing, with most grazing activities being limited to, at most, 3 years out of 10. Under the proposed action the Upper Pine River LAU would be closed to livestock grazing and therefore there would be no effect to lynx habitat from livestock grazing activities. The Needles LAU, which was almost entirely closed to livestock grazing by the 2009 Silverton Landscape Grazing analysis EA (USDA Forest Service and USDI Bureau of Land Management 2009), would have a very small amount of lynx habitat available to livestock grazing due to boundary adjustments on the Tank Creek and Virginia Gulch sheep allotments. These boundary adjustments were done to better reflect how domestic sheep actually utilize the existing landscape.

Table 12. Acres of suitable lynx habitat in areas considered suitable for livestock grazing within the Weminuche Landscape, by livestock allotment and Lynx Analysis Unit (LAU), under the proposed action.

Livestock Allotment	Lower Pine River LAU	Missionary-Florida LAU	Needles LAU	Upper Pine River LAU	Vallecito Creek LAU	Total
Burnt Timber		2,210				2,210
Cave Basin (Cattle)	1,163				1,476	2,639
Canyon Creek		2,814				2,814
Endlich Mesa		2,757			486	4,243
Fall Creek						0
Flint Creek						0
Johnson Creek					660	660
Leviathan					619	619
Pine River						0
Rock Creek					1,002	1,002
Tank Creek		3,444	173			3,617
Virginia Gulch		3,284	1			3,285
Sheep Trailing		203				203
Cattle Trailing		8				8
Total	1,163	14,720	174	0	4,243	20,300

As stated earlier, the largest extents and highest beetle-induced mortality rates of overstory spruce trees were observed in the Upper Pine River LAU, which is proposed to be closed to livestock grazing under the proposed action. The Vallecito Creek LAU also had areas of observed beetle-induced spruce mortality, but the areas observed appeared to be less extensive. Under the proposed action, the amount of lynx habitat in the Vallecito Creek LAU available for livestock grazing would decline by about 28%, compared to under current management, and livestock grazing would be permitted for at most, three years out of any ten consecutive years. For these reasons, the effect of livestock grazing activities in lynx habitat in the Vallecito Creek LAU, when added to expanding spruce beetle activities, would be much less than under current livestock management practices where annual grazing could be reinstated administratively across the entire LAU at any time.

Lynx Linkage Areas and the Weminuche Landscape:

There are no designated linkage areas that overlap with the Weminuche Landscape. No linkage areas are near the landscape. For this reason, the proposed action would have no effect on the function, integrity or habitat capability of designated linkage areas.

Compliance with the Southern Rockies Canada Lynx Amendment Final Environmental Impact Statement:

The Southern Rockies Canada Lynx Amendment Final Environmental Impact Statement (2008) amended the Land and Resource Management Plan (Forest Plan) of the San Juan National Forest and provided management direction for activities occurring in Canada lynx habitat. This amendment provides a number of goals, objectives, standards and guidelines to reduce or eliminate adverse effects to lynx and lynx habitat due to livestock grazing on federal lands. Relevant project-level standards and guidelines are described below. An analysis of the proposed action's compliance with the relevant objectives, standards, and guidelines follows each item.

All Management Practices and Activities:

ALL O1. Maintain or restore lynx habitat connectivity in and between LAUs, and in linkage areas.

The proposed action maintains and improves lynx habitat conditions throughout the Landscape, compared to current management practices. Lynx habitat conditions currently meet project desired conditions in all but a very few localized areas. The proposed action would maintain, and in some small cases probably restore, lynx habitat conditions within LAU's in the Weminuche Landscape. The proposed action would enhance management's capability to respond to and improve vegetation conditions in areas where livestock grazing is thought to be contributing to degraded lynx habitat conditions. For these reasons, the proposed action meets this objective.

Livestock Grazing Management Activities and Practices:

GRAZ O1. Manage livestock grazing to be compatible with the improvement or maintenance of lynx habitat.

The proposed action would maintain and improve lynx habitat conditions throughout the Landscape, compared to current management practices. Lynx habitat conditions currently meet project desired conditions in all but a few localized areas. The proposed action would maintain, and in some small cases probably restore, lynx habitat conditions within the Weminuche Landscape. The proposed action would enhance management's capability to respond to and improve vegetation conditions in areas where livestock grazing is thought to

be contributing to degraded lynx habitat conditions. For these reasons, the proposed action meets this objective.

GRAZ G2. In aspen stands, livestock grazing should be managed to contribute to the long-term viability of the aspen.

Field visits during the 2010 and 2012 field seasons found no evidence that domestic sheep grazing was inhibiting or preventing aspen sprouting or survival anywhere in the Landscape. This is not thought to be a concern anywhere in the Landscape. Domestic sheep generally spend little time in aspen stands, only passing quickly through them on their way to and from higher alpine pastures. For these reasons, the proposed action meets this guideline.

GRAZ G3. in riparian areas and willow carrs, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

Riparian areas in the Weminuche Landscape appear to be mostly meeting the project's desired conditions. All five riparian monitoring points in lynx habitat across the Landscape were rated as being in "Proper Functioning Condition" and therefore meeting project desired conditions. Areas where willow browsing was observed were usually in the alpine zone and thus well removed from snowshoe hare habitat. In addition, most willow browsing was out of riparian zones in upland areas, and it was difficult to determine with certainty whether the cause of the browsing was primarily domestic sheep, elk, or a combination of both. Observed browsing impacts to willows were generally small in scale, localized in scope, and did not appear to be causing decreases in lynx habitat capability or compromising LAU function. Project design criteria applied under the adaptive management approach (proposed action) should provide more rapid adjustment of livestock management practices, thereby more rapidly reducing grazing impacts in areas where willows are being browsed. For these reasons, the proposed action meets this guideline.

Cumulative effects:

NEPA Definition:

Habitat for lynx in the Weminuche Landscape has changed over time as a result of human activities. Most changes to lynx habitat have been from the natural disturbance processes that predominate across the Weminuche Wilderness. Because most of the analysis area is located in the Weminuche Wilderness, there has been only minimal alteration of lynx habitat from human activities. Recreation activities (horseback riding, camping, hunting, fishing, backpacking, etc.) have likely resulted in some loss of lynx habitat, but the degree of impact is likely insignificant and discountable when compared to the large expanses of suitable lynx habitat that receive minimal human visitation due to their remoteness and difficult access. Wilderness management regulations should ensure continued minimal impact of human recreation activities on lynx habitat conditions. Impacts caused by historic and intensive domestic sheep grazing have steadily declined as many grazing areas have been rested for decades, and rangeland conditions in most areas were found to be healthy.

Lynx habitat located outside the Weminuche Wilderness has been moderately affected from historic spruce-fir timber harvest, primarily in the Canyon Creek, Tank Creek, Burnt Timber and East Silver Mesa allotments.. Timber harvest removed and fragmented habitat for species associated with closed canopy, multi-storied spruce-fir forests such as lynx, snowshoe hare, and red squirrel. In addition, roads constructed for timber harvest activities have increased human presence and the potential for disturbance to lynx. However, the long-term impact of roads on lynx

habitat is likely to have been small when compared to the large amounts of unroaded lynx habitat available across the Weminuche Wilderness area.

Currently, the greatest influence on lynx habitat conditions in the Weminuche Landscape is an expanding spruce beetle outbreak within the upper Pine River and Vallecito Creek drainages. The impact of beetle-induced spruce mortality on lynx habitat capability, and on habitat capability for snowshoe hare and red squirrels which are important primary and alternate prey species for lynx, is not well known. There may be both negative and positive effects to lynx habitat, but the degree to which these effects alter lynx habitat conditions and thereby affect lynx survival and reproduction is not certain.

With application of design criteria and monitoring, domestic sheep grazing is expected to have minor direct and indirect effects to lynx. Livestock grazing when combined with other past, present, and reasonably foreseeable future actions is not expected to result in adverse cumulative effects to lynx or lynx habitats.

ESA Definition:

The Weminuche Landscape has had only minor historic impacts from mining activities, and there is little non-federal land within the Landscape. Building activities around the small historic townsite of Tuckerville in the Middle Mountain area removed lynx habitat at the mine sites themselves, as well as cutting trees off site for use underground as mine timbers, housing building materials, and for use as heating and cooking fuel. Mining may have also affected lynx habitat by degrading water quality down stream from the mines themselves, although in the Middle Mountain area this was likely only a minor impact to lynx habitat capability. The proposed action is not expected to add significantly to these past historic uses on non-federal lands.

Because there is little non-federal lands within the Weminuche Landscape, development of privately held mining claims is not a concern at this time. The residential development that has recently occurred in other alpine zones of the San Juan Mountains does not appear to be likely on the few privately owned parcels in the Weminuche Landscape. Development on the few private parcels that exist within the Landscape is unlikely to affect domestic sheep grazing practices or patterns on surrounding NFS lands.

Determination:

For all allotments in the Weminuche Landscape it is my professional opinion that the proposed action, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, **may affect but is not likely to adversely affect** the Canada lynx or lynx habitat.

This determination is based on the following factors: 1) livestock grazing will likely continue to affect minor amounts of willow riparian habitat but most affected sites are well above primary lynx habitat in the alpine zone. In addition, these impacts are mostly localized in scale and small in area and are likely to be insignificant and discountable when compared to the large amount of suitable lynx habitat available in the Landscape. 2) The long-term loss of 4.62 acres of suitable lynx habitat from fence construction and maintenance activities would likely have an insignificant and discountable effect, compared to the 35,217 acres of suitable lynx habitat (<0.1%) in the Missionary-Florida LAU, or compared to the 27,377 acres of suitable lynx habitat (<0.1%) in the portion of the LAU that is in the Weminuche Landscape. Constructing all of the new fences in the proposed action would not measurably increase the total percent of unsuitable lynx habitat in the LAU from its current amount of 6.6% unsuitable. 3) Of the 17 upland vegetation samples in lynx habitat, a total of 8 points (47%) were in suitable lynx habitat, and 9 points (53%) were in lynx habitat that is currently in an unsuitable condition. All 8 vegetation sampling points conducted in currently suitable lynx habitat met the project's desired conditions. Vegetation conditions at all 9

points in currently unsuitable lynx habitat met the project's desired conditions. 4) Adoption of adaptive management principles for livestock management practices is expected to result in long term but gradual improvement in livestock grazing practices, as compared to current management practices. 5) Project design criteria are expected to provide more rapid adjustment of livestock management practices such that grazing remains consistent with land management plan direction and desired conditions for rangeland health. In general across the Weminuche Landscape, domestic sheep grazing is meeting land management plan standards and guidelines for management of domestic livestock, and rangeland health desired conditions are being met in all of the LAU's that overlap the Weminuche Landscape.

Southwestern Willow Flycatcher (Empidonax traillii extimus)

Habitat requirements:

A more complete description of southwestern willow flycatcher (SWWF) life history, habitat requirements, status and distribution, and risk factors is on file at the Columbine Ranger District Office (USDA Forest Service 2005a).

The SWWF breeds in dense riparian habitats in all or parts of seven southwestern states, from sea level in California to over 8,500 feet in Arizona and southwestern Colorado (Finch and Stoleson 2000). The species breeds only in dense riparian vegetation near surface water or saturated soil (Finch and Stoleson 2000). Other habitat characteristics such as dominant plant species, size and shape of habitat patch, canopy structure, vegetation height, etc. vary widely among sites. In Colorado, willow or other riparian habitat must be on average at least five feet high to be suitable for SWWF (USDI Fish and Wildlife Service 2003, USDI Fish and Wildlife Service 2011). Below 8,500 feet elevation, habitat patches as small as ¼ acres (30 ft. wide by 30 ft. long by average 5 ft. high) could support a flycatcher territory. Above 8,500 feet however, a minimum patch size of 5 acres or greater is considered necessary to support breeding territories in Colorado (USDI Fish and Wildlife Service 2011). These minimum territory sizes may be made up of two or more closely associated smaller patches of habitat. Slow moving or standing surface water, or subsurface water, is nearly always found near breeding territories, but habitat occupancy cannot be ruled out if habitat of sufficient width exists near flowing streams.

The Final Rule determining endangered status for the SWWF listed a variety of threats to the species. The primary threats include the following:

- 1). Large-scale loss of riparian wetlands, particularly cottonwood/willow, and changes in riparian plant communities resulting in the reduction, degradation, and elimination of nesting habitat. These losses and changes can result from:
 - a.) Water diversion, impoundment and channelization,
 - b.) Off-road vehicle and other recreational uses,
 - c.) Impacts from livestock grazing, which affects plant community structure, species composition, and relative abundance of species and plant density,
 - d.) Invasion by the exotic tamarisk (salt cedar),
 - e.) Logging in the upper reaches of southwestern rivers, which could increase the likelihood of damaging floods in SWWF nesting habitat.
- 2.) Predation, which may be increasing with habitat fragmentation.
- 3.) Brood parasitism by brown-headed cowbirds.

4.) Direct mortality from livestock grazing in and near occupied habitat. Livestock in riparian habitats sometimes make physical contact with nests or supporting branches, resulting in destruction of nests and spillage of eggs or nestlings.

5.) Pesticides in agricultural areas, and recreation, particularly during the warm summer months, may constitute potential threats.

Status and distribution:

The total population of southwestern willow flycatchers on the SJNF consists of one questionable breeding site (later dismissed as a probable mid-identification) and one site that has been occupied intermittently for at least 10 years by zero to four singing males (USDA Forest Service 2005a). This site is located at least 5 miles south and east of the Landscape, and is at substantially lower elevation (about 8,500 feet) than the majority of the Weminuche Landscape. The population at this site is too small to detect a long term trend, but the pattern of occupancy indicates occurrence of individual flycatchers has persisted over the past 10+ years and therefore continued survey and monitoring efforts are warranted. There have been no reports of southwestern willow flycatchers in San Juan County, northern La Plata County, or Hinsdale County, the analysis area for the Weminuche Landscape.

A habitat model was developed to identify potential flycatcher habitat in the Weminuche Landscape. The model was developed in cooperation with the FWS and contains many of the characteristics and criteria described above. Habitat model results identified a total of 410 acres of possible flycatcher habitat on National Forest System lands in the Landscape (see Figure 5, below). Of this, a total of 395 acres (96%) was identified in four allotments or areas proposed for closing under the proposed action (Pine River - 336 acres, Flint Creek - 39 acres, Cave Basin - 13 acres, Rock Creek - 7 acres). A total of 16 acres of possible flycatcher habitat was identified in the Johnson Creek Allotment, which is proposed to remain open for grazing as a sheep forage reserve under the proposed action. Of the 16 acres identified in Johnson Creek Allotment, only 3.9 acres is in an area mapped as suitable for domestic sheep grazing. The remaining 12.7 acres is in an area mapped as unsuitable for sheep grazing.

The only potential flycatcher habitat patch identified by the model in an area mapped as suitable for domestic sheep grazing and in an allotment that is proposed to remain open to sheep grazing under the preferred alternative is along Vallecito Creek in the Johnson Creek Allotment (Figure 5). This habitat patch totals 3.9 acres in size. The habitat patch is located at about 9,200 feet elevation in a relatively narrow portion of the Vallecito Creek canyon. The Vallecito Creek trail passes along the eastern edge of the polygon. The Vallecito Creek Trail is a heavily used system trail that is popular for backpackers and horse travel accessing the central Weminuche Wilderness.

Because this willow patch is above 8,500 feet elevation and it is less than 5 acres in size, it does not meet the USFWS definition of flycatcher habitat (USDI Fish and Wildlife Service 2011). A field visit to the site in 2012 found the average height of the willow plants is about 10 feet, meeting the USFWS standard for flycatcher habitat. The only surface water present in the willow stand is in the form of 2 small streams that pass through the stand. Because the willow stand is on a slope of 8% to 10%, there is no standing surface water under the willow patch. This willow patch has not been surveyed for flycatchers, although the bird community detected during the 2012 visit was typical of mid-elevation riparian zones, and included Swainson's thrush, fox sparrow, MacGillivray's warbler, Hammond's flycatcher, olive-sided flycatcher and Wilson's warbler. Extensive moose trails and day beds were noted throughout the stand. Johnson Creek Allotment was last grazed by domestic sheep in 1968. The preferred alternative would designate this portion

of the Johnson Creek Allotment as a forage reserve, allowing the possibility of domestic sheep grazing up to a maximum of three years out of any 10 consecutive years.

A large possible flycatcher habitat patch was identified at the north end of Emerald Lake (Figure 5). This patch begins at the lake shore and extends about $\frac{1}{4}$ mile upstream (north) along Lake Creek. It is located at about 10,200 feet elevation and is 34.6 acres in size. The boundary between Cave Basin and Flint Creek Allotments follows Lake Creek through the middle of the habitat patch. For this reason, most of the habitat patch is within the Flint Creek Allotment, while some of the patch is in the Cave Basin Allotment. Cave Basin Allotment was last actively grazed by sheep in 1988. Flint Creek Allotment was last grazed in 1972. Both allotments are proposed to be closed to domestic sheep grazing under the preferred alternative. Cattle grazing would be allowed in southern portions of the Cave Basin Allotment under the proposed action, but not in the area where this patch is located.

This large willow patch is dense, contiguous, has high canopy closure, and averages up to 10 feet or greater in height in many places. Surface water under the willow canopy at the beginning of the flycatcher breeding season (June) depends on the amount of snowmelt runoff in Lake Creek. By the middle and end of the flycatcher breeding season (July and August) surface water is likely confined primarily to the immediate channel of Lake Creek. Because of its extent, tall average size of willow plants, and dense canopy cover of willows, this willow patch meets the USFWS definition of suitable flycatcher habitat. It has not been surveyed for flycatchers.

A large willow and grass/forb complex is located along the Pine River in an area labeled on some maps as "Willow Park" (Figure 5). It extends about $\frac{3}{4}$ mile along the Pine River valley upstream from the confluence with Willow Creek. It is located at about 8,900 feet elevation and is 70.6 acres in size. A second but much smaller willow patch is located about $\frac{1}{2}$ mile away and is 11.1 acres in size associated with an old river meander. These two complexes are comprised of dense willow stands intermixed with grass/forb openings and less dense and smaller willow patches associated with the Pine River channel. The willow stands in these complexes are often dense and contiguous, with many averaging 8 to 10 feet in height, while others average 5 feet or less in height. Some willow stands have standing surface water that likely lasts throughout the flycatcher breeding season. Other willow stands in these complexes likely do not have surface water that lasts past mid-July. Given the overall patch size, extent, high density and high canopy closure of some portions of these complexes, these habitat patches meet the USFWS definition of flycatcher habitat. They have not been surveyed for flycatchers. The Pine River Allotment was last grazed by domestic sheep in 1980 and is proposed to be closed to livestock grazing under the proposed action.

Further upstream along the Pine River is a long section of willow complexes that extends from just below the confluence with South Canyon upstream (north) to the confluence with Granite Lake outlet, a distance of about 2.6 linear miles along the main stem of the Pine River (Figure 5). This complex is at an elevation between 9,800 and 10,000 feet and is 165 acres in size. This long, linear willow complex is comprised of dense willow stands of varying sizes and heights intermixed with grass/forb meadows, river gravel bars, and less dense and smaller willow stringers immediately associated with the Pine River channel. Some of the willow stands in this complex are dense and contiguous, averaging 8 to 10 feet in height. Other willow patches in this complex average 5 feet or less in height and are disjunct from other patches. Some willow stands have standing surface water that likely lasts throughout the flycatcher breeding season. Other willow stands in this complex likely do not have surface water that lasts past mid-July. Beaver ponds of varying ages are scattered along this section of the Pine River and have willows of varying density and height associated with them. Given the overall patch size, extent, high density and high canopy closure of some portions of the complex, this willow complex meets the USFWS definition of flycatcher habitat. This willow complex has not been surveyed for flycatchers. The Pine River

Allotment was last grazed by domestic sheep in 1980 and is proposed to be closed to livestock grazing under the preferred alternative.

At the head of Snowslide Canyon is a large area of alpine willow that was identified as possible flycatcher habitat (Figure 5). It is entirely within the alpine zone and the willow complex forms a horseshoe ring around the head of an alpine basin. The eastern edge of this willow complex straddles the Continental Divide. It is located at about 11,800 feet elevation and is 88.8 acres in size. This willow complex is dense and contiguous, but averages less than 5 feet in height. There is little standing surface water, with the water source being runoff from melting snow banks on hillsides above. Most of this willow complex is on alpine slopes greater than 5%. Because of the relatively short stature of most plants, relatively steep terrain, and lack of surface water, this willow complex is not suitable for flycatcher habitat, and it has not been surveyed for flycatchers. The Pine River Allotment was last grazed by sheep in 1980 and is proposed to be closed to livestock grazing under the preferred alternative.

In the headwaters of the North Fork of Rincon La Vaca there are two patches of willows that are about ½ mile apart (Figure 5). The larger patch is 9.7 acres in size and is located at 11,900 feet elevation on the side of an alpine basin with greater than 5% slope. The smaller patch is 6.8 acres in size and is at 11,300 feet elevation. This patch is located just below timberline but is also on a hillside with greater than 5% slope. Although each patch is greater than 5 acres in size, they likely do not reach an average of 5 feet in height, likely do not have surface water for the duration of the flycatcher breeding season, and likely are too far apart (0.4 miles) and separated by too much elevation change (600 feet) to function as a habitat complex for flycatchers. For these reasons, these willow patches likely are not suitable for flycatcher habitat. However, these patches have not been field visited to confirm these assumptions. The Pine River Allotment was last grazed by sheep in 1980 and is proposed to be closed to livestock grazing under the preferred alternative.

A small willow patch is located north of Rock Lake on a side tributary to Rock Creek (Figure 5). It is 6.5 acres in size and is located at 12,000 feet elevation. The willow patch is long and linear along a drainage that has greater than 5% slope. The high elevation of this site, and hillside position of the patch suggests it is unlikely willow plants exceed an average of 5 feet in height. For these reasons, this willow patch is unlikely to be suitable for flycatchers. The patch has not been field visited to confirm these assumptions and it has not been surveyed for flycatchers. The Rock Creek Allotment was last grazed by sheep in 1970 and this portion of the allotment is proposed to be closed to livestock grazing under the preferred alternative.

Direct and indirect effects:

Literature review of livestock grazing effects to habitat and species

Effects to habitat:

Livestock grazing could be a threat to SWWF where grazing occurs in suitable habitat, through grazing induced changes to plant community structure, species composition, and relative abundance of plant species and density. Key attributes of SWWF habitat (dense deciduous vegetation, and high water tables) are among the riparian characteristics most affected by livestock grazing. Riparian habitat is generally typified by high plant diversity and moist conditions; grazing in riparian habitat can result in reductions of plant diversity and drying of riparian habitats (Finch and Stoleson 2000).

At sites below timberline, domestic livestock, especially cattle, can display a strong preference for occupying and/or remaining in riparian areas because of the availability of shade, water, and forage. Consumption of willow, shrub, and other riparian vegetation can have negative indirect

effects on SWWF habitat, and prolonged use in these areas may cause stream bank alteration, affect willow regeneration, and where grazing is heavy, expose soil which aids in the establishment of noxious weeds and increase densities of other non-desirable plant species.

Most of the willow riparian areas across the Landscape are in upper mid-seral successional stage, or in an upward trend, and therefore meeting land management plan direction for riparian condition. Little evidence of willow browsing was observed in willow dominated riparian areas at or below timberline.

Of the 15 riparian (PFC) monitoring points conducted in the Weminuche Landscape (see Figure 3), 4 (27%) were in the alpine zone and thus above the elevation where environmental conditions are likely to allow development of willows of sufficient stature (average greater than 5-feet in height) to provide flycatcher habitat. A total of 11 riparian points (73%) were at or below treeline and thus within the elevation range that could provide willows of sufficient stature to develop into flycatcher habitat.

Of the 11 riparian sample points within the elevation range likely to allow development of willows of sufficient stature to provide flycatcher habitat, a total of nine were rated as "Proper Functioning Condition" with a "Stable" trend. Of these 11 riparian sample points, five were in spruce-fir riparian sites, and three were in grassland riparian sites. Conditions at all eight of these sites were rated as "Proper Functioning Condition" with a "Stable" trend. The remaining three riparian sample points were in willow-dominated sites. Vegetation conditions at two of these three willow-dominated sites met the project's desired conditions, including one site rated as "At Risk" but with an "Upward" trend.

One of these willow-dominated sampling points did not meet the project's desired conditions. This site (VG-PFC1) was rated as "At Risk" with "No Trend Apparent". The reason this sample point was rated "At Risk" was because of active bank erosion believed to be aggravated by use of the area by sheep as an active crossing area. This area is within $\frac{1}{4}$ of a herder camp and has been used historically to cross the drainage. The creek channel is incised with noticeable bank sloughing and head cutting. Active movement both laterally and vertically was evident at the site. Site specific design criteria were established for area that are intended to improve riparian function and vegetation conditions.

In high elevation willow-dominated riparian corridors and upland willow slopes adjacent to spruce-fir stands, sheep browsing may impact willows, thereby reducing the potential of these stands to develop stature and other physical conditions suitable for flycatchers. Domestic sheep are thought to more commonly utilize willows later in summer and early fall when the abundance and nutritional value of grasses and forbs declines after the first frosts. Site visits found evidence of low to moderate browsing on willows in several allotments across the Landscape. It was unclear however, whether the observed browsing was due primarily to domestic sheep, elk, or a mixture of both. Most of the observed browsing impacts were on willow stands in the alpine zone, generally above the elevation thought likely to allow development of willows of sufficient stature to provide flycatcher habitat. Because these areas were above the level where flycatcher habitat is thought likely to develop, the willow browsing that was observed probably would have little effect on the development of flycatcher habitat conditions.

The effects of livestock grazing vary over the range of the SWWF and by class of livestock (sheep versus cattle) due to variations in grazing and herding practices, climate, hydrology, ecological setting, habitat quality, and other factors (Finch and Stoleson 2000). Although grazing can negatively affect riparian areas, research has found that well managed grazing can be compatible with healthy riparian habitat. The major factors involved in managing grazing for healthy riparian

areas include class of livestock, livestock control, the time of year grazing occurs, grazing intensities on forage and shrubs, and amount of stream bank trampling or damage.

Kovalchik and Elmore (1992) found that systems incorporating riparian corridor fencing, riparian pastures, and spring and winter grazing to be highly compatible with willow dominated riparian areas. They also found two pasture rotation, three pasture rest rotation, and three pasture deferred rotation grazing to be moderately compatible. In a study by Bryant (1985) where grazing was at less than 70% utilization, deferred rotation grazing increased herbage production in riparian areas the most, with continuous grazing providing the poorest results. In most cases, fencing constructed for grazing systems provided the control needed to graze at the proper time of year and to achieve acceptable utilization on forage and shrubs. Specifically for SWWF habitat, grazing systems incorporating deferment or rest would tend to promote establishment of healthy willow stands by allowing willows and other riparian vegetation a complete growing season of rest or deferment from grazing on a regular basis. In addition, fencing provides the control necessary to remove cattle from suitable habitat before detrimental utilization of willow and other riparian vegetation can occur.

Converting the class of livestock from domestic sheep to cattle has the potential to increase effects to flycatcher habitats. This is because cattle tend to spend more time than sheep within and near water sources where they often rest during the heat of the day. Cattle have the potential for somewhat greater impacts than sheep in riparian areas, especially in areas where they congregate and lounge near preferred water sources. Woody riparian vegetation, such as willows, may be negatively affected by the physical action of cattle moving through and around willow stands, and also by browsing on the plants themselves. In comparison, domestic sheep tend to spend less time than cattle within and immediately adjacent to riparian areas and water sources. In addition, because sheep spend much more time than cattle in the alpine zone, and therefore generally above the elevation thought likely to allow the development of willows of sufficient stature to provide flycatcher habitat, there tends to be less potential for domestic sheep grazing to have negative effects on the development and characteristics of flycatcher habitat.

Finally, fencing is frequently used in cattle allotments to establish and maintain effective pasture rotation systems, but is rarely used in sheep allotments. For this reason, effective management of cattle allotments typically requires the creation and/or maintenance of fences, which sometimes must pass through or near flycatcher habitat and therefore potentially resulting in the permanent loss of small amounts of flycatcher habitat. The amount of flycatcher habitat potentially lost to fence construction and maintenance activities is expected to be very small and restricted to very narrow corridors (generally about 10 feet in width), but nonetheless these very minor losses of flycatcher habitat to cattle fencing may be unavoidable if the Canyon Creek and portions of the Cave Basin Allotments are converted from use by domestic sheep to use by cattle.

For all the reasons just described, converting the Canyon Creek Allotment from sheep to cattle has potential to result in greater impacts to flycatcher habitat than by continued domestic sheep grazing. Similarly, converting the lower portion of the Cave Basin Allotment from a sheep allotment to a cattle forage reserve would also be expected to have increased potential for effects to flycatcher habitat under the proposed action. It is important to note that because the Cave Basin Allotment has not been grazed by either class of livestock since 1988, permitting cattle grazing for up to 3 years out of any 10 consecutive years has potential to cause some impacts to riparian habitats within this allotment, especially during the years the allotment would be stocked.

Fence construction and maintenance activities necessary to achieve desired conditions, particularly for cattle in the Canyon Creek Allotment, may be undertaken in some places. Fencing is rarely used for sheep pastures in the Weminuche Landscape, except to separate sheep from cattle pastures, or to delineate administrative horse pastures. Under the proposed action about

4.12 miles of new fence would need to be constructed in or immediately adjacent to the Canyon Creek Allotment. These new fences would be necessary to create an effective three-pasture rotation system within the allotment after converting the allotment from its current use as a sheep allotment to its proposed use as a cattle allotment, as is requested by the livestock permittee. In addition, several short segments of new fence would be needed to provide an effective division between cattle in the Canyon Creek Allotment and cattle in the adjacent Bear Creek Allotment.

None of the proposed 4.12 miles of new fence construction necessary to convert the Canyon Creek Allotment from use by sheep to use by cattle are likely to be constructed within or through currently suitable flycatcher habitat. Short segments however are likely to cross riparian areas and therefore some minor and localized effects to existing riparian areas are unavoidable. The impacts of these fence construction activities are expected to be very small in scale and result in only a very minor potential for negative impacts to potential flycatcher habitats. For this reason, the potential for negative effects to flycatcher habitat from fence construction activities under the proposed action is expected to be insignificant and discountable.

The time of year grazing occurs can have an effect on riparian habitat. Grazing during the hot portion of the growing season is a key factor in severity of trampling and mechanical damage, soil compaction, and plant utilization (Clary and Webster 1989, Marlow and Pogacnik 1985). Clary and Webster also suggest grazing pastures containing riparian areas in the spring, then removing all livestock and allowing forage plants to regrow for the remainder of the season. They suggest this strategy can be beneficial to riparian areas because cattle use tends to be more evenly distributed in spring. Cattle may even avoid many riparian areas until late summer because of wet soil conditions. Assuming that livestock grazing occurs in suitable habitat, then spring and early summer grazing tends to be best for promotion of willow and other riparian plant species than late summer grazing. Although the potential for direct mortality to eggs or nestlings exists when livestock grazing occurs during the nesting season, the potential for direct mortality would be lessened given healthy, dense willow stands and wet soil conditions in spring and early summer.

Utilization levels of livestock forage affect the long-term condition of riparian habitats as well. The retention of an adequate standing crop of herbaceous forage appears to provide conditions favorable to riparian areas. A study in Oregon found that as long as palatable herbaceous forage is available in the riparian zone, willow utilization generally remains minor (Kauffman et al. 1983 cited in Finch and Stoleson 2000). In Oregon, mid to late season grazing indicates that cattle begin utilizing the current annual growth on willows when riparian forage use reaches about 45% (4-6 inch stubble height), and cattle eat all the willows they can when herbaceous utilization is 85% or more (<2 inches) (Kovalchik and Elmore 1992). Clary and Webster (1989) recommend that at least 4 to 6 inches stubble height of forage remain at the end of the grazing season. This equates to about 65% utilization of current year's growth in spring grazed pastures, 40 to 50% utilization in summer grazed pastures, and about 30% in fall used pastures. They found that in most cases, utilization of willows does not occur if about 45%, or about 4 to 6 inch stubble height, remains at the end of the grazing season. They found these guidelines also provide stream bank protection and aid in the deposition of sediments to rebuild degraded stream banks. Also, cattle generally prefer grasses and forbs to woody vegetation, at least when the herbaceous vegetation is still green. Therefore, some use of palatable grasses and sedges can occur without undesirable browsing of riparian shrubs and stream bank damage.

Effects to the species:

Direct effects may result when livestock come in contact with nests or supporting limbs while watering, foraging, shading, or resting in riparian habitat. This may result in the destruction of nests, or loss of eggs or nestlings (Finch and Stoleson 2000). Finch and Stoleson (2000) suggest that this impact is probably most common in high elevation, low-stature monotypic willow stands.

These stands typically lack the vertical diversity of willow and other riparian trees and shrubs found at lower elevations. This effect is less likely in alpine sheep pastures with willow stands that have surface water because wet areas are generally avoided by sheep for standing or resting. For this reason this potential effect is insignificant and discountable across most of the Weminuche Landscape.

Livestock grazing can contribute to other negative indirect effects such as facultative brood parasitism by brown headed cowbirds. Livestock grazing in and adjacent to riparian habitat may provide cowbirds with greater access to nests, improve foraging opportunities, and establish foraging areas closer to flycatcher nesting areas (Finch and Stoleson 2000). The overall impact is a negative effect to productivity. Because brown-headed cowbirds do not occur in or near the alpine areas of the Weminuche Landscape this potential effect is highly unlikely and thus is insignificant and discountable.

Livestock grazing effects to habitat and species in the Weminuche Landscape:

The relatively high elevation (generally above 10,000 feet elevation) of the three allotments proposed to remain open to grazing and the three allotments proposed to be available as forage reserve allotments under the preferred alternative, and the even higher elevation of most domestic sheep grazing activities (generally above 11,000 feet) suggests the potential for flycatcher occurrence in most areas where domestic sheep grazing activities could occur is low. At the elevation of most sheep grazing activities (above 11,000 feet), few willow patches grow to an average exceeding 5 feet in height, and most domestic sheep actively avoid these tall willow stands due to their relatively dense growth form and the frequent persistence of surface water. Although sheep will often travel along the outside of the drier edges of tall and dense willow stands, they rarely push into or through dense wet stands, especially if there is more than a few inches of surface water within the willow stand. The Spring Gulch Allotment is much lower in elevation (below 8,500 feet) but contains no willow stands of sufficient stature, gradient or surface water to be suitable flycatcher habitat.

About 96% (395 acres) of potential flycatcher habitat identified by the habitat model (see Figure 5, below) is located in four currently vacant allotments that are proposed for closure under the proposed action (Cave Basin, Flint Creek, Pine River Allotments, and the eastern portion of the Rock Creek Allotment). All potential flycatcher habitat in the Cave Basin Allotment is in portions of the allotment that are proposed to be closed. None of the potential flycatcher habitat is in the quarter of the allotment that would remain open as a cattle forage reserve. Because these four allotments are proposed for closure to domestic sheep grazing and/or the forage reserve portions contain no flycatcher habitat, there would be no direct or indirect effects from livestock grazing to flycatcher habitat or individual birds in these allotments. There is no non-federal land within these four allotments so there also would be no cumulative effects to flycatchers, as cumulative effects are defined by the Endangered Species Act. For this reason, there would be "no effect" to flycatchers from implementing the proposed action within the four allotments proposed to be closed to domestic sheep grazing under the preferred alternative (Cave Basin, Flint Creek, and Pine River Allotments, and eastern Rock Creek Allotment). There also would be "no effect" to existing flycatcher habitat from implementing the proposed action within the Cave Basin cattle forage reserve allotment because there is no existing habitat within this portion of the allotment.

Only 3.9 acres (<1%) of modeled flycatcher habitat occurs in areas proposed for continued sheep grazing, and in areas considered suitable for sheep grazing in the Johnson Creek sheep forage reserve allotment (see Figure 5). Because this single habitat patch is located at 9,200 feet elevation and it is less than 5 acres in size, it does not meet the USFWS definition of flycatcher habitat (USDI Fish and Wildlife Service 2011). Although this patch has high willow canopy closure (>60%) and on average willow plants are about 10 feet in height, the patch is on a slope that averages 8%

to 10% and there is little surface water present within the stand. Although it has not been surveyed for flycatcher presence, this willow stand appears to be only marginal for flycatcher occupancy. The Johnson Creek Allotment where this patch is located has not been grazed since 1968. For this reason, permitting sheep grazing for up to 3 years out of any 10 consecutive years has potential to cause some impacts to riparian habitats within this allotment, especially during the years the allotment would be stocked.

This willow habitat patch is located along Vallecito Creek near the confluence with Johnson Creek. This willow patch is located along a route that would be used to move sheep up the Vallecito Creek drainage to higher elevation grazing areas in the western portions of the Rock Creek Allotment. Sheep would not be bedded or grazed for extended periods in the area around this willow patch, but rather would pass briefly through the area going to and returning from grazing areas in the Rock Creek Allotment. For this reason, the intensity of sheep grazing around this habitat patch would be expected to be low, and the duration of time sheep are expected to spend in close proximity to the habitat patch is also likely to be low. Therefore it is reasonable to conclude that the direct and indirect effects of sheep grazing on the structure of this willow patch are likely to be insignificant and discountable.

Because domestic sheep have not been permitted to graze the Johnson Creek Allotment since 1968, it is unlikely there are lingering long-term negative effects to the habitat structure of this willow patch from past domestic sheep grazing activities. Because of the long duration of rest from sheep grazing, direct and indirect effects, if any remain, are likely to be insignificant and discountable. Finally, application of project design criteria should ensure that when sheep grazing occurs, it is carried out in a manner that allows willow stands and riparian areas to maintain or achieve mid-seral or higher conditions. If so, direct and indirect effects to potential flycatcher habitat by domestic sheep grazing activities in the Johnson Creek forage reserve allotment under the proposed action are expected to be insignificant and discountable.

A second habitat patch that is 11.6 acres in size is located 0.9 miles downstream (south) in a portion of the Johnson Creek Allotment that is proposed to be closed to grazing under the preferred alternative. Because of the substantial distance between these two habitat patches they are unlikely to function as a habitat complex for flycatchers. Field visits to this downstream patch in 2012 found habitat conditions similar to the northern stand. Both willow stands had extensive evidence of moose browsing, moose trails throughout the stands, and day beds within the stands.

As stated earlier, most of the willow riparian areas across the Weminuche Landscape are in upper mid-seral successional stage, or in an upward trend, and therefore meeting land management plan direction for riparian condition. Little evidence of willow browsing was observed in willow-dominated riparian areas at or below timberline. Of the 11 riparian monitoring points conducted in the Weminuche Landscape within the elevation range that could provide willows of sufficient stature to develop into flycatcher habitat, 10 (91%) met the project's desired conditions.

Adopting the proposed action would be almost entirely beneficial for flycatchers because the Cave Basin, Flint Creek, and Pine River Allotments would be entirely closed to sheep grazing, and the eastern portion of the Rock Creek Allotment would also be closed (see Figure 5, below). This would close about 96% of flycatcher habitat patches identified in the Weminuche Landscape to sheep grazing. No flycatcher habitat was identified in the portion of the Cave Basin Allotment that would be designated a cattle forage reserve allotment. Only 3.9 acres (<1%) of modeled flycatcher habitat occurs in areas proposed for continued sheep grazing, and in areas considered suitable for sheep grazing.

Adopting the proposed action would also apply riparian conservation measures to sheep grazing that could occur in the sheep forage reserve areas of Johnson Creek and Leviathan Allotments and

in western portions of the Rock Creek Allotment. Also, the proposed action would limit domestic sheep grazing in the forage reserve allotments to a maximum of 3 years out of any 10 consecutive years, ensuring substantial rest between grazing periods. Under current management, the Cave Basin, Flint Creek, Pine River and Rock Creek Allotments could be restocked administratively at any time without undertaking a formal NEPA process. For the reasons discussed above, restocking these allotments could have direct and indirect effects to flycatchers and flycatcher habitat, without application of the riparian conservation measures or forage reserve limitations contained in the proposed action.

Cumulative effects:

The Weminuche Landscape contains only a small amount of non-federal land (4,292 acres; 2.6% of Landscape) intermixed within surrounding federal lands (about 162,500 acres). In addition, there is little non-federal land immediately adjacent to the Weminuche Landscape. Activities on non-federal lands, and outside the Landscape, that may have contributed to changes in habitat conditions include livestock grazing, timber harvest, mining, water diversion, and dispersed recreation, both summer and winter. These activities have likely affected the amount, distribution and quality of SWWF habitat (tall, dense willows immediately adjacent to free surface water). Mining was the past human activity that likely had the most extensive and negative impact on flycatcher habitat conditions throughout the Landscape, although these activities were limited in scope to a few locations. Unlike other adjacent Landscapes, mining was not widespread in the Weminuche Landscape and activities had only limited and generally insignificant effects. The proposed action of re-authorizing domestic sheep grazing in the Weminuche Landscape will not contribute to additional water quality problems downstream.

Determination:

For all allotments in the Weminuche Landscape, **except the Johnson Creek Allotment**, it is my professional opinion that the proposed action, when added to the cumulative effects of past, present, and reasonably foreseeable future actions, would have **"no effect"** on southwestern willow flycatcher and/or flycatcher habitat.

For the **Johnson Creek Allotment only**, it is my professional opinion that the proposed action, when added to the cumulative effects of past, present, and reasonably foreseeable future actions, **"may affect but is not likely to adversely affect"** the southwestern willow flycatcher and/or flycatcher habitat.

This determination is based on permitted sheep grazing occurring on less than 1% of flycatcher habitat identified in the Weminuche Landscape, after closing the entire Cave Basin, Flint Creek, and Pine River Allotments, and closing the eastern portion of the Rock Creek Allotment. Where sheep grazing is permitted, project design criteria, desired conditions, and livestock management techniques are expected to maintain or achieve mid-seral or higher riparian conditions and therefore maintain or enhance the potential for development/recovery of habitat conditions capable of supporting flycatchers. No flycatcher habitat was identified in the portion of the Cave Basin Allotment that would be designated a cattle forage reserve allotment.

Uncompahgre Fritillary Butterfly (*Boloria acrocnenma*)

Habitat requirements:

The Uncompahgre fritillary butterfly (UFB) is a butterfly that is endemic to high elevation (>12,500 feet) alpine peaks of Colorado's San Juan Mountains. It was listed as Endangered under the ESA

in 1991 due to population declines observed in the 1980's (USDI Fish and Wildlife Service 1994). Over collection is considered the greatest human-caused threat to species persistence.

At present, there are a total of only 11 known UFB colonies (Alexander and Keck 2011), all on USFS or BLM managed lands. The UFB is dependent on snow willow (*Salix reticulata nivalis*) for food and shelter, and even adult butterflies are rarely found far from patches of snow willow (USDI Fish and Wildlife Service 1994). Furthermore, colonies are limited to snow willow patches above about 12,500 feet elevation on north, northeast, east, and southeast aspects. These patches are usually situated below snow fields lasting late into the summer, which provides a source of melt water for snow willow plants during the brief summer growing season.

The UFB has a biennial life cycle, with two overlapping populations representing even and odd years present at each occupied site (USDI Fish and Wildlife Service 1994) Eggs laid in year one become caterpillars, then become adults in year two. Adult butterflies fly for only about 3 weeks, usually beginning in early to mid-July (Alexander pers. comm.). Adult butterflies feed on nectar from a wide variety of alpine flowers. Females lay their eggs on snow willow plants or in litter within snow willow patches, which shelters the caterpillars and provides them with their sole source of food.

Status and distribution:

There is only one known UFB colony in the Weminuche Landscape (Alexander and Keck 2011), but snow willow is widely distributed in the alpine zone and in places is relatively abundant across the Landscape. The one known UFB colony is located in the northwestern portion of the Pine River Allotment along the Continental Divide.

The proposed action proposes to close the Pine River Allotment to all livestock grazing (see Figure 2, below). Grazing in the portion of the Pine River Allotment where the known UFB colony is located began in the very early 1900's and continued annually through 1980. The Pine River Allotment was last grazed by domestic sheep in 1980. The permitted grazing season was mostly from 7/1 through 9/15 each year. The Rincon La Vaca area where the UFB colony is located was permitted for 2,000 head of sheep until 1947. Beginning in 1948, the permitted numbers were reduced to 850 through 1950, then increased to 1,050 head in 1951, where it remained until 1978. In 1978, this area was combined with two other areas to form the current Pine River Allotment. The combined Pine River Allotment was permitted for 850 head, but grazing actually occurred for only three more seasons, being last grazed in 1980.

The Weminuche Landscape has been extensively surveyed for UFB and no new colonies have been found. There are however, four small areas in the Rock Creek Allotment, totaling 233 acres, which appear to have suitable UFB habitat attributes and the potential for butterfly occurrence appears to be high (see Figure 6, below). Dr. Kevin Alexander, the lead USFWS butterfly researcher, has visited the area and believes there is high potential for UFB occurrence. However, the area has not been surveyed during the primary UFB survey season to adequately determine the status of butterfly occurrence. For this reason, until the area can be adequately surveyed, the area will be presumed to be occupied by UFB and domestic sheep will be managed accordingly. This portion of the Rock Creek Allotment is proposed for forage reserve status under the Preferred Alternative.

In agreement with FWS, a polygon was delineated that includes the four small potential UFB areas, within which domestic sheep grazing activities would be restricted (see Figure 6, below). This "restricted area" polygon was designed to have boundaries that can be readily identified on the ground by sheep herders managing the domestic sheep flocks. This polygon is 676 acres in size and includes the north, northwest, and east slopes of Storm King Peak and Mt. Silex. The grazing permittee is responsible for ensuring their herders manage the movement, activities, and

presence of sheep around this "restricted area" polygon to ensure that grazing sheep do not enter the area or degrade butterfly key habitat attributes.

Salting, bedding and intentional grazing of sheep would not be permitted in this "restricted area" polygon. Trailing through the polygon would not be necessary because of its location along a very steep and rugged margin of the forage reserve allotment that is not needed to be crossed to move sheep within the allotment, or move sheep to or from other allotments.

There are no system trails leading into the area around the polygon but the area receives regular dispersed recreation by backpackers and climbers on user created trails. The peaks between Arrow, Vestal Peaks and The Guardian are popular with climbers, and the Trinity Lake basin provides a well-used route to and from the Vallecito Creek drainage for climbers coming from the popular Elk Creek drainage.

Domestic sheep grazing in the Rock Creek Allotment began in the very early 1900's and continued annually through 1970. The Rock Creek Allotment has not been grazed by sheep since 1971. Early on, the Rock Creek Allotment was combined with the Leviathan Allotment, and the combined allotment was permitted for 1,300 head of sheep from 1928 through 1930. In 1931 the permitted number on the combined allotment was increased to 1,500 head. In 1932, the Rock Creek Allotment was separated from the Leviathan Allotment, and the number permitted on Rock Creek was reduced to 600 head. In 1947, the Rock Creek Allotment was combined with the adjacent Vallecito Allotment and the combined allotment was permitted for a total of 850 head (reduced from a previous combined total of 1,800 head across both allotments). The permitted number for the combined Rock Creek Allotment remained at 850 head until grazing ended in 1970.

Direct and indirect effects:

Potential direct effects to Uncompahgre fritillary butterfly from domestic sheep grazing include the risk of some degree of mortality of adult butterflies or larvae from trampling (USDI Fish and Wildlife Service 1994). Potential direct effects to the snow willow habitat on which UFB depend includes physical damage to snow willow plants by sheep trampling or browsing that could affect the distribution, health or vigor of snow willow plants, sheep trailing up slope of snow willow patches that could alter water runoff patterns from melting snow fields thereby altering snow willow growth conditions, or impacts from sheep to micro site conditions within snow willow patches that support UFB larvae and adults thereby potentially reducing UFB overwinter survival or reproductive success.

The primary direct effect from domestic sheep trailing through UFB habitat is grazing of the flowering plants that adult UFB depend on for nectar sources during their flight periods (Alexander pers. comm.), which is also the same time of year that sheep are present in alpine pastures. Monitoring in the Uncompahgre Peak colony indicates there may be significant losses of nectar sources following domestic sheep trailing (Grother 2008). However, long term monitoring at this site found no indication of significant direct, indirect or cumulative effects from recreation or domestic sheep trailing through this UFB colony. The colony appears to have a stable trend in UFB numbers and distribution within the available habitat (Alexander pers. comm.).

There would be only a small likelihood for direct or indirect effects from domestic sheep grazing to the UFB "restricted area" polygon in the Rock Creek forage reserve allotment. The likelihood that effects would occur is small because domestic sheep would not be permitted to be deliberately grazed in the "restricted area" polygon, and trailing routes are far removed from the polygon. The steep and rugged nature of the polygon and its distance from primary sheep forage or trailing areas makes it unlikely that sheep would spend substantial amounts of time in close proximity to the polygon. Also, because the polygon is located along a very high elevation margin of the

allotment in a very steep and rugged area, if sheep were present in the area they would be unlikely to spend much time in the polygon.

The Preferred Alternative would not cause direct or indirect effects to the one known UFB colony in the Weminuche Landscape because the Pine River Allotment is proposed to be closed to all domestic livestock grazing. This UFB colony is 596 acres in size and spans the boundary between the San Juan and Rio Grande National Forests. This colony has six occupied patches. Of these six patches, four are solely on the Rio Grande NF (2.4, 10.6, 14.6, and 7.9 acres in size, respectively), and two patches are solely on the San Juan NF (4.7 and 5.7 acres in size). There is no livestock grazing currently permitted near the UFB colony on the Rio Grande NF.

Recent monitoring at the one known UFB colony in the Weminuche Landscape has shown only very minor evidence of human recreational presence in the colony. A recent monitoring visit found only a few human footprints but no evidence of trampling or other effects to snow willow plants. Substantial evidence was found however of elk presence and browsing and grazing within the colony. The degree of impact to snow willow from elk was thought to be insignificant and discountable. No evidence of domestic livestock was found in or near the UFB colony.

Recent monitoring has found evidence of trespass cattle elsewhere in the Pine River Allotment. These animals are coming from an adjacent cattle allotment on the east side of the Continental Divide on the Rio Grande NF. The area where the trespass cattle have been found however, is far removed and well below the elevation of the UFB colony. For this reason, the potential direct and indirect effects described above on UFB and snow willow from sheep grazing are not likely to occur from the trespass cattle that have been documented in the Pine River Allotment. The Columbine Ranger District is working with the Divide Ranger District of the Rio Grande NF to prevent cattle from moving over the Continental Divide and into the Pine River Allotment.

Adopting the Preferred Alternative would be almost entirely beneficial for UFB because it would formally close the Pine River Allotment to all livestock grazing. It would also apply UFB conservation measures to any sheep grazing that might occur in the Rock Creek forage reserve allotment. UFB conservation measures include limiting domestic sheep grazing to a maximum of three years out of any ten consecutive years, and the application of a "restricted area" polygon around an area of potential UFB habitat. Under current management, the Pine River and Rock Creek allotments could be restocked administratively at any time without undertaking a formal NEPA process. Restocking either allotment could have direct and indirect effects to UFB and snow willow habitats, without application of the additional UFB conservation measures or forage reserve limitations proposed in the Preferred Alternative.

Cumulative effects:

There are no non-federal lands in or near the UFB "restricted area" polygon located in the Rock Creek Allotment. The Pine River Allotment, including the area surrounding the one known UFB colony, is proposed to be closed to livestock grazing. For these reasons, there are no known cumulative effects to UFB from this proposed action, as cumulative effects are defined by the ESA.

Determination:

For all allotments in the Weminuche Landscape, **except the Rock Creek Allotment**, it is my professional opinion that the proposed action, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, will have "**no effect**" to the Uncompahgre fritillary butterfly or the snow willow habitats on which the butterfly depends.

For the **Rock Creek Allotment only**, it is my professional opinion that the proposed action, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, "**may affect but is not likely to adversely affect**" the Uncompahgre fritillary butterfly or the snow willow habitats on which the butterfly depends.

This determination is based on closing the Pine River Allotment to all domestic livestock grazing, and the application of a domestic sheep "restricted area" polygon around four small areas thought to have high potential for butterfly occupancy. Within this polygon, domestic sheep trailing, bedding, salting and intentional grazing would be prohibited.

LITERATURE CITED

- Alexander, K. D. Personal communication with Dr. K. D. Alexander, Western State College, Gunnison, CO. April 22, 2008.
- Alexander, K., and A. G. Keck. 2011. Uncompahgre fritillary butterfly monitoring, inventory, and mapping: 2010 report and status. Unpub. Rep., Western State College, Gunnison, CO. 33 pp.
- Andrews, R. and R. Righter. 1992. Colorado Birds: A Reference to Their Distribution and Habitat. Denver Museum of Natural History, Denver, CO 442 p.
- Bryant, L.D. 1985. Livestock Management in the Riparian Ecosystem. Paper presented at the North American Riparian Conference, Tuscon, Arizona, April 15-18, 1985. p285-289.
- Clary, W.P. and B. F. Webster. 1989. Managing grazing of riparian areas in the Intermountain Region. Gen. Tech. Report INT-263. Ogden, UT: USDA Forest Service, Intermountain Research Station. 11p.
- Colorado Division of Wildlife. 2005. General locations of lynx (*Lynx canadensis*) reintroduced to southwestern Colorado from February 4, 1999 through February 1, 2005. Colorado Division of Wildlife, Denver, CO. Available online at: http://wildlife.state.co.us/NR/ronlyres/F92E6FCD-BCB5-4711-8EE6-A9398EA77999/0/LynxLocations_Feb2005.pdf Accessed May 22, 2009.
- Colorado Division of Wildlife. 2008. Wildlife research report, July 2007 – June 2008. Post-release monitoring of Lynx reintroduced to Colorado. Colorado Division of Wildlife, Denver, CO. Available online at: <http://wildlife.state.co.us/NR/ronlyres/5F861BD3-61C3-4ADE-8F12-3FDDDB7DB2680/0/LynxAnnualReport200708.pdf> Accessed May 22, 2009.
- Finch, D. M., and S. H. Stoleson, eds. 1999. Status, ecology and conservation of the southwestern willow flycatcher. USDA Forest Service, Gen. Tech. Rep. RMRS-GTR-60, Rocky Mountain Research Station, Albuquerque, NM. 131 pp.
- Finch, D.M., J.L. Ganey, W. Yong, R.T. Kimball, and R. Sallabanks. 1997. Effects and Interactions of Fire, Logging, and Grazing. Pages 103-136 in W.M. Block, and D.M. Finch, eds. Songbird ecology in southwestern ponderosa pine forests: a literature review. Gen. Tech. Rep. RM-GTR-292. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station.

- Fitzgerald, J.P., C.A. Meany, and D.M. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History, and University Press of Colorado, Boulder. 467 pp.
- Frey, J. K. 2008. Morphology and genetics of the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*). Final Report, 12 June 2008. New Mexico Department of Game and Fish, Santa Fe, NM. Unpublished Report, 77 pp.
- Frey, J.K. 2011. Surveys for the New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*) on the San Juan and San Luis Valley Public Lands Centers, Colorado. Final Report submitted to San Juan Public Lands Center. Unpublished Report, 44 pp.
- Grother, C. 2008. Biological assessment, San Juan landscape rangeland assessment, Ouray and Gunnison Ranger Districts, Grand mesa, Uncompahgre, Gunnison National Forests. Unpublished report. 27 pp.
- Kovalchik, B.L. and W. Elmore. 1992. Effects of cattle grazing systems on willow-dominated plant associations in Central Oregon. In: Proceedings: Symposium of ecology and management of riparian shrub communities, (W.P. Clary, E.D. McArthur, D. Bedunah, and C.L. Wambolt, eds.) USDA Forest Service, Gen. Tech. Report INT-289. Intermountain Research Station, Ogden, UT.
- Marlow, C.B. and Pogacnik, T.M. 1985. Cattle Feeding and Resting Patterns in a Foothills Riparian Zone. *Journal of Range Management*, 39:212-217.
- Morrison, J. L. 1990. The meadow jumping mouse in the New Mexico: habitat preferences and management recommendations. Pages 136-143 in P. R. Krausman, and N. S. Smith, eds. Proceedings of the symposium on managing wildlife in the Southwest. Arizona Chapter, The Wildlife Society.
- Morrison, J. L. 1992. Persistence of the meadow jumping mouse, *Zapus hudsonius luteus*, in New Mexico. *Southwest. Natural*. 37:308-311.
- Page, Lawrence M. and B.M. Burr. 1991. A Field Guide to Freshwater Fishes North America, North of Mexico. Peterson Field Guide Series. Houghton Mifflin Company. 432pp.
- Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Naney, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000. Canada lynx conservation assessment and strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. For. Serv. Publ. R1-00-53, Missoula, MT. 142 pp.
- Squires, J. R. and T. Laurion. 2000. Lynx home range and movements in Montana and Wyoming: preliminary results. Pages 337 - 349 in L. F. Ruggiero, K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, and J. R. Squires, eds. Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder, CO.
- Schultz, C., A. Garcia, and J. Redders. 2006. Developing a lynx habitat conservation model; assumptions, criteria and components. Unpub. Rep., San Juan National Forest, Durango, CO. 38 pp.
- USDA Forest Service. 2004. Canada Lynx Species Assessment for the San Juan National Forest. Unpub. Rep., San Juan National Forest, Durango, CO.

- USDA Forest Service. 2005. Southwestern Willow Flycatcher Species Assessment for the San Juan National Forest. Unpub. Rep., San Juan National Forest. Durango, CO.
- USDA Forest Service. 2006a. Final environmental impact statement, Northern San Juan Basin coal bed methane project, July 2006. Appendix H, biological assessment, 40 pp. On file at the Columbine Ranger District, Bayfield, CO.
- USDA Forest Service. 2006b. Draft Mexican spotted owl species assessment, San Juan National Forest, Unpub. Rep., San Juan National Forest, Durango, CO. 16 pp.
- USDA Forest Service and USDI Bureau of Land Management. 2009. Forest Service Decision Notice and BLM Decision Record, and finding of no significant impact for the Silverton Landscape grazing analysis, 20 pp. On file at the Columbine Ranger District, Bayfield, CO.
- USDA Forest Service. 2013. BLM Tres Rios Field Office, San Juan National Forest land and resource management plan, September 2013. Appendix J, biological assessment for the final San Juan National Forest land and resource management plan. 127 pp. On file at the Columbine Ranger District, Bayfield, CO.
- USDI Fish and Wildlife Service. 1994. Uncompahgre Fritillary Butterfly Recovery Plan, March 17, 1994. Denver, Colorado. 20p.
- USDI Fish and Wildlife Service. 1998. Endangered species consultation handbook: procedures for conducting consultation and conference activities under section 7 of the endangered species act. U. S. Fish and Wildlife Service and National Marine Fisheries Service. March 1998, Final.
- USDI Fish and Wildlife Service. 2000. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Mexican Spotted Owl. Federal Register 65(141): 45336-45353.
- USDI Fish and Wildlife Service. 2003. Letter dated April 11, 2003 giving notice of the Final Recovery Plan for Southwestern Willow Flycatcher. U.S. Fish and Wildlife Service, Ecological Services, Grand Junction Field Office. Grand Junction, Colorado.
- USDI Fish and Wildlife Service. 2008. Biological opinion on the effects of the Southern Rocky Mountains Lynx Amendment (SRLA) on the distinct population segment of (DPS) Canada lynx (*Lynx canadensis*) (lynx) in the contiguous United States. Letter from USDI fish and Wildlife Service, Denver, CO, BO ES/LK-6-CO-08-F-024. On file at the Columbine Public Lands Center, Bayfield, CO.
- USDI Fish and Wildlife Service. 2011. Letter dated July 12, 2011 describing changes to southwestern willow flycatcher survey protocol requirements for projects occurring in Colorado. U.S. Fish and Wildlife Service, Ecological Services, Grand Junction Field Office. Grand Junction, Colorado.
- USDI Fish and Wildlife Service. 2013a. Unit Species List of federal Threatened, Endangered, and Candidate species for the San Juan Public Lands, December 10, 2013. Email from USDI Fish and Wildlife Service, Grand Junction, CO. On file at the Columbine Ranger District, Bayfield, CO.

- USDI Fish and Wildlife Service 2013b. Endangered and Threatened Wildlife and Plants; Threatened Status for the Distinct Population Segment of the North American Wolverine Occurring in the Contiguous United States. Federal Register 78(23):7864-7890.
- USDI Fish and Wildlife Service 2013c. Endangered and Threatened Wildlife and Plants; Establishment of a Nonessential Experimental Population of the North American Wolverine in Colorado, Wyoming, and New Mexico. Federal Register 78(23):7890-7905.
- USDI Fish and Wildlife Service 2013d. Endangered and Threatened Wildlife and Plants; Endangered Status for Gunnison Sage-Grouse. Federal Register 78(8):2486-2538.
- USDI Fish and Wildlife Service 2013e. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Gunnison Sage-Grouse. Federal Register 78(8): 2540-2570.
- USDI Fish and Wildlife Service 2013f. Endangered and Threatened Wildlife and Plants; Listing Determination for the New Mexico Meadow Jumping Mouse. Federal Register 78(119): 37363-37369.
- USDI Fish and Wildlife Service 2013g. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the New Mexico Meadow Jumping Mouse. Federal Register 78(119): 37328-37363.
- USDI Fish and Wildlife Service 2013h. Endangered and Threatened Wildlife and Plants; Proposed Threatened status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*). Federal Register 78(192): 61622-61666.
- Wait, S. 2005. Personal communications with Scott Wait, Terrestrial Wildlife Biologist, Colorado Division of Wildlife. Durango, CO.
- Wiggins, D. 2005. Yellow-billed Cuckoo (*Coccyzus americanus*): a technical conservation assessment. [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Region. Available at: <http://www.fs.fed.us/r2/projects/scp/assessments/yellowbilledcuckoo.pdf> [05/6/13].
- Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2007. Adaptive Management: the U.S. Department of the Interior Technical Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington DC. 72 pp.
- Wolfe, M. L., N. V. Debyle, C. S. Winchell, and T. R. McCabe. 1982. Snowshoe hare cover relationships in northern Utah. *J. Wildl. Manage.* 46:662-670.

Figure 1. Weminuche Landscape Grazing Analysis Area.

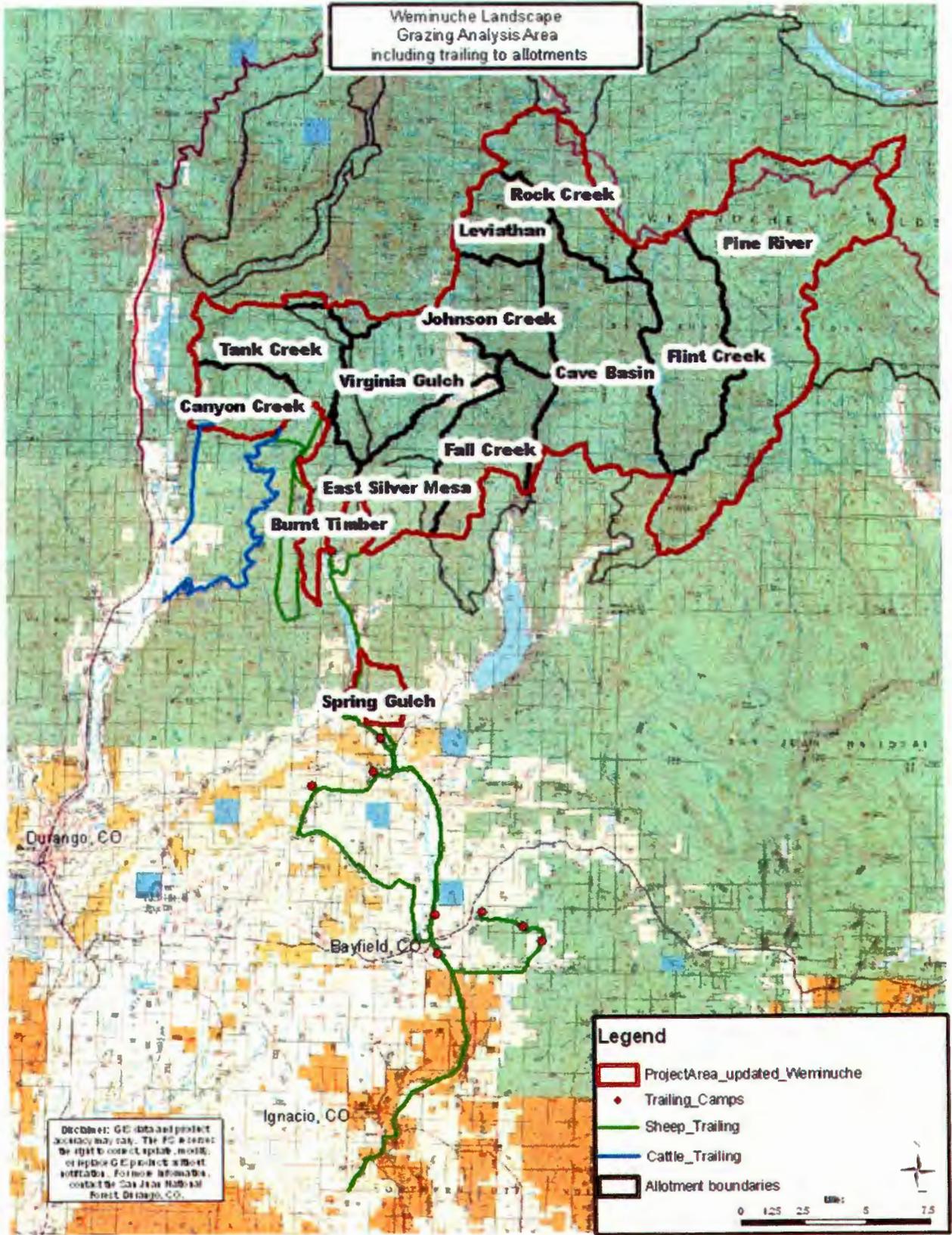


Figure 2. Weminuche Landscape Alternative 3 - Proposed Action.

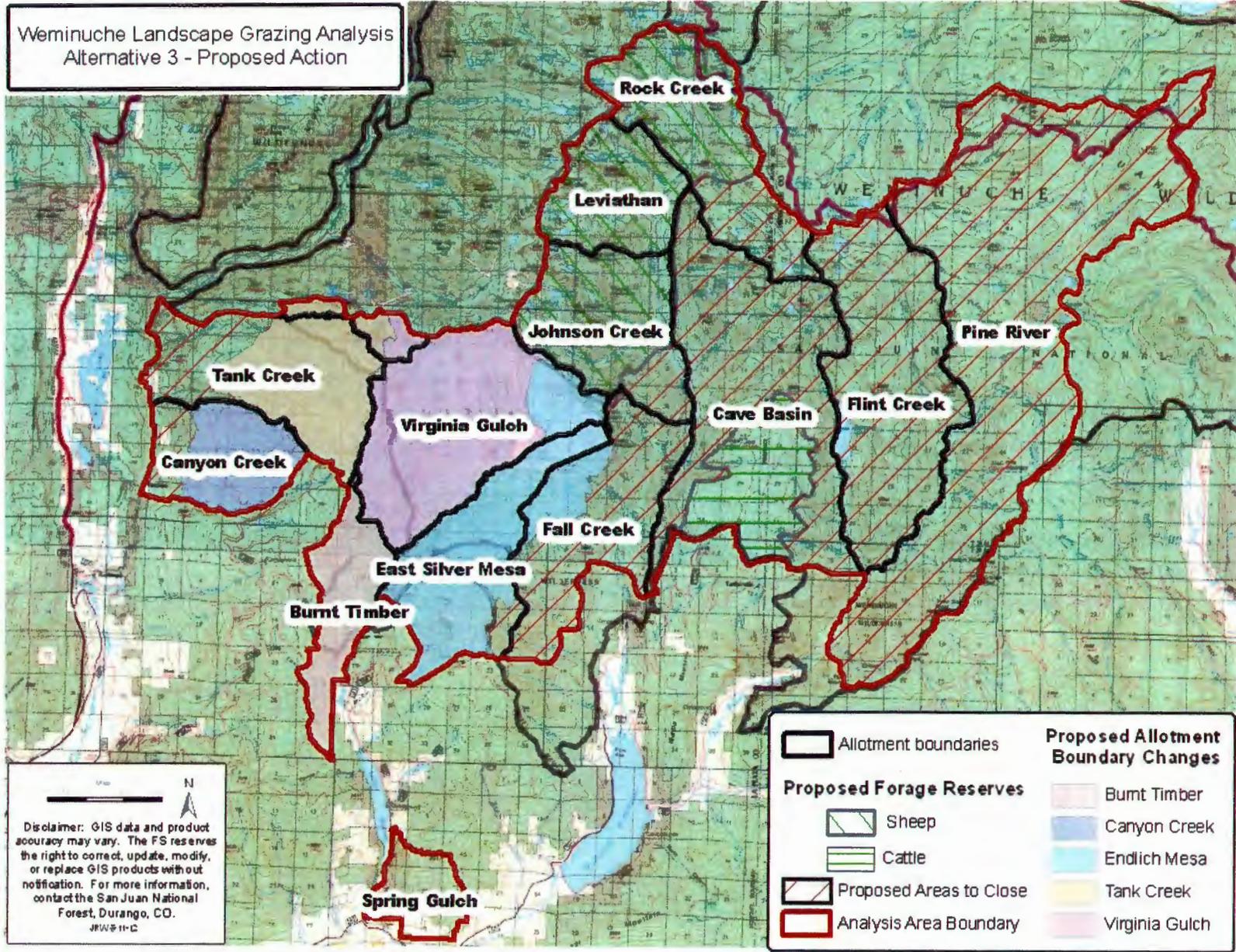


Figure 3. Weminuche Landscape Vegetation Monitoring Points.

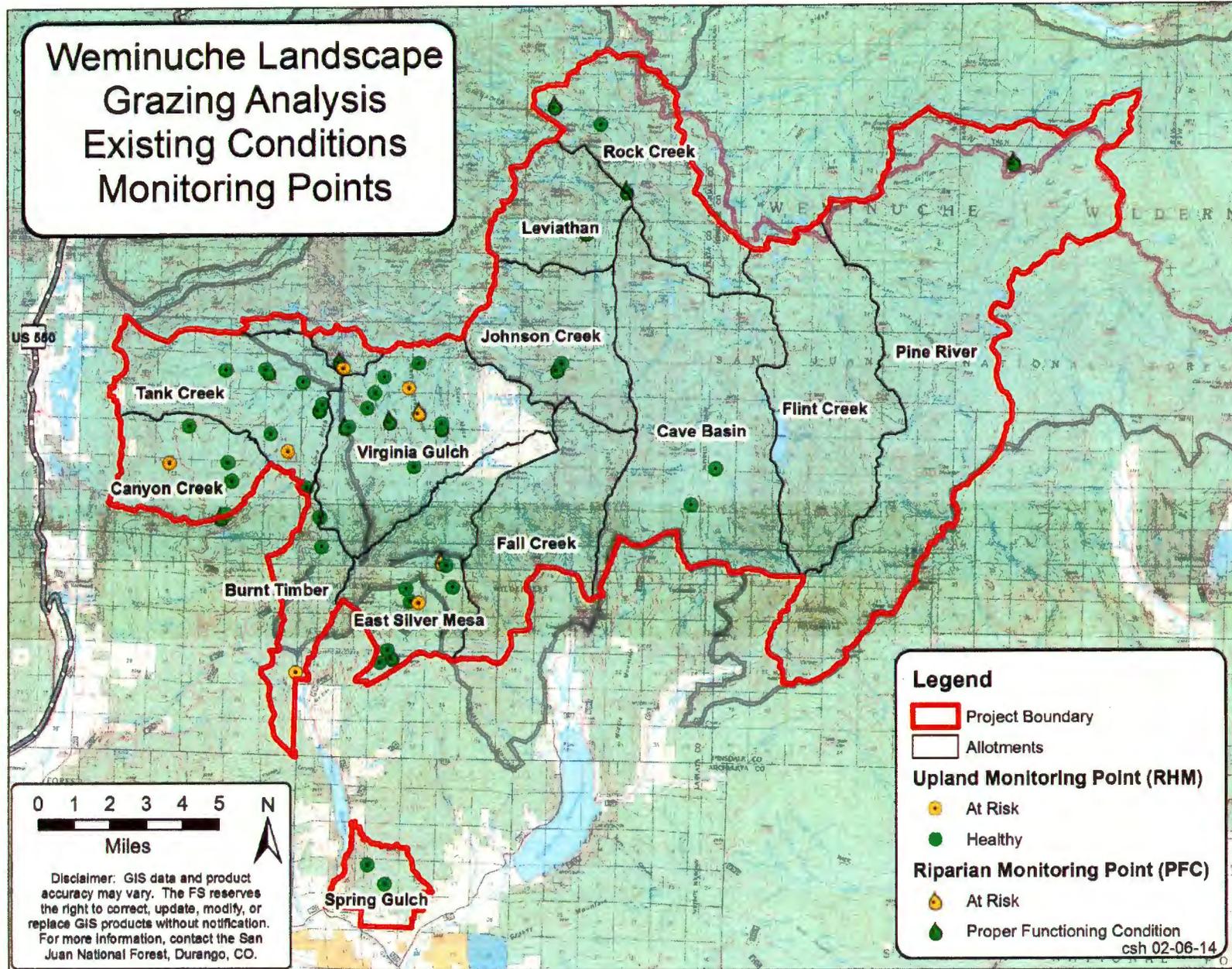


Figure 4. Canada lynx habitat in the Weminuche Landscape.

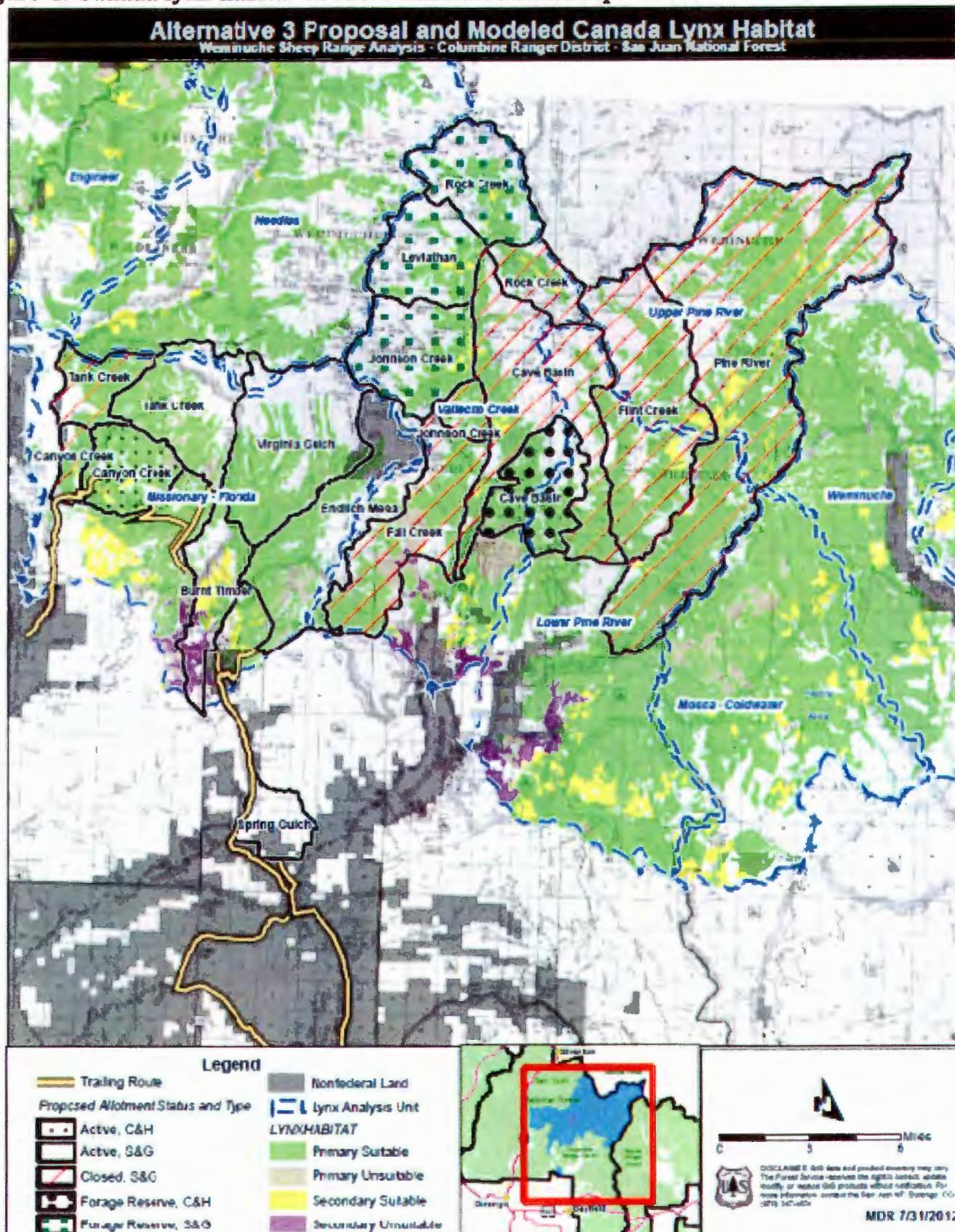


Figure 5. Southwestern Willow Flycatcher Habitat.

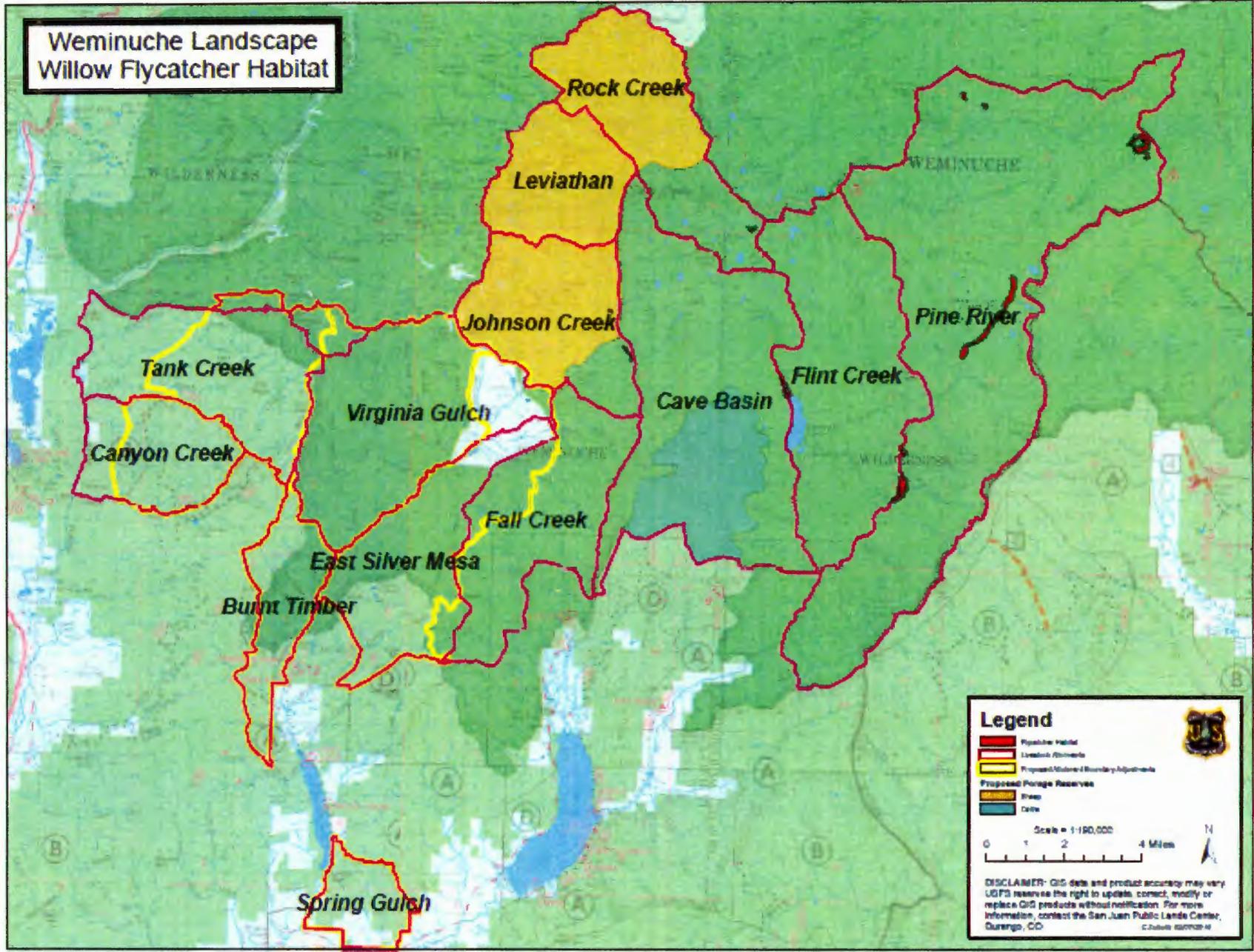
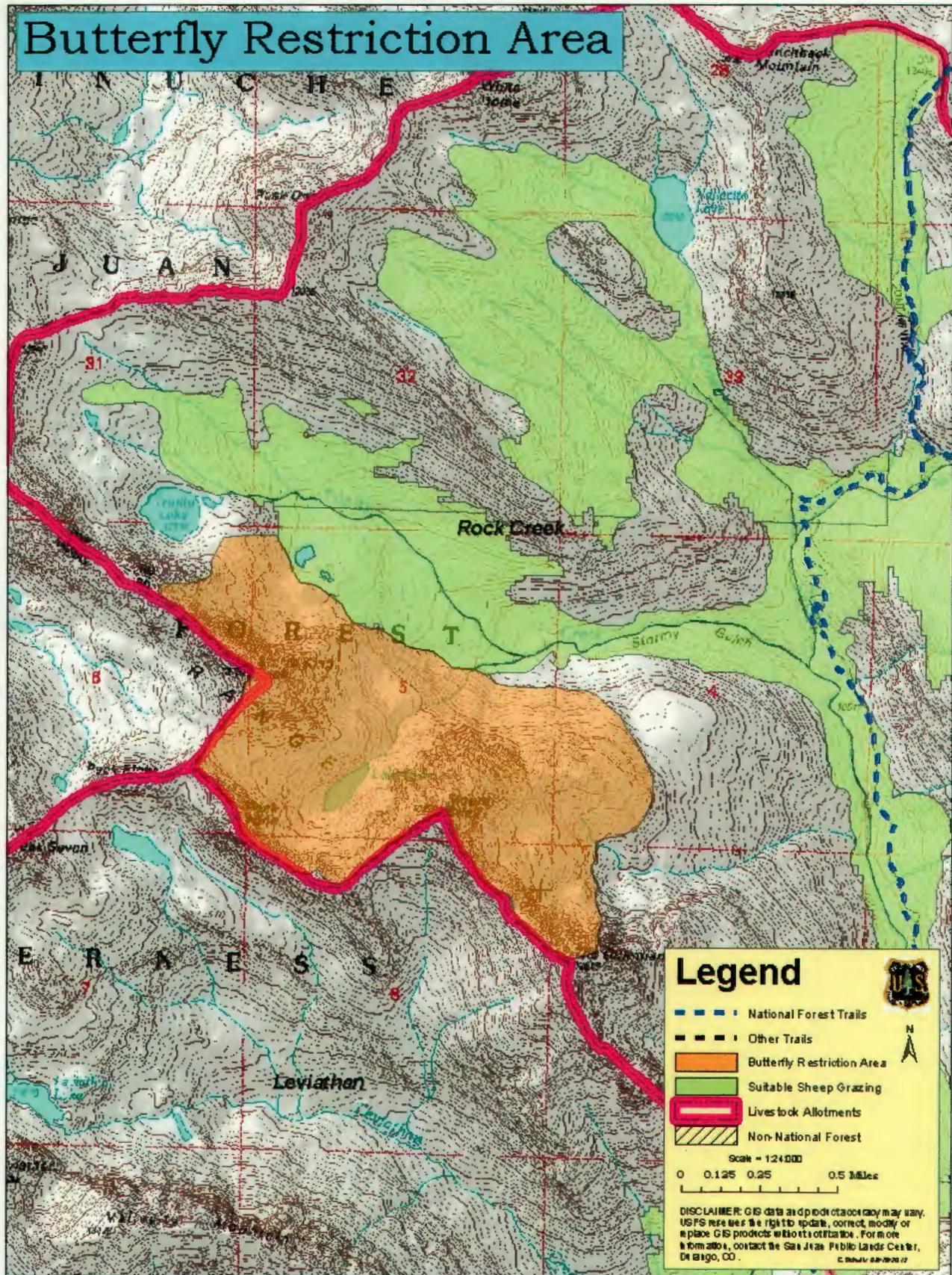


Figure 6. Uncompahgre Fritillary Butterfly Restriction Area.





File Code: 2670

Date: March 31, 2015

Kurt Broderdorp
Acting Western Colorado Supervisor
US Fish and Wildlife Service, Ecological Services
445 West Gunnison Avenue
Suite 240
Grand Junction CO 81501-5720

Dear Mr Broderdorp:

Attached is a Supplemental Biological Assessment (BA) for the Weminuche Landscape Grazing Analysis project, submitted to your office for informal consultation in accordance with Section 7 of the Endangered Species Act as amended (16 U.S.C. 1531 et seq.). This Supplemental BA analyzes potential effects to federally listed species from the proposed federal action of re-authorizing domestic sheep grazing and/or cattle grazing on National Forest System lands in the Weminuche Landscape under an adaptive management process. The analysis was based on the most recent list of species for lands managed by the San Juan National Forest, confirmed with the U.S. Fish and Wildlife Service, Grand Junction Office, on March 25, 2013. I have discussed this project and the findings of the attached Supplemental BA with you and Mr. Terry Ireland of your office.

The proposed action analyzed in the Weminuche Landscape Grazing Analysis BA was presented to the public through the National Environmental Policy Act (NEPA) process as a draft Environmental Assessment (EA). In February of 2014, the USFWS concurred with the findings presented in the BA for the draft proposed action described in the EA. In July of 2014, the San Juan National Forest decided to move the environmental analysis for this project into an Environmental Impact Statement (EIS) instead of continuing with the EA process. At this time, a Draft Environmental Impact Statement (DEIS) is expected to be released to the public for comment in late summer 2015.

Moving the analysis from an EA to an EIS may constitute a 'changed circumstance' as defined under the Endangered Species Act. In addition, after the February 2014 BA and subsequent concurrence by the USFWS, three species were added to the SJNF's list of threatened and endangered species, including Gunnison sage grouse (*Centrocercus minimus*, threatened), New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*, endangered) and Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*, threatened). In addition, North American wolverine was removed from protection under the ESA. Some changes were made to the Preferred Alternative of the EIS that were not included in the Proposed Action of the EA. For all these reasons, 'changed circumstances' have occurred since the February 2014 BA and thus a supplemental Biological Assessment is necessary to analyze and disclose the potential effects of these changed circumstances.

In discussion with the US Fish and Wildlife Service (Mr. Kurt Broderdorp of the Grand Junction Field Office), it was decided that the supplemental BA would NOT present and analyze the



Weminuche grazing analysis project in its entirety. Rather, the supplemental BA would present and analyze only those actions and species for which there are changed circumstances or changed listing status since the February 2014 BA. The supplemental BA would only describe and discuss those circumstances and project design factors that changed since the February 2014 BA, then make a determination about effects to listed species pertaining to the changed circumstances.

In keeping with the findings of the attached Supplemental BA, the proposed action of authorizing domestic sheep and cattle grazing on National Forest System lands in the Weminuche Landscape “may affect” but is “not likely to adversely affect” the Canada lynx (*Lynx canadensis*) and lynx habitat. A determination of “no effect” was made for all remaining federally listed terrestrial species, and for bonytail (*Gila elegans*) and humpback chub (*Gila cypha*).

In accordance with Section 7 of the Endangered Species Act and the interagency cooperation regulations (50 CFR 402), I request your review of the findings in the attached Supplemental BA. If you would like additional information or need assistance with consultation on this project, please contact Chris Schultz of my staff at (970) 884-1407, or via email at cschultz@fs.fed.us.

Sincerely,

/s/ Matt Janowiak

MATTHEW JANOWIAK
District Ranger

cc: Chris Schultz, Clay Kampf



Supplemental Biological Assessment For Federally Listed Terrestrial and Aquatic Species

For

Weminuche Landscape Grazing Analysis

San Juan National Forest,
Columbine Ranger District,
Hinsdale, La Plata and San Juan Counties,
Colorado



Terrestrial Sections Prepared By:

A handwritten signature in blue ink, appearing to read 'Chris Schultz'.

Chris Schultz
Wildlife Program Leader
Columbine Ranger District

4/3/2015

Date:

Aquatic Sections Reviewed By:

A handwritten signature in blue ink, appearing to read 'Clay Kampf'.

Clay Kampf
Fisheries Biologist
San Juan National Forest

Date: 4/3/2015

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INTRODUCTION

On February 14, 2014, a Biological Assessment (BA) was submitted to the U.S. Fish and Wildlife Service for the Weminuche Landscape Grazing Analysis project (USDA Forest Service 2014) for informal consultation in accordance with Section 7 of the Endangered Species Act as amended (16 U.S.C. 1531 et seq.). This BA analyzed potential effects to federally listed species from the proposed federal action of re-authorizing domestic sheep and cattle grazing on National Forest System lands in the Weminuche Landscape under an adaptive management process. The analysis was based on a list of species for lands managed by the San Juan National Forest, confirmed with the U.S. Fish and Wildlife Service, Grand Junction Office, on December 10, 2013.

The findings of the February 2014 BA were that the proposed action of re-authorizing domestic sheep and cattle grazing on National Forest System lands in the Weminuche Landscape “may affect” but is “not likely to adversely affect” the Canada lynx (*Lynx canadensis*) and lynx habitat, the southwestern willow flycatcher (*Empidonax traillii extimus*) and flycatcher habitat, and the Uncompahgre fritillary butterfly (*Boloria acrocnenma*) and butterfly habitat. A determination of “no effect” was made for all remaining federally listed terrestrial species, and for bonytail (*Gila elegans*) and humpback chub (*Gila cypha*).

This BA was tiered to a Biological Opinion (BO) provided by the Fish and Wildlife Service in August of 2013 (ES-6-RO-13-F-GJSJ003-TAILS-06E24100-2013-F-0133), including “reasonable and prudent alternatives”, in response to a Biological Assessment for the Final San Juan National Forest Land and Resource Management Plan.

The proposed action analyzed in the Weminuche Landscape Grazing Analysis BA was presented to the public through the National Environmental Policy Act (NEPA) process as a draft Environmental Assessment (EA). In July of 2014, the San Juan National Forest (SJNF) decided to move the environmental analysis for this project into an Environmental Impact Statement (EIS) instead of continuing with the Environmental Assessment (EA) process. The deciding official could not be sure that the analysis could support the “Finding of No Significant Impact” determination that is required for an EA. Based on the possibility that significant impacts might occur to the viability of bighorn sheep populations on the SJNF, the deciding official could not sign a “Finding of No Significant Impact.” In such cases, procedures are to move the analysis into an EIS.

The primary reason for converting the NEPA document from an EA to an EIS was not related to new information about likely or potential impacts to species listed or proposed for listing under the ESA. It was based primarily on potential impacts to bighorn sheep, a designated sensitive species in the USFS Rocky Mountain Region.

At this time, a Draft Environmental Impact Statement (DEIS) is expected to be released to the public for comment in the summer of 2015.

Moving the analysis from an EA to an EIS and/or changes to the actions contained in the agency’s Preferred Alternative may constitute a ‘changed circumstance’ under the Endangered Species Act (USDI Fish and Wildlife Service 1998). Further, after the February 2014 BA (USDA Forest Service 2014) and subsequent concurrence by the USFWS three species were added to the Forest’s list of threatened and endangered species. Those three species are Gunnison sage grouse (*Centrocercus minimus*, threatened), New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*, endangered) and Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*, threatened). In addition, some changes were made to the Preferred Alternative of the EIS that were not included in the Proposed Action of the EA. For all these reasons, ‘changed circumstances’ have occurred since the February 2014 BA and thus a supplemental Biological Assessment is necessary to analyze and disclose the potential effects of these changed circumstances.

In discussion with the US Fish and Wildlife Service (Mr. Kurt Broderdorp of the Grand Junction Field Office), it was decided that the supplemental BA would NOT present and analyze the Weminuche grazing analysis project in its entirety. Rather, the supplemental BA would present and analyze only those actions and species for which there are changed circumstances or changed listing status since the February 2014 BA. For this reason, the February 2014 BA (USDA Forest Service 2014) and subsequent concurrence by the USFWS are incorporated here by reference and will not be repeated. The supplemental BA presented below will only describe and discuss those circumstances and project design factors that have changed since the February 2014 BA, then make a determination about effects to listed species pertaining to the changed circumstances.

PROJECT INFORMATION

The project area existing conditions, desired conditions, and project purpose and need remain unchanged from those described in the February 2014 BA.

CHANGED CIRCUMSTANCES

After considering two rounds of public comments and internal agency comments on the draft EA, and the decision to re-issue the project to the public as a draft EIS, some changes were incorporated into the Preferred Alternative of the draft EIS. The four alternatives presented to the public in the draft EA will be carried forward into the draft EIS, with alternatives 1, 2 and 3 remaining essentially unchanged.

From the standpoint of potential impacts to habitats for federally listed species, the primary changes from the draft EA to the draft EIS involve Alternative 4. There are two substantive changes involving Alternative 4. First, the draft EA showed the Proposed Action as being Alternative 3, the Adaptive Management w/ Forage Reserves Alternative. In comparison, the draft EIS shows the Preferred Alternative as being Alternative 4, the Adaptive Management / Closing Vacant Allotments Alternative. The second substantive change involving Alternative 4 from the draft EA to the draft EIS is that the draft EIS proposes to incorporate and authorize cattle grazing as an adaptive management option in substantial additional areas that were not analyzed for cattle grazing in the draft EA.

The Proposed Action of the draft EA (Alternative 3) included authorizing domestic sheep grazing in three sheep forage reserve allotments: Johnson Creek, Leviathan and the northwest portion of Rock Creek Allotment (see Figure 1, below). It also authorized cattle grazing in a cattle forage reserve allotment in southern portions of the Cave Basin Allotment. The Preferred Alternative of the draft EIS (Alternative 4) does not include authorizing these three sheep forage reserve allotments or the Cave Basin cattle forage reserve allotment (see Figure 2, below). Therefore potential impacts to federally listed species and the habitats on which those species depend would be reduced in the three sheep forage reserve allotments and the Cave Basin cattle forage reserve allotment, compared to the Proposed Action of the draft EA. Listed species that would benefit from these changes (i.e. have a reduced potential for livestock grazing impacts to key habitat components) include Canada lynx, southwestern willow flycatcher and Uncompahgre fritillary butterfly.

The Preferred Alternative of the draft EIS (Alternative 4) proposes to authorize cattle grazing in all or portions of four currently active domestic sheep allotments: Burnt Timber (all of the allotment), Endlich Mesa (southern third of the allotment), Spring Gulch (all of the allotment), and Tank Creek (southern half of the allotment). The Proposed Action of the draft EA (Alternative 3) did not authorize cattle grazing in any of these four allotments. Figure 2, attached at the end of this document, shows the allotment configurations for both alternatives. Under the draft EA, the Canyon Creek Allotment was analyzed as either domestic sheep or cattle grazing, and this analysis

option was carried forward into the Preferred Alternative of the draft EIS. Listed species that could be affected negatively by increasing the amount of area where cattle grazing could be authorized (i.e. areas that could have an increased potential for cattle grazing impacts to key habitat components) include the Canada lynx.

Under the Preferred Alternative of the draft EIS (Alternative 4), if domestic sheep grazing were discontinued on any or all of these four allotments (Burnt Timber, Endlich Mesa, Spring Gulch and Tank Creek), then the allotment could be converted to a cattle grazing allotment and operated as an active cattle allotment. Within an individual allotment, domestic sheep grazing would have to be discontinued before cattle grazing would be authorized to begin (i.e. an allotment would not be used for both sheep and cattle grazing in the same season). In addition, if sheep grazing were discontinued on all four of these allotments then sheep grazing might also be discontinued on the Virginia Gulch Allotment due to lack of sheep trailing access into the allotment.

To be operated as an active cattle allotment, infrastructure improvements such as fencing and water developments would need to be installed and/or improved before cattle would be authorized to be stocked to anticipated full allotment capacities. In the event sheep grazing was discontinued on Endlich Mesa or Tank Creek allotments, those allotment portions outside of approved cattle grazing areas would remain in a vacant status and available for restocking with sheep in the event of a qualified stocking request. For those allotment portions approved for stocking with cattle, the allotment would remain vacant after sheep grazing was discontinued until a qualified request was received to stock with cattle and the allotment would then be converted to an active cattle allotment.

In addition to these changes, several other administrative changes were also made between the draft EA and draft EIS. Some allotment boundary adjustments proposed in the draft EA have already been accomplished administratively. This was done in order to correctly display the current condition and how the landscape is actually being used by domestic sheep bands. Administrative boundary adjustments can be done at any time without a NEPA decision per 36 CFR 222(a)(7) and FSH 2209.13 sec 16.1. The name of the East Silver Mesa Allotment was administratively changed to Endlich Mesa Allotment to properly reflect features on the ground. The sunset clause on grazing active domestic sheep allotments described in the draft EA was removed from the draft EIS. It should also be noted that the type class of livestock on any allotment could change in accordance with changes described below, as long as the project purpose and need, desired conditions, and Project Design Criteria shown in the draft EIS are met. The draft EIS also includes updated/clarified language in some Project Design Criteria (see DEIS Tables 2-2, 2-3, and 2-4). Project Design Criteria were added to the draft EIS specific to cattle grazing on those allotments and/or portions of allotments where it is being proposed, including range improvements that may be needed.

For the reasons described above, differences in likely or potential impacts to federally listed species from the Proposed Action of the draft EA to the Preferred Alternative of the draft EIS are primarily a result of:

- 1.) Removing potential for domestic sheep grazing impacts on three sheep forage reserve allotments (Johnson Creek, Leviathan, Rock Creek), see Figure 1, below;
- 2.) Removing potential for cattle grazing impacts on one cattle forage reserve allotment (Cave Basin), see Figure 2, below;
- 3.) Potentially substituting cattle grazing impacts for domestic sheep grazing impacts on up to four allotments: Burnt Timber (all of the allotment), Endlich Mesa (southern third of the allotment), Spring Gulch (all of the allotment), and Tank Creek (southern half of the allotment), see Figure 2, below.

BIOLOGICAL ASSESSMENT FOR FEDERALLY-LISTED TERRESTRIAL AND AQUATIC SPECIES

Table 1. Federally listed species for the San Juan National Forest, based on March 25, 2015 species list from the U.S. Fish and Wildlife Service (USDI Fish and Wildlife Service 2015)

Species	Federal Status	Habitat Present In the Landscape?	Probability of Occurrence in the Landscape	Changed Circumstances Since February 2014 BA?	Final Project Effects Determination
Canada lynx	Threatened	Yes - mature spruce fir and willow - riparian areas; no linkage areas in the Landscape	High, animals known to occur in the Landscape.	Yes, see discussion.	May Effect, Not Likely to Adversely Affect
New Mexico meadow jumping mouse	Endangered	No - no suitable complex streamside riparian in Landscape.	Low	No, dismissed from further evaluation.	No Effect
Gunnison sage-grouse	Threatened	No - no suitable lek or brood rearing habitat in landscape. Lek sites of low vegetation with sparse shrubs, often surrounded by big sagebrush, below 9,200' elevation. Brood rearing habitat of riparian vegetation and meadows within upland communities. Not known to occur on Columbine RD.	Low	Yes, see discussion.	No Effect
Mexican spotted owl	Threatened	No - no narrow rock-walled canyons with mixed-conifer	Low	No, dismissed from further evaluation.	No Effect
Southwestern willow flycatcher	Endangered	Yes - suitable habitat occurs in the Landscape, but not in areas to be grazed	Low - not documented to occur during breeding	Yes, see discussion.	No Effect

Species	Federal Status	Habitat Present In the Landscape?	Probability of Occurrence in the Landscape	Changed Circumstances Since February 2014 BA?	Final Project Effects Determination
		annually.	season in or near the Landscape, but suitable habitat is present.		
Western yellow-billed cuckoo	Threatened	No - no gallery cottonwood forest in the Landscape.	Low	Yes, see discussion.	No Effect
Uncompahgre fritillary butterfly	Endangered	Yes - Known occupied patches, and 1 patch of habitat thought suitable, but insufficient survey effort.	High, known to occur in the Landscape.	No, dismissed from further evaluation.	No Effect
Bonytail	Endangered	No - does not occur in or downstream of Animas or Pine River basins.	Low - no water depletions from the Upper Colorado River basin.	No, dismissed from further evaluation.	Previous consultation
Colorado pikeminnow	Endangered	No - does not occur in Animas River watershed in Colorado.	Low - water depletions from the San Juan River basin.	No, dismissed from further evaluation.	Previous consultation
Humpback chub	Endangered	No - does not occur in or downstream of Animas or Pine River basins.	Low - no water depletions from the Upper Colorado River basin.	No, dismissed from further evaluation.	Previous consultation
Razorback sucker	Endangered	No - does not occur in Animas River watershed in Colorado.	Low - water depletions from the San Juan River basin.	No, dismissed from further evaluation.	Previous consultation

In keeping with the findings of the February 2014 BA (USDA Forest Service 2014), and the fact that there are no changed circumstances under the Preferred Alternative of the draft EIS that would increase water depletion activities beyond those disclosed and discussed in the February 2014 BA, this supplemental BA finds that water depletions associated with the Weminuche Landscape Grazing Analysis do not exceed the 2.5 AF threshold and therefore are covered under the aforementioned Section 7 consultation (ES-6-RO-13-F-GJSJ003-TAILS-06E24100-2013-F-0133). No additional consultation will be conducted for effects to downstream listed fish.

Canada Lynx (*Lynx canadensis*)

Primary habitat for Canada lynx on the San Juan National Forest consists of mature and late successional forested stands, and/or younger forests containing trees with branches at the snow surface that provide a source of food and hiding cover for snowshoe hare, and willow riparian corridors (USDA Forest Service 2004). Mature or older forests with complex physical structure on or near the ground, such as downed logs, fallen trees, rocks, boulders, upturned root wads, and dense short regeneration in the understory provide cover and forest floor structure used by female lynx for denning. Areas suitable for denning may be limited by elevation, slope and aspect (Wait 2005). Forested areas that lack complex physical structure on the ground provide little value for denning.

Modeled lynx habitat on the SJNF consists of spruce-fir, cool-moist mixed conifer, high elevation aspen mixed with spruce-fir or cool-moist mixed conifer, and willow riparian adjacent to these habitats (Schultz et al. 2006). Modeled habitat on the SJNF, and in the Weminuche Landscape (see Figure 4), was based on existing vegetation and habitat attributes such as tree size and canopy closure within forested stands. Existing vegetation is from the Forest's R2-Veg Geographic Information System (GIS) database. Habitat modeling is consistent with habitat definitions in the Canada Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et al. 2000), the Southern Rocky Mountains Lynx Amendment (USDI Fish and Wildlife Service 2008), and underwent extensive review by the USFWS and local Colorado Parks and Wildlife (CPW) biologists and District Wildlife Managers.

Colorado Parks and Wildlife has released a total of 218 lynx from the Yukon, Alaska, British Columbia, Quebec, and Manitoba into the San Juan Mountains since 1999. (Colorado Division of Wildlife 2008). Prior to CPW's augmentation program, native lynx were considered rare in Colorado. Reproduction was first documented in 2003, and was also documented in 2004, 2005, and 2006. CPW has recorded the birth of 116 kittens in the State. Lynx sightings are regularly reported in the Weminuche Landscape, and radio telemetry data from animals tracked by CPW shows the entire Weminuche Landscape to be a high density use area for lynx (Colorado Division of Wildlife 2008, Colorado Division of Wildlife 2005).

Perhaps the greatest current and near-future (5- to 10-years) influence on lynx habitat conditions in the Weminuche Landscape is an expanding spruce beetle (*Dendroctonus rufipennis*) outbreak within the upper Pine River and Vallecito Creek drainages. Within the past five years, the upper third of both drainages have had extensive areas of mortality of mature Engelmann spruce trees, in some areas exceeding 80% to 90% of overstory trees. The spruce beetle is the most significant natural mortality agent of mature spruce. Spruce beetle outbreaks can cause extensive tree mortality and modify stand structure by reducing the average tree diameter, height, and stand density. Infected trees often take a couple years to die, so infestations appear to be more widespread in following years. Beetles grow to adulthood inside trees and then take off to infect new trees. However, most of the spruce-fir forests in the Weminuche Landscape are mixed with subalpine fir, which are not affected by spruce beetles. For this reason, stands with higher fir composition are less affected by spruce beetles than stands with higher spruce composition.

Within stands affected by spruce beetles, there is a high probability that most spruce trees over five inches dbh will die. Within the next five years the beetle outbreak is expected to continue expanding further down the Pine River and Vallecito Creek drainages, and is expected to increase in the upper Florida River and Missionary Ridge portions of the Weminuche Landscape. In the near term (5- to 10-years) substantial portions of the suitable lynx habitat in the Landscape's LAUs could be subject to substantial mortality of overstory spruce trees. However, high mortality of overstory spruce trees may not necessarily result in the loss of currently suitable lynx habitat or conversion of currently suitable lynx habitat into an unsuitable condition.

The effect on lynx habitat conditions of the ongoing, and apparently rapidly expanding, spruce beetle outbreak in the Weminuche Landscape is not clear. As described in the February 2014 BA, the continued expansion of spruce beetle activity could have both negative and positive consequences for lynx habitat conditions.

Potential negative consequences for lynx habitat from beetle-induced spruce mortality would likely be due to losses of snowshoe hare hiding cover and foraging habitat from mortality of understory spruce trees. If a broad-scale reduction in snowshoe hare density were to occur due to broad-scale losses of hiding cover and foraging habitat, then immediate reductions in lynx habitat capability would also be expected. Perhaps equally importantly, red squirrels which are an important alternate prey species for lynx, could be heavily affected in stands with high mortality of overstory cone-bearing spruce trees. If mortality of cone-bearing spruce trees caused declines in red squirrel abundance, and if low squirrel densities occurred during years of low hare abundance, then additional reductions in lynx habitat capability could also occur. It is important to note however, that snowshoe hare and red squirrels generally do not totally disappear from areas of high beetle-induced tree mortality, or from areas of moderate intensity forest management. The abundance of both prey species generally declines but both species persist within the mosaic of remaining smaller live trees, and in areas where suitable stand conditions dominated by subalpine fir remain.

It is also possible that potential beneficial effects to lynx habitat could also occur from beetle-induced spruce mortality. High mortality of overstory spruce trees could substantially open the canopy and result in rapid growth of grasses, forbs, shrubs and aspen regeneration in the understory, potentially rapidly improving snowshoe hare cover and forage conditions in the understory. In areas of extensive amounts of forest that are dominated by closed-canopy mature spruce trees, beetle-induced mortality might improve hare habitat conditions by increasing understory forage and hiding cover. Spruce mortality might also provide a greater diversity in stand structure across the landscape by creating greater extents of early-seral stand conditions within a matrix dominated by closed-canopy mature forest conditions.

The February 2014 BA found that for all allotments in the Weminuche Landscape adopting the Proposed Action of the draft EA, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, "may affect but is not likely to adversely affect" the Canada lynx or lynx habitat.

Changed Circumstances:

For Canada lynx, the Proposed Action of the draft EA (Alternative 3) authorized domestic sheep grazing in three sheep forage reserve allotments and one cattle forage reserve allotment (see Figure 1, below). The Preferred Alternative of the draft EIS (Alternative 4) does not authorize the three sheep forage reserve allotments or the Cave Basin cattle forage reserve allotment (see Figure 2, below). For these reasons, potential impacts to lynx habitat in authorized sheep and cattle grazing areas would be somewhat reduced under the Preferred Alternative of the draft EIS compared to those that would have been authorized under the Proposed Action of the draft EA.

Also for Canada lynx, the Preferred Alternative of the draft EIS (Alternative 4) proposes to authorize cattle grazing in all or portions of four currently active domestic sheep allotments: Burnt Timber (all of the allotment), Endlich Mesa (southern third of the allotment), Spring Gulch (all of the allotment), and Tank Creek (southern half of the allotment). The Proposed Action of the draft EA (Alternative 3) did not propose to authorize cattle grazing in any of these four allotments (see Figure 2, below).

Under the Preferred Alternative of the draft EIS (Alternative 4), if domestic sheep grazing were discontinued on any or all of these four allotments (Burnt Timber, Endlich Mesa, Spring Gulch and Tank Creek), then the allotment could be converted to a cattle grazing allotment and operated as an active cattle allotment. Within an individual allotment, domestic sheep grazing would have to be discontinued before cattle grazing would be authorized (i.e. an allotment would not be used for both sheep and cattle grazing in the same season).

To be operated as an active cattle allotment, infrastructure improvements such as fencing and water developments would need to be installed and/or improved before cattle would be authorized to be stocked to anticipated full allotment capacities. In addition, if sheep grazing were discontinued on all four of these allotments then sheep grazing might also be discontinued on the Virginia Gulch Allotment due to lack of sheep trailing access into the allotment. In the event sheep grazing was discontinued on any or all of these four allotments, those portions of Endlich Mesa and Tank Creek allotments outside of approved cattle grazing areas would remain in a vacant status and available for restocking with sheep in the event of a qualified stocking request. For those allotment portions approved for stocking with cattle, the allotment would remain vacant after sheep grazing was ended until a qualified request was received to stock with cattle and the allotment would then be converted to an active cattle allotment.

Therefore, for these four allotments (Burnt Timber, Endlich Mesa, Spring Gulch and Tank Creek) potential impacts to lynx habitat could shift from sheep grazing impacts to cattle grazing impacts, with the location of some livestock grazing impacts likely shifting to somewhat different areas within individual allotments as class of livestock is changed from sheep to cattle. In addition, some permanent loss of lynx habitat would likely occur due to the construction of new cattle fences and the construction and/or maintenance of water developments to facilitate an effective cattle rotation system within and across the allotments.

Fence construction and maintenance activities are necessary to achieve desired conditions for cattle grazing, and substantial new fence construction would be necessary in the Burnt Timber, Canyon Creek, Endlich Mesa, Spring Gulch and Tank Creek Allotments if cattle grazing were permitted. Fencing is rarely used for sheep pastures in the Weminuche Landscape, except to separate sheep from cattle pastures, or to delineate administrative horse pastures. Under the proposed action of the draft EA, about 4.1 miles of new fence construction was thought to be necessary in the Canyon Creek Allotment. Under the proposed action of the draft EIS, about 22.9 miles of new fence construction is thought to be necessary among the five proposed cattle allotments (see Table 2, below). These new fences would be necessary to create an effective rotation system within the allotment or as allotments are combined with adjacent allotments, or to provide effective divisions between neighboring cattle allotments.

Of the 22.9 miles of new fence construction thought necessary to convert the four currently active domestic sheep allotments to use by cattle, a total of 10.5 miles of new fence could be needed in lynx habitat (see Table 2, below). Because the average corridor for new fence construction is expected to be 10 feet wide, the 10.5 miles of new fence construction could result in about 12.7 acres of lynx habitat lost to new fence construction. Of the 12.7 acres of lynx habitat potentially lost to new fence construction, about 12.6 acres would be within the Missionary – Florida Lynx Analysis Unit (LAU), and about 0.1 acres would be within the Vallecito Creek Lynx Analysis Unit (LAU).

Under the Proposed Action of the draft EA, a total of 3.57 miles of fence construction in suitable lynx habitat were consulted on, resulting in the loss of 4.62 acres of suitable lynx habitat. Because these miles and acres of fence construction are also included in the Preferred Alternative of the draft EIS, the net difference between the draft EA and draft EIS is an additional 9.1 miles of fence construction in suitable lynx habitat resulting in a net loss of about 11.1 additional acres of suitable lynx habitat under the draft EIS.

Table 2. Linear distance (in feet) and acres of lynx habitat lost to new fence construction, by Livestock Allotment and Lynx Analysis Unit, under the Preferred Alternative (Alternative 4) of the draft EIS.

Allotment	Total Fence	Fence Outside Lynx Habitat	Fence in Missionary - Florida LAU (ft)	Acres of Lynx Habitat in LAU	Fence in Vallecito Creek LAU (ft)	Acres of Lynx Habitat in LAU	Total Fence in Lynx Habitat (ft)	Total Acres of Lynx Habitat
Burnt Timber	15,309 (ft) 3.51 (ac)	8,094 (ft) 1.86 (ac)	7,215	1.66	0	0.00	7,215	1.66
Canyon Gulch	20,466 (ft) 4.7 (ac)	1,643 (ft) 0.38 (ac)	18,823	4.32	0	0.00	18,823	4.32
Endlich Mesa	19,214 (ft) 4.41 (ac)	4,584 (ft) 1.05 (ac)	14,254	3.27	376	0.09	14,630	3.36
Spring Creek	31,456 (ft) 7.22 (ac)	31,456 (ft) 7.22 (ac)	0	0.00	0	0.00	0	0.00
Tank Creek	34,444 (ft) 7.91 (ac)	19,687 (ft) 4.52 (ac)	14,757	3.39	0	0.00	14,757	3.39
Total	120,890 (ft) 27.75 (ac)	65,465 (ft) 15.03 (ac)	55,050	12.64	376	0.09	55,425	12.72

Lynx habitat within the Missionary - Florida LAU (about 37,694 total acres) is estimated to currently be at about 6.6 percent in an unsuitable condition (USDA Forest Service 2014). The additional 12.6 acres of lynx habitat that could be lost to new fence construction in the LAU would not alter the overall percentage of lynx habitat in an unsuitable condition across the LAU. Post-project, lynx habitat in the LAU would remain at 6.6% in an unsuitable condition.

Lynx habitat in the Vallecito Creek LAU (about 30,348 total acres) is currently at about 9.5 percent unsuitable (USDA Forest Service 2014). The addition of about 0.1 acre of lynx habitat that could be lost to new fence construction would not alter the overall percentage of lynx habitat in an unsuitable condition across the LAU. Post-project, lynx habitat in the LAU would remain at 9.5% in an unsuitable condition.

Although new fence construction activities could result in a permanent loss of up to about 12.7 acres of lynx habitat, the overall effect to lynx habitat is expected to be insignificant and discountable. New fences would be constructed in a narrow (average 10 ft wide) corridor cleared of overstory trees and dense understory vegetation within which the fence structure would be built. The relatively narrow nature of the new fence corridor would likely not pose a barrier to movement or substantially alter use of the corridor by snowshoe hare or individual lynx that might be using the area. The fence corridor would likely mimic the narrow disturbance zones and natural corridors that are typical of high elevation mature spruce-fir stands across the Weminuche Landscape.

The fence structure itself would also likely not pose a physical barrier to snowshoe hare or lynx movement because at the height of typical mid-winter snow pack fences are typically covered with snow. During snow-free seasons, fences do not pose a physical barrier to snowshoe hare or lynx movement because animals can typically pass beneath the bottom wire or through the middle wires

in summer, or pass over the top wires in winter. In addition, because habitat on both sides of the new fence would remain intact and unaffected, snowshoe hare use patterns within the area would likely also be unaffected by the new fence. Finally, short segments of new fence would cross riparian areas and therefore some minor and localized affects to existing riparian areas may be unavoidable. The impacts of these fence construction activities and/or the localized affects created by new fences to existing riparian areas are expected to be very small in scale and result in only a very minor potential for negative impacts to riparian areas or riparian condition. For all the reasons stated above, the overall potential effects of constructing up to 10.5 miles of new fence within lynx habitat is expected to be insignificant and discountable.

In addition to a permanent loss of lynx habitat to construction of cattle grazing infrastructure, there would be potential for recurring disturbance to individual lynx that might be present in and around work areas during fence construction and maintenance activities as well as the construction and/or maintenance of water developments. This disturbance potential would continue into the future for as long as the allotments were authorized as cattle grazing allotments. These impacts would not have occurred under the Proposed Action of the draft EA (Alternative 3) because fences and water developments are not necessary to operate the allotments for domestic sheep grazing. However, because the nature of these potential disturbances would be short in duration (only a few days across multiple years) and very limited in space (the 10 foot wide fence corridors and/or immediately adjacent to water developments) compared to the large amount of lynx habitat within the LAU's and surrounding the work sites, the overall disturbance effect is expected to be insignificant and discountable.

Converting the class of livestock from domestic sheep to cattle has the potential to increase effects to lynx habitat. This is because cattle tend to spend more time than sheep within spruce-fir forests, especially along the margins of parks and near water sources where they often rest during the heat of the day. Cattle also have a greater tendency to create well defined regular use trails through closed-canopy forest stands as they travel to adjacent parks and water sources. Cattle also have the potential for somewhat greater impacts than sheep in riparian areas, especially in areas where they congregate and lounge near preferred water sources. Woody riparian vegetation such as willows may be negatively affected by the physical action of cattle moving through and around willow stands, and also by browsing on the plants themselves. In comparison, domestic sheep tend to spend less time than cattle within and immediately adjacent to riparian areas and water sources. In addition, because sheep spend much more time than cattle in the alpine zone, and therefore generally at much longer distances away from the spruce-fir forests and their associated willow-riparian areas which provide primary lynx and snowshoe hare habitat, there tends to be less potential for domestic sheep grazing to have negative effects on lynx habitat. This compares to cattle that spend greater amounts of time within or in much closer proximity to primary lynx and snowshoe hare habitats.

For all the reasons just described, converting all or portions of the four currently active domestic sheep allotments to cattle allotments (Burnt Timber, Endlich Mesa, Spring Gulch and Tank Creek) has potential to result in greater impacts to lynx habitat than by continued domestic sheep grazing within these four allotments.

For all these reasons combined, the potential for cattle grazing impacts to lynx habitat in the four currently active domestic sheep allotments (Burnt Timber, Endlich Mesa and Spring Gulch) would be somewhat greater under the Preferred Alternative of the draft EIS (Alternative 4) compared those that would have been authorized for sheep grazing activities under the Proposed Action of the draft EA (Alternative 3). With that said however, the overall effect to lynx habitat for all direct and indirect effects of cattle grazing is still expected to be insignificant and discountable.

Balanced against the increased potential for negative affects to lynx habitat from cattle grazing activities and construction and/or maintenance of necessary allotment infrastructure is the fact

that four currently vacant domestic sheep allotments (Cave Basin, Fall Creek, Flint Creek and Pine River) would be closed to all livestock grazing under the Preferred Alternative of the draft EIS (Alternative 4). In addition, three allotments proposed for sheep forage reserve status under the Proposed Action of the draft EA (Johnson Creek, Leviathan and Rock Creek) would also be closed to all livestock grazing under the Preferred Alternative of the draft EIS.

Under the Preferred Alternative of the draft EIS (Alternative 4) a total of 12,648 acres of suitable lynx habitat is considered suitable for domestic sheep grazing activities. If portions or all of the four currently active domestic sheep allotments were converted to cattle grazing allotments, a total of 6,945 acres of suitable lynx habitat could be suitable for cattle grazing activities. In comparison, under the Proposed Action of the draft EA (Alternative 3) a total of 20,300 acres of suitable lynx habitat was considered suitable for grazing by domestic sheep or cattle (USDA Forest Service 2014). Therefore, the total area of suitable lynx habitat with potential for livestock grazing impacts across the entire Weminuche Landscape would be substantially reduced (38% to 76% reduction) under the Preferred Alternative of the draft EIS compared to the Proposed Action of the draft EA.

There are no changed circumstances known or thought likely for cumulative effects, as cumulative effects are defined by the Endangered Species Act.

Determination:

For all allotments in the Weminuche Landscape, it is my professional opinion that the Preferred Alternative of the draft EIS, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, “**may affect but is not likely to adversely affect**” the Canada lynx or lynx habitat.

This “may affect not likely to adversely affect” determination is based on selection of the Preferred Alternative of the draft EIS (Alternative 4) in its entirety, including closure of seven currently vacant domestic sheep allotments (Cave Basin, Fall Creek, Flint Creek, Johnson Creek, Leviathan, Pine River and Rock Creek) to all livestock grazing. On the six currently active allotments where sheep grazing or potentially cattle grazing could be authorized (portions or all of Canyon Creek, Burnt Timber, Endlich Mesa, Spring Gulch, Tank Creek and Virginia Gulch), Project Design Criteria, desired conditions, and livestock management techniques are expected to maintain lynx habitat conditions within spruce-fir habitats, and maintain or achieve mid-seral or higher riparian conditions. For all these reasons, overall lynx habitat conditions and habitat conditions for snowshoe hare across the Weminuche Landscape are expected to be maintained or enhanced under the Preferred Alternative of the draft EIS (Alternative 4).

Gunnison Sage-grouse (*Centrocercus minimus*)

On January 11, 2013, the USFWS published a proposed rule to list the Gunnison sage-grouse as an endangered species under the Endangered Species Act (USDI Fish and Wildlife Service 2013d). In addition, approximately 1,704,227 acres were proposed for designation as critical habitat in Chaffee, Delta, Dolores, Gunnison, Hinsdale, Mesa, Montrose, Ouray, Saguache, and San Miguel Counties in Colorado, and in Grand and San Juan Counties in Utah (USDI Fish and Wildlife Service 2013e).

As stated in the February 2014 BA, there is no critical habitat in any of the counties within or near the Weminuche landscape, and there are no Gunnison sage-grouse present on lands managed by the SJNF. Based on field visits to the Weminuche landscape, there are no sagebrush-dominated habitats within the Weminuche landscape. For these reasons, the February 2014 BA found that the Proposed Action was not likely to jeopardize the continued existence of Gunnison sage-grouse, or adversely modify proposed critical habitat on the SJNF. Because the Proposed Action of the draft EA

was found not likely to jeopardize the continued existence of Gunnison sage-grouse, or destroy or adversely modify proposed critical habitat, conferencing was not required.

Changed Circumstances:

On November 20, 2014, the USFWS published a final rule listing the Gunnison sage-grouse as a threatened species under the ESA (USDI Fish and Wildlife Service 2014d). On November 20, 2014 the USFWS finalized the designation of critical habitat for Gunnison sage-grouse (USDI Fish and Wildlife Service 2014e).

There are no added features of the Preferred Alternative of the draft EIS or project factors not otherwise considered under the Proposed Action of the EA that might affect Gunnison sage-grouse or grouse habitats. For this reason, there are no additional actions or new project features proposed under the EIS that could result in new potential affects to grouse or grouse habitats.

There are no changed circumstances known or thought likely for cumulative effects, as cumulative effects are defined by the Endangered Species Act.

Determination:

For all allotments in the Weminuche Landscape it is my professional opinion that the Preferred Alternative of the draft EIS, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, would have **"no effect"** on the Gunnison sage-grouse and/or grouse habitats.

Mexican Spotted Owl (*Strix occidentalis lucide*)

As described in the February 2014 BA, Mexican spotted owl prefers narrow rock-walled canyons with mature mixed-conifer forests at low to mid elevations (USDI Fish and Wildlife Service 2000). These habitats have not been found in the Weminuche Landscape and based on field visits and GIS queries, suitable habitat is not thought likely to occur in the Landscape.

In 1992, the SJNF mapped areas that may provide suitable MSO habitat. This mapping effort was based on the habitat criteria known or suspected for Colorado in the early 1990s (USDI Fish and Wildlife Service 2000). A total of about 67,324 acres of habitat in 31 polygons was mapped along the southern boundary of the Forest. None of this habitat is in the Weminuche Landscape. Between 1989 and 2003, a cumulative total of 495,905 acres had been surveyed to protocol standards on the SJNF without detecting a single verified MSO. Many areas were resurveyed several times. There has been only one confirmed occurrence of an MSO on the SJNF, a nonbreeding second-year male found repeatedly in late-summer 2004 in the same general area on the Pagosa RD, about 20 miles south-southeast of the Weminuche Landscape. Additional surveys in 2005 and numerous subsequent years failed to relocate and MSO individuals. It appears unlikely the MSO occurs on the SJNF as a permanent resident, and if it does occur, it probably occurs at very low densities that do not represent a viable or self-sustaining breeding population.

The February 2014 BA stated that because no suitable or marginal habitat for Mexican spotted owl has been located in the Weminuche Landscape, and the species has never been confirmed or suspected to occur in the Landscape, the proposed action would have "no effect" on Mexican spotted owl or the habitats on which the species depends.

Changed Circumstances:

There are no changed circumstances in the Preferred Alternative of the EIS or project factors not otherwise considered under the Proposed Action of the EA that might affect MSO or owl habitats. For this reason, there are no additional actions or new project features proposed under the EIS that could result in new potential affects to MSO or owl habitats.

There are no changed circumstances known or thought likely for cumulative effects, as cumulative effects are defined by the Endangered Species Act.

Determination:

For all allotments in the Weminuche Landscape it is my professional opinion that the Preferred Alternative, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, would have **"no effect"** on the Mexican spotted owl and/or owl habitats.

New Mexico Meadow Jumping Mouse (Zapus hudsonius luteus)

On June 20, 2013, the USFWS published a proposed rule to list the New Mexico meadow jumping mouse as an endangered species under the Endangered Species Act (USDI Fish and Wildlife Service 2013f). In addition, the USFWS also proposed listing 193.1 miles of riparian habitats as critical habitat within Bernalillo, Colfax, Mora, Otero, Rio Arriba, Sandoval, and Socorro Counties, in New Mexico; Las Animas, Archuleta, and La Plata Counties in Colorado; and Greenlee and Apache Counties in Arizona (USDI Fish and Wildlife Service 2013g). There was no proposed critical habitat located on lands managed by the SJNF.

As stated in the February 2014 BA, there is no critical habitat within or near the Weminuche landscape, or elsewhere on the SJNF. Based on the best available information, New Mexico meadow jumping mouse is not known to be present on lands managed by the SJNF. Based on field visits to the Weminuche landscape, there are no known suitable low- to mid-elevation un-grazed riparian habitats within the Weminuche landscape. For these reasons, the February 2014 BA found that the Proposed Action was not likely to jeopardize the continued existence of New Mexico meadow jumping mouse, or adversely modify proposed critical habitat on the SJNF. Because the Proposed Action was found not likely to jeopardize the continued existence of New Mexico meadow jumping mouse, or destroy or adversely modify proposed critical habitat, conferencing was not required.

Changed Circumstances:

On June 10, 2014, the USFWS published a final rule listing the New Mexico meadow jumping mouse as endangered (USDI Fish and Wildlife Service 2014a). On June 20, 2013 the USFWS proposed designation of critical habitat for the mouse (USDI Fish and Wildlife Service 2013i). There is no proposed critical habitat on the San Juan National Forest. However, a proposed critical habitat unit is located adjacent to the Forest within 5 air miles on non-NFS lands. A second proposed critical habitat unit is located about 10 air miles away from the Forest on non-NFS lands.

There are no added features of the Preferred Alternative of the EIS or project factors not otherwise considered under the Proposed Action of the EA that might affect New Mexico meadow jumping mouse or mouse habitat. For this reason, there are no additional actions or new project features proposed under the EIS that could result in new potential affects to New Mexico meadow jumping mouse or mouse habitat.

There are no changed circumstances known or thought likely for cumulative effects, as cumulative effects are defined by the Endangered Species Act.

Determination:

For all allotments in the Weminuche Landscape it is my professional opinion that the Preferred Alternative, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, would have “no effect” on the New Mexico meadow jumping mouse and/or mouse habitat.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher (SWWF) breeds in dense riparian habitats in all or parts of seven southwestern states, from sea level in California to over 8,500 feet in Arizona and southwestern Colorado (Finch and Stoleson 2000). The species breeds only in dense riparian vegetation near surface water or saturated soil (Finch and Stoleson 2000). Other habitat characteristics such as dominant plant species, size and shape of habitat patch, canopy structure, vegetation height, etc. vary widely among sites. In Colorado, willow or other riparian habitat must be on average at least five feet high to be suitable for SWWF (USDI Fish and Wildlife Service 2003, USDI Fish and Wildlife Service 2011). Below 8,500 feet elevation, habitat patches as small as ¼ acres (30 ft. wide by 30 ft. long by average 5 ft. high) could support a flycatcher territory. Above 8,500 feet however, a minimum patch size of 5 acres or greater is considered necessary to support breeding territories in Colorado (USDI Fish and Wildlife Service 2011). These minimum territory sizes may be made up of two or more closely associated smaller patches of habitat. Slow moving or standing surface water, or subsurface water, is nearly always found near breeding territories, but habitat occupancy cannot be ruled out if habitat of sufficient width exists near flowing streams.

The total SWWF population on the San Juan NF consists of one questionable breeding site (later dismissed as a probable mid-identification) and one site that has been occupied intermittently for at least 10 years by zero to four singing males (USDA Forest Service 2005). This site is located at least five miles south and east of the Landscape, and is at substantially lower elevation (about 8,500 feet) than the majority of the Weminuche Landscape.

As described in the February 2014 BA, a habitat model was developed to identify potential flycatcher habitat patches. The model was developed in cooperation with the USFWS and contains many of the characteristics and criteria considered necessary for flycatcher occupancy. Habitat model results identified a total of 410 acres of possible flycatcher habitat on NFS lands in the Weminuche Landscape. Of this, a total of 395 acres (96%) was identified in four allotments or portions of allotments proposed for closing under the Proposed Action of the draft EA (Pine River - 336 acres, Flint Creek - 39 acres, Cave Basin - 13 acres, Rock Creek - 7 acres).

A total of 16 acres of possible flycatcher habitat was identified in the Johnson Creek Allotment, which was proposed to remain open for grazing as a sheep forage reserve under the Proposed Action of the draft EA. The Proposed Action of the draft EA would have designated the portion of the Johnson Creek Allotment where these 16 acres are located as a sheep forage reserve, allowing the possibility of domestic sheep grazing up to a maximum of three years out of any 10 consecutive years. Of these 16 acres of possible flycatcher habitat identified in the Johnson Creek Allotment, only 3.9 acres were in an area mapped as suitable for domestic sheep grazing. The remaining 12.7 acres were in areas mapped as unsuitable for sheep grazing.

Because the 3.9 acre willow patch is located at about 9,200 feet elevation and is less than 5 acres in size, it does not meet the USFWS definition of flycatcher habitat (USDI Fish and Wildlife Service 2011). A field visit to the site in 2012 found the average height of the willow plants is about 10 feet, meeting a USFWS criteria for flycatcher habitat. The only surface water present in the willow stand is in the form of 2 small streams that pass through the stand. Because the willow stand is on a

slope of 8% to 10%, there is no standing surface water under the willow patch. This willow patch has not been surveyed for flycatchers, although the bird community detected during the 2012 visit was typical of mid-elevation riparian zones, and included Swainson's thrush, fox sparrow, MacGillivray's warbler, Hammond's flycatcher, olive-sided flycatcher and Wilson's warbler. Extensive moose trails and day beds were noted throughout the stand.

The February 2014 BA found that adopting the Proposed Action of the draft EA would be almost entirely beneficial for flycatchers because the Cave Basin, Flint Creek, and Pine River Allotments would be entirely closed to sheep grazing, and the eastern portion of the Rock Creek Allotment would also be closed. This would close about 96% of flycatcher habitat patches identified in the Weminuche Landscape to sheep grazing.

The February 2014 BA found that for all allotments in the Weminuche Landscape, except the Johnson Creek Allotment, the Proposed Action, when added to the cumulative effects of past, present, and reasonably foreseeable future actions, would have "no effect" on southwestern willow flycatcher and/or flycatcher habitat.

For the Johnson Creek Allotment only, the February 2014 BA found that the Proposed Action, when added to the cumulative effects of past, present, and reasonably foreseeable future actions, "may affect but is not likely to adversely affect" the southwestern willow flycatcher and/or flycatcher habitat.

Changed Circumstances:

For the southwestern willow flycatcher, the Proposed Action of the draft EA (Alternative 3) found that only 3.9 acres (<1%) of modeled flycatcher habitat occurred in areas proposed for sheep forage reserve status and in areas considered suitable for sheep grazing in the Johnson Creek sheep forage reserve allotment. The Preferred Alternative of the draft EIS (Alternative 4) would not authorize sheep grazing in any of the three sheep forage reserve allotments, including the Johnson Creek Allotment (see Figure 1, below). For this reason, the 3.9 acre patch of modeled flycatcher habitat located in the Johnson Creek Allotment would be in an area closed to sheep grazing and therefore there would be no direct or indirect effects from sheep grazing to flycatcher habitat or individual birds in this allotment. For this reason, the potential for sheep grazing impacts to flycatcher habitat under the Preferred Alternative of the draft EIS (Alternative 4) would be reduced compared to the potential for affects that would have been authorized under the Proposed Action of the draft EA (Alternative 3).

Also for the southwestern willow flycatcher, the Preferred Alternative of the draft EIS (Alternative 4) proposes to authorize cattle grazing in all or portions of four currently active domestic sheep allotments: Burnt Timber (all of the allotment), Endlich Mesa (southern third of the allotment), Spring Gulch (all of the allotment), and Tank Creek (southern half of the allotment). Cattle grazing would not have been authorized in any of these four allotments under the Proposed Action of the

Under the Preferred Alternative of the draft EIS (Alternative 4), if domestic sheep grazing were discontinued on any or all of these four allotments (Burnt Timber, Endlich Mesa, Spring Gulch and Tank Creek), then the allotment could be converted to a cattle grazing allotment and operated as an active cattle allotment. Within an individual allotment, domestic sheep grazing would have to be discontinued before cattle grazing would be authorized (i.e. an allotment would not be used for both sheep and cattle grazing in the same season).

To be operated as an active cattle allotment, infrastructure improvements such as fencing and water developments would need to be installed and/or improved before cattle would be authorized to be stocked to anticipated full allotment capacities. In addition, if sheep grazing were discontinued on all four of these allotments then sheep grazing might also be discontinued on the Virginia Gulch

Allotment due to lack of sheep trailing access into the allotment. In the event sheep grazing was discontinued on any or all of these four allotments, those portions of Endlich Mesa and Tanks Creek allotments outside of approved cattle grazing areas would remain in a vacant status and available for restocking with sheep in the event of a qualified stocking request. For those allotment portions approved for stocking with cattle, the allotment would remain vacant after sheep grazing was ended until a qualified request was received to stock with cattle and the allotment would then be converted to an active cattle allotment.

Therefore, for these four allotments (Burnt Timber, Endlich Mesa, Spring Gulch and Tank Creek) potential impacts to flycatcher habitat could shift from sheep grazing impacts to cattle grazing impacts, with the location of some livestock grazing impacts likely shifting to somewhat different areas within individual allotments as class of livestock is changed from sheep to cattle. In addition, some permanent loss of wildlife habitat would likely occur due to the construction of new cattle fences and the construction and/or maintenance of water developments to facilitate an effective cattle rotation system within and across the allotments. However, no loss of flycatcher habitat is expected because the flycatcher habitat model did not identify any flycatcher habitat patches in the portions of these four allotments that would be designated as available for cattle grazing.

Fence construction and maintenance activities are necessary to achieve desired conditions for cattle grazing, and substantial new fence construction would be necessary in the Burnt Timber, Canyon Creek, Endlich Mesa, Spring Gulch and Tank Creek Allotments. Fencing is rarely used for sheep pastures in the Weminuche Landscape, except to separate sheep from cattle pastures, or to delineate administrative horse pastures. Under the proposed action of the draft EA, about 4.1 miles of new fence construction was thought to be necessary in the Canyon Creek Allotment. Under the proposed action of the draft EIS, about 22.9 miles of new fence construction is thought to be necessary among the five proposed cattle allotments. These new fences would be necessary to create an effective rotation system within the allotment or as allotments are combined with adjacent allotments, or to provide effective divisions between neighboring cattle allotments.

Again, none of the proposed 22.9 miles of new fence construction necessary to convert the currently active allotments from use by domestic sheep to use by cattle are likely to be constructed within, through or near suitable flycatcher habitat. Short segments of new fence are likely to cross riparian areas and therefore some minor and localized affects to existing riparian areas are unavoidable. The impacts of these fence construction activities and/or the localized affects created by the new fences to existing riparian areas are expected to be very small in scale and result in only a very minor potential for negative impacts to riparian areas or riparian condition. The effect of these changes is not expected to have any impact to suitable flycatcher habitat.

There are no changed circumstances known or thought likely for cumulative effects, as cumulative effects are defined by the Endangered Species Act.

Determination:

For all allotments in the Weminuche Landscape, including the Johnson Creek Allotment, the Preferred Alternative of the draft EIS, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, would have **"no effect"** to the southwestern willow flycatcher or the willow habitats on which the flycatcher depends.

This "no effect" determination is based on selection of the Preferred Alternative of the draft EIS (Alternative 4) in its entirety, including closure of five currently vacant sheep allotments in their entirety (Cave Basin, Flint Creek, Johnson Creek, Pine River and Rock Creek) to all domestic livestock grazing. Where sheep grazing is permitted under the Preferred Alternative, project design criteria, desired conditions, and livestock management techniques are expected to maintain or

achieve mid-seral or higher riparian conditions and therefore maintain or enhance the potential for development/recovery of habitat conditions capable of supporting flycatchers.

If the decision maker chooses to authorize domestic sheep grazing in any or all of the sheep forage reserve allotments, then for the **Johnson Creek Allotment only**, the Preferred Alternative of the draft EIS, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, "**may affect but is not likely to adversely affect**" the southwestern willow flycatcher or the willow habitats on which the flycatcher depends. This determination is contingent upon full application of relevant Project Design Criteria for sheep grazing in the forage reserve allotments described under Alternative 3.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

On October 3, 2013, the USFWS published a proposed rule to list the distinct population segment (DPS) of the western yellow-billed cuckoo occurring in the western portions of the United States, Canada, and Mexico as a threatened species under the Endangered Species Act (USDI Fish and Wildlife Service 2013h). The DPS evaluation in the proposed rule concerns the segment of the species occurring within western North America, including the northern and southern Rocky Mountains (USDI Fish and Wildlife Service 2013h). The proposed rule did not propose any critical habitat for the species.

As stated in the February 2014 BA, there is no known suitable habitat on the SJNF but habitat patches may occur in limited amounts. Based on the best available information, the western yellow-billed cuckoo is not known to be present on lands managed by the SJNF. Although there is no documented occurrence of cuckoos on the SJNF, occurrence has been documented on adjacent non-federal lands at generally lower elevations. Based on field visits to the Weminuche landscape, there are no known habitat patches thought to be suitable for cuckoo occurrence within the landscape. Due to generally higher elevations on the SJNF, especially within the Weminuche landscape, and lack of suitable primary habitat, cuckoo occurrence on lands managed by the SJNF is not expected and would be considered rare and incidental.

For these reasons, the February 2014 BA found that the Proposed Action was not likely to jeopardize the continued existence of western yellow-billed cuckoo. Because the Proposed Action was found not likely to jeopardize the continued existence of western yellow-billed cuckoo, conferencing was not required.

Changed Circumstances:

On October 3, 2014, the USFWS published a final rule listing the western distinct population segment of the yellow-billed cuckoo as threatened (USDI Fish and Wildlife Service 2014c). Designation of critical habitat was proposed for the western yellow-billed cuckoo on August 14, 2014 (USDI Fish and Wildlife Service 2014b). There is no proposed critical habitat on the San Juan National Forest, nor any within 10 air miles of the SJNF. The nearest proposed critical habitat patches are along the San Juan River in northern New Mexico, and along the Conejos River east of the Continental Divide.

There are no added features of the Preferred Alternative of the EIS or project factors not otherwise considered under the Proposed Action of the EA that might affect western yellow-billed cuckoo or cuckoo habitat. For this reason, there are no additional actions or new project features proposed under the EIS that could result in new potential affects to western yellow-billed cuckoo or cuckoo habitat.

There are no changed circumstances known or thought likely for cumulative effects, as cumulative effects are defined by the Endangered Species Act.

Determination:

For all allotments in the Weminuche Landscape it is my professional opinion that the Preferred Alternative, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, would have **"no effect"** on the western yellow-billed cuckoo and/or cuckoo habitat.

Uncompahgre Fritillary Butterfly (*Boloria acrocnenma*)

The Uncompahgre fritillary butterfly (UFB) is a butterfly that is endemic to high elevation (>12,500 feet) alpine peaks of Colorado's San Juan Mountains. It was listed as Endangered under the ESA in 1991 due to population declines observed in the 1980's (USDI Fish and Wildlife Service 1994). Over collection is considered the greatest human-caused threat to species persistence.

At present, there are only 11 known UFB colonies (Alexander and Keck 2011), all on USFS or BLM managed lands. There is one known UFB colony in the Weminuche Landscape (Alexander and Keck 2011). The one known UFB colony is located in the northwestern portion of the Pine River Allotment along the Continental Divide. The Proposed Action of the EA proposed to close the Pine River Allotment to all livestock grazing.

The Weminuche Landscape has been extensively surveyed for UFB and no new colonies have been found. There are however, four small areas in the Rock Creek Allotment, totaling 233 acres, which appear to have suitable UFB habitat attributes and the potential for butterfly occurrence appears to be high. Until the area can be adequately surveyed, the area will be presumed to be occupied by UFB. The February 2014 BA included delineation of a UFB "restricted area" polygon around the potential UFB areas, within which domestic sheep grazing and trailing activities would be restricted.

The February 2014 BA found that for all allotments in the Weminuche Landscape, except the Rock Creek Allotment, the Proposed Action, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, would have "no effect" to the Uncompahgre fritillary butterfly or the snow willow habitats on which the butterfly depends.

For the Rock Creek Allotment only, the February 2014 BA found the Proposed Action, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, "may affect but is not likely to adversely affect" the Uncompahgre fritillary butterfly or the snow willow habitats on which the butterfly depends.

Changed Circumstances:

For the Uncompahgre fritillary butterfly, the Proposed Action of the draft EA (Alternative 3) included a UFB "restricted area" polygon in the Rock Creek forage reserve allotment. This UFB "restricted area" polygon was designed to prevent intentional grazing or trailing of domestic sheep within an area considered potential but un-surveyed habitat for UFB. This "restricted area" polygon is carried forward into Alternative 3 of the draft EIS. However, because the Preferred Alternative of the draft EIS (Alternative 4) would not authorize sheep grazing in any of the three sheep forage reserve allotments (Johnson Creek, Leviathan, Rock Creek), the UFB "restricted area" polygon would not be needed under the Preferred Alternative. For this reason, the potential for sheep grazing impacts to UFB habitat would be reduced under the Preferred Alternative of the draft EIS (Alternative 4) compared those that would have been authorized under the Proposed Action of the draft EA (Alternative 3).

There are no changed circumstances known or thought likely for cumulative effects, as cumulative effects are defined by the Endangered Species Act.

Determination:

For all allotments in the Weminuche Landscape, including the Rock Creek Allotment, the Preferred Alternative of the draft EIS, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, would have **"no effect"** to the Uncompahgre fritillary butterfly or the snow willow habitats on which the butterfly depends.

This "no effect" determination is based on selection of the Preferred Alternative of the draft EIS (Alternative 4) in its entirety, including closure of the Pine River Allotment to all domestic livestock grazing and closure of the three sheep forage reserve allotments (Johnson Creek, Leviathan, Rock Creek) to all domestic livestock grazing.

If the decision maker chooses to authorize domestic sheep grazing in any or all of the sheep forage reserve allotments, then for the **Rock Creek Allotment only**, the Preferred Alternative of the draft EIS, when added to the cumulative effects of past, current, and reasonably foreseeable future actions, **"may affect but is not likely to adversely affect"** the Uncompahgre fritillary butterfly or the snow willow habitats on which the butterfly depends.

This determination is dependent upon application of the UFB "restricted area" polygon in the Rock Creek forage reserve allotment, closure of the Pine River Allotment to all domestic livestock grazing, and full application of relevant Project Design Criteria for sheep grazing in the forage reserve allotments described under Alternative 3.

LITERATURE CITED

- Alexander, K., and A. G. Keck. 2011. Uncompahgre fritillary butterfly monitoring, inventory, and mapping: 2010 report and status. Unpub. Rep., Western State College, Gunnison, CO. 33 pp.
- Colorado Division of Wildlife. 2005. General locations of lynx (*Lynx canadensis*) reintroduced to southwestern Colorado from February 4, 1999 through February 1, 2005. Colorado Division of Wildlife, Denver, CO. Available online at: http://wildlife.state.co.us/NR/ronlyres/F92E6FCD-BCB5-4711-8EE6-A9398EA77999/0/LynxLocations_Feb2005.pdf Accessed May 22, 2009.
- Colorado Division of Wildlife. 2008. Wildlife research report, July 2007 – June 2008. Post-release monitoring of Lynx reintroduced to Colorado. Colorado Division of Wildlife, Denver, CO. Available online at: <http://wildlife.state.co.us/NR/ronlyres/5F861BD3-61C3-4ADE-8F12-3FDDB7DB2680/0/LynxAnnualReport200708.pdf> Accessed May 22, 2009.
- Finch, D. M., and S. H. Stoleson, eds. 1999. Status, ecology and conservation of the southwestern willow flycatcher. USDA Forest Service, Gen. Tech. Rep. RMRS-GTR-60, Rocky Mountain Research Station, Albuquerque, NM. 131 pp.
- Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Naney, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000. Canada lynx conservation assessment and strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. For. Serv. Publ. R1-00-53, Missoula, MT. 142 pp.

- Schultz, C., A. Garcia, and J. Redders. 2006. Developing a lynx habitat conservation model; assumptions, criteria and components. Unpub. Rep., San Juan National Forest, 15 Burnett Ct, Durango, CO. 38 pp.
- USDA Forest Service. 2004. Canada Lynx Species Assessment for the San Juan National Forest. Unpub. Rep., San Juan National Forest, Durango, CO.
- USDA Forest Service. 2005. Southwestern Willow Flycatcher Species Assessment for the San Juan National Forest. Unpub. Rep., San Juan National Forest. Durango, CO.
- USDA Forest Service. 2014. Biological Assessment for federally listed terrestrial and aquatic species for Weminuche Landscape grazing analysis. Unpub. Rep., San Juan National Forest, 367 Pearl St, Bayfield, CO. 77 pp.
- USDI Fish and Wildlife Service. 1994. Uncompahgre Fritillary Butterfly Recovery Plan, March 17, 1994. Denver, Colorado. 20p.
- USDI Fish and Wildlife Service. 1998. Endangered species consultation handbook: procedures for conducting consultation and conference activities under section 7 of the endangered species act. U. S. Fish and Wildlife Service and National Marine Fisheries Service. March 1998, Final.
- USDI Fish and Wildlife Service. 2000. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Mexican Spotted Owl. Federal Register 65(141): 45336-45353.
- USDI Fish and Wildlife Service. 2003. Letter dated April 11, 2003 giving notice of the Final Recovery Plan for Southwestern Willow Flycatcher. U.S. Fish and Wildlife Service, Ecological Services, Grand Junction Field Office. Grand Junction, Colorado.
- USDI Fish and Wildlife Service. 2008. Biological opinion on the effects of the Southern Rocky Mountains Lynx Amendment (SRLA) on the distinct population segment of (DPS) Canada lynx (*Lynx canadensis*) (lynx) in the contiguous United States. Letter from USDI fish and Wildlife Service, Denver, CO, BO ES/LK-6-CO-08-F-024. On file at the Columbine Public Lands Center, Bayfield, CO.
- USDI Fish and Wildlife Service 2013d. Endangered and Threatened Wildlife and Plants; Endangered Status for Gunnison Sage-Grouse. Federal Register 78(8):2486-2538.
- USDI Fish and Wildlife Service 2013e. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Gunnison Sage-Grouse. Federal Register 78(8): 2540-2570.
- USDI Fish and Wildlife Service 2013f. Endangered and Threatened Wildlife and Plants; Listing Determination for the New Mexico Meadow Jumping Mouse. Federal Register 78(119): 37363-37369.
- USDI Fish and Wildlife Service 2013g. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the New Mexico Meadow Jumping Mouse. Federal Register 78(119): 37328-37363.
- USDI Fish and Wildlife Service 2013h. Endangered and Threatened Wildlife and Plants; Proposed Threatened status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*). Federal Register 78(192): 61622-61666.

- USDI Fish and Wildlife Service. 2013i. Endangered and Threatened Wildlife and Plants; proposed designation of critical habitat for the New Mexico meadow jumping mouse; listing determination for the New Mexico meadow jumping mouse; proposed rules. Federal Register 78(119): 37328-37363.
- USDI Fish and Wildlife Service. 2014a. Endangered and Threatened Wildlife and Plants; determination of endangered status for the New Mexico meadow jumping mouse throughout its range. Federal Register 79(111): 33119-33137.
- USDI Fish and Wildlife Service. 2014b. Endangered and Threatened Wildlife and Plants; determination of threatened status for the western distinct population segment of the yellow-billed cuckoo; proposed rule. Federal Register 79(158): 48548-48652.
- USDI Fish and Wildlife Service. 2014c. Endangered and Threatened Wildlife and Plants; designation of critical habitat for the western distinct population segment of the yellow-billed cuckoo (*Coccyzus americanus*); final rule. Federal Register 79(192): 59992-60038.
- USDI Fish and Wildlife Service. 2014d. Endangered and Threatened Wildlife and Plants; threatened status for Gunnison sage-grouse; final rule. Federal Register 79(224): 69192-69310.
- USDI Fish and Wildlife Service. 2014e. Endangered and Threatened Wildlife and Plants; designation of critical habitat for Gunnison sage-grouse; final rule. Federal Register 79(224): 69312-69363.
- USDI Fish and Wildlife Service. 2015. Unit Species List of federal Threatened, Endangered, and Proposed species for the San Juan National Forest, March 25, 2015. Email from USDI Fish and Wildlife Service, Grand Junction, CO. On file at the Columbine Ranger District, Bayfield, CO.
- Wait, S. 2005. Personal communications with Scott Wait, Terrestrial Wildlife Biologist, Colorado Division of Wildlife. Durango, CO.

Figure 1. Domestic sheep allotment configuration under the Proposed Action (Alternative 3) of the draft EA, and the Preferred Alternative (Alternative 4) of the draft EIS.

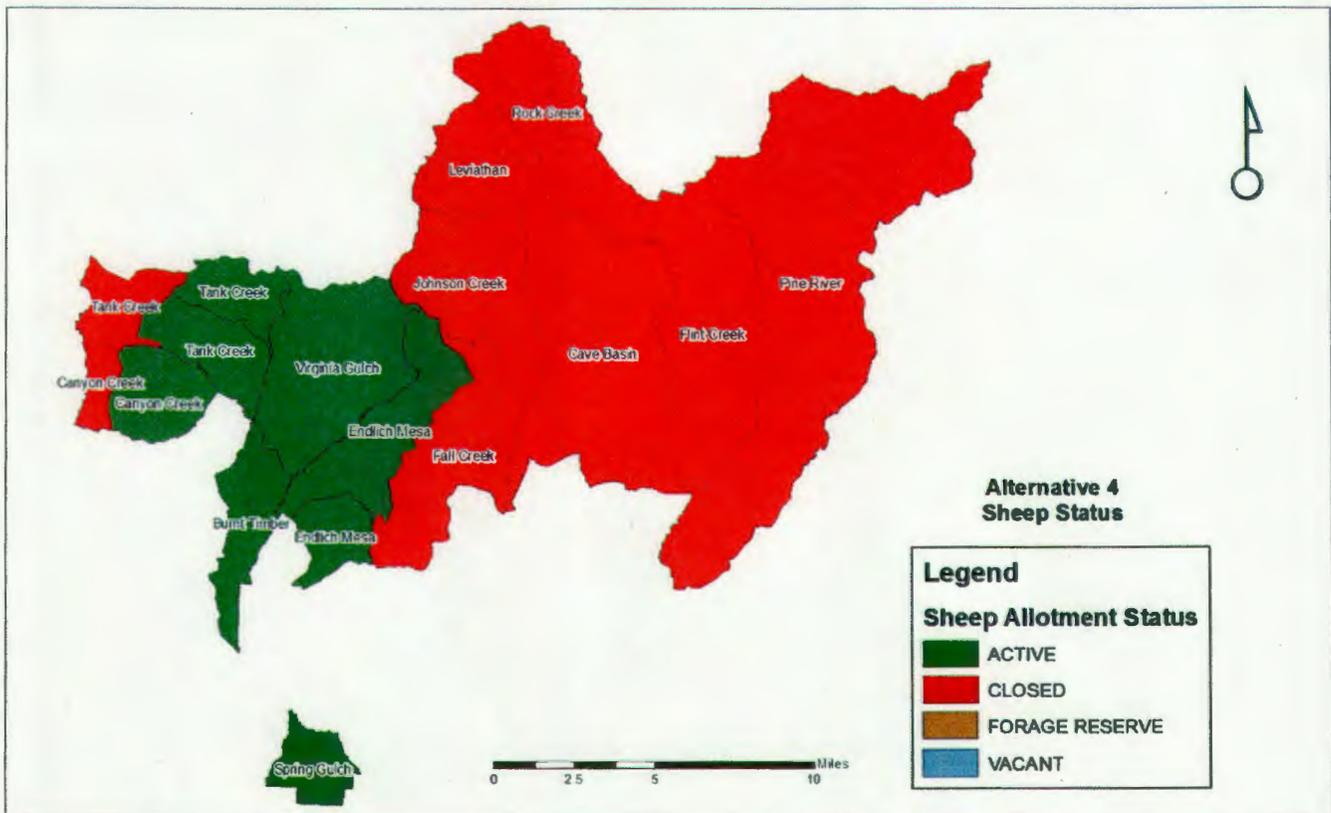
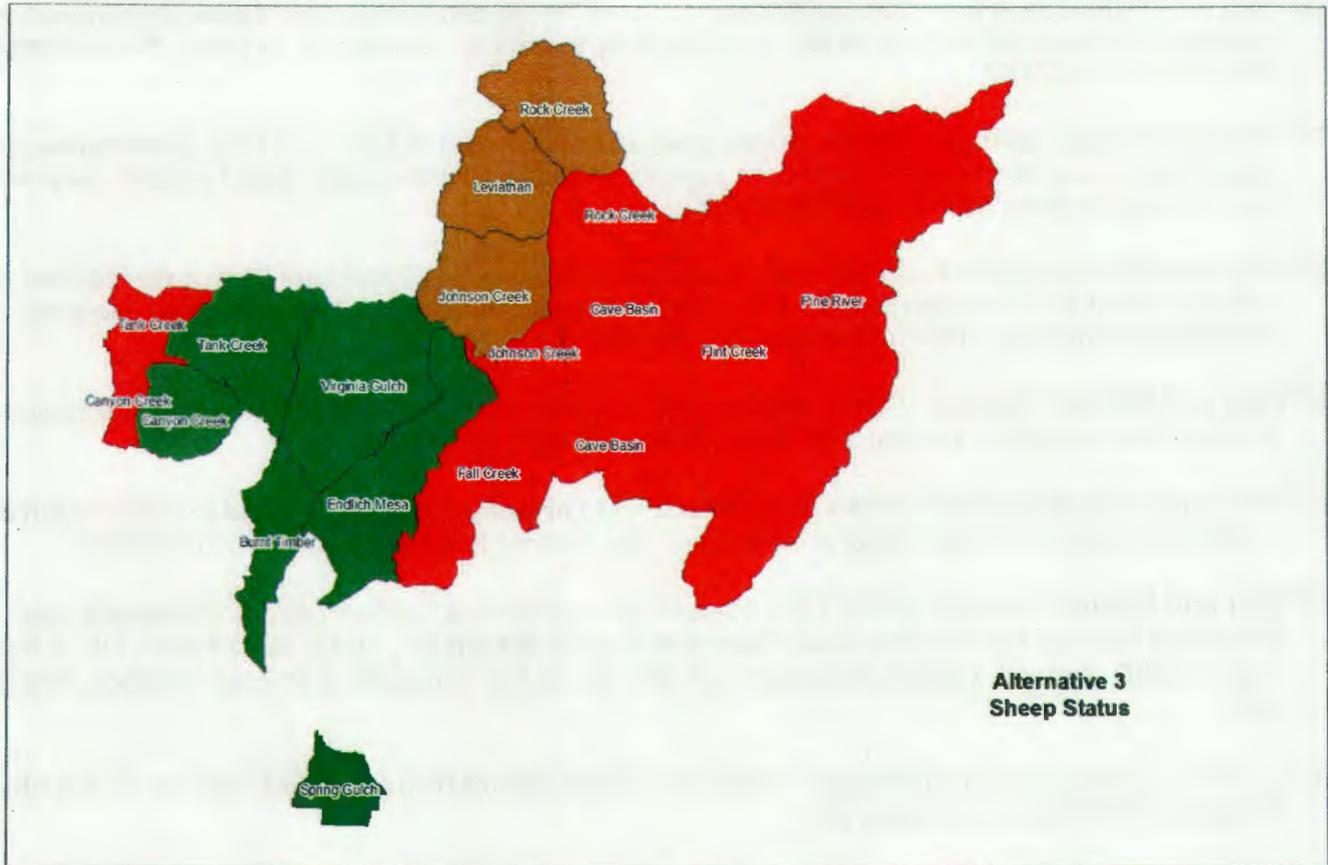
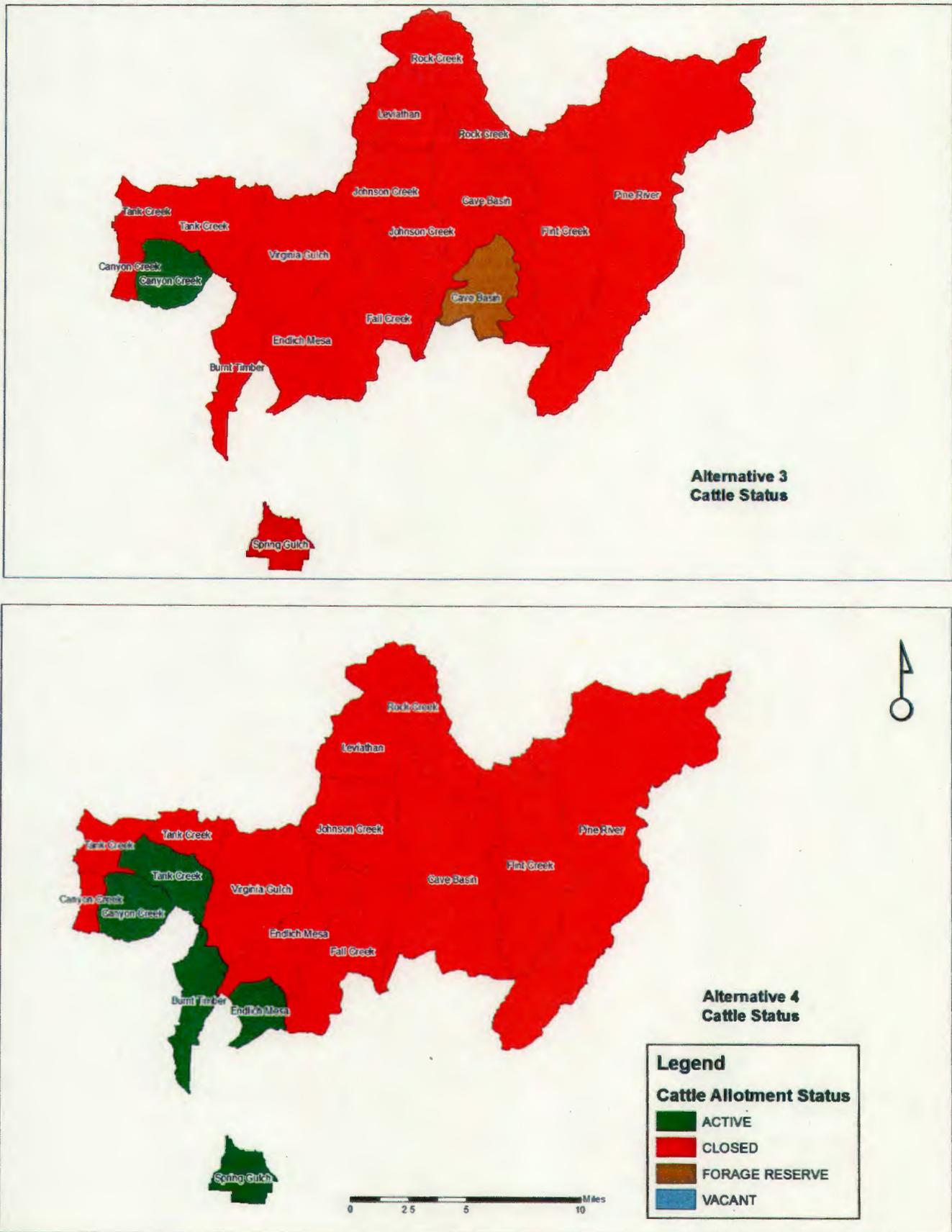


Figure 2. Cattle allotment configuration under the Proposed Action (Alternative 3) of the draft EA, and the Preferred Alternative (Alternative 4) of the draft EIS.



File Code: 2670
Date: February 24, 2016

Ann Timberman
Western Colorado Supervisor
US Fish and Wildlife Service, Ecological Services
445 West Gunnison Avenue, Suite 240
Grand Junction CO 81501-5720

Dear Ms Timberman:

The San Juan National Forest has released for a 45-day public comment period a Draft Environmental Impact Statement (DEIS) on management of 13 grazing allotments over approximately 167,000 acres of National Forest System lands in San Juan, La Plata, and Hinsdale counties (85 percent of which lies within the Weminuche Wilderness). The DEIS studies five active sheep allotments, one active cattle allotment, and seven vacant allotments. The DEIS analyzes four alternatives and identifies a Preferred Alternative, which is to continue to authorize grazing on the six active allotments, including design criteria, adaptive management options, and monitoring. Minor boundary adjustments would be made to eliminate all overlap between active allotments and bighorn core herd home range and to match topographic features on the ground. Some portions of some allotments would also be authorized for potential future conversion from sheep to cattle. The seven vacant allotments would remain vacant, but with a specific list of requirements that would need to be met prior to restocking, including an additional NEPA analysis and a new decision.

The potential effects to federally listed terrestrial and aquatic species of a previously released Environmental Assessment (FWS concurrence date: 3/26/14; Tails: 16E24100-2014-I-0104), and 'changed circumstances' associated with replacing the EA with a DEIS and adjustments to the Preferred Alternative of the DEIS (FWS concurrence date: 5/13/15) were previously consulted on with your office under informal consultation in accordance with Section 7 of the Endangered Species Act as amended (16 U.S.C. 1531 et seq.). On February 4, 2016, we discussed by phone with Kurt Broderdorp of your office a change in the status of the seven vacant allotments (Cave Basin, Fall Creek, Flint Creek, Johnson Creek, Leviathan, Pine River and Rock Creek Allotments) that was recently made and presented to the public in the DEIS. This letter is the agreed-upon result of the conversation with Mr. Broderdorp.

The Supplemental Biological Assessment (April 3, 2015) analyzed the status of the seven currently 'vacant' allotments as being 'closed' under the Preferred Alternative of the DEIS. Recently (early February, 2016) a decision was made to change the status of these seven currently 'vacant' allotments in the Preferred Alternative of the DEIS from 'closed' to 'maintain vacant status', but with a specific list of requirements that would need to be met prior to restocking, including an additional NEPA analysis and a new decision.

The specific list of requirements that would need to be met prior to restocking include:



- NEPA analyses with accompanying decision must be conducted. The NEPA analysis will include the appropriate level of analysis of risk of contact between bighorn and domestic sheep, and must also consider and mitigate other conflicts, such as with recreation uses and outfitters.
- Stocking can only be done when compliance with plan standards is demonstrated (e.g. preventing physical contact between bighorn and domestic sheep).
- Species viability requirements must be met.
- Pre-stocking aerial surveys will be conducted, with a minimum of two overflights within two weeks prior to stocking.
- The stocking of any vacant allotments (single allotment or any combination of vacant allotments) will not add to the cumulative risk of disease transmission to bighorn sheep.

The recent change in the status of the seven currently vacant allotments from ‘closed’ status to ‘maintain vacant status’ presented to the public in the Preferred Alternative of the DEIS represents a change in the label of the status of these seven allotments. Because the potential for effect to listed species, including downstream listed fishes, resulting from changing the label of the status of these seven allotments is consistent with those analyzed in the previous BA and Supplemental BA, a ‘no effect’ call is made for the change in the label of the status of these seven allotments under the Preferred Alternative of the DEIS. For this reason, consultation with the Service is not required under Section 7 of the ESA.

If you would like additional information about this project, please contact Chris Schultz of my staff at (970) 884-1407, or via email at cschultz@fs.fed.us.

Sincerely,

/s/Matt Janowiak

MATTHEW JANOWIAK
District Ranger

cc: Chris Schultz, Clay Kampf