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Bureau of Land Management
Farmington District**

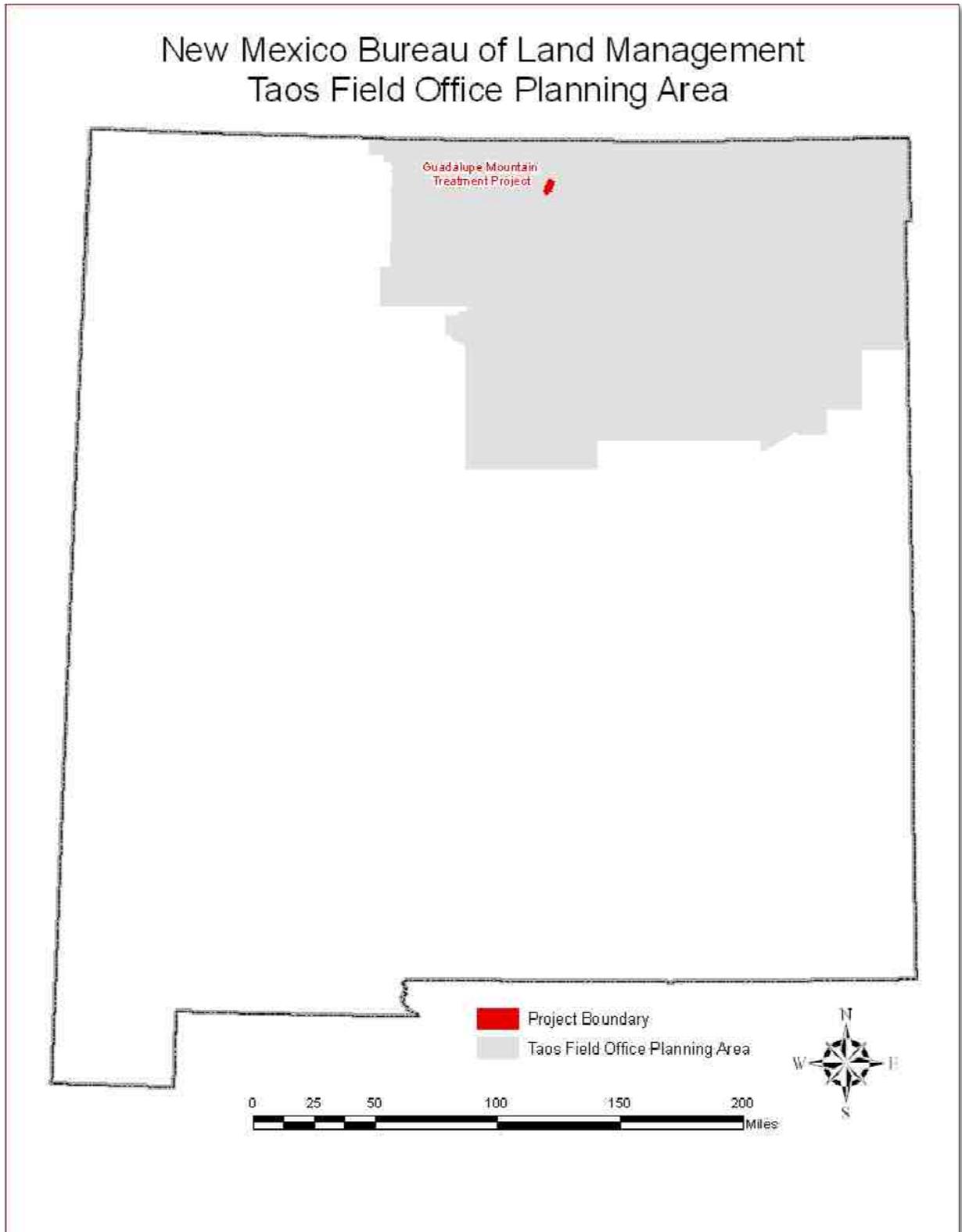
Guadalupe Mountain Vegetation Treatment Plan

DOI-BLM-NM-F020-2011-0011-EA

U.S. Department of the Interior
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Project Map and Planning Area



***Note:** See Appendix 1 for additional project maps.

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Guadalupe Mountain Treatment Plan

Chapter 1: Purpose and Need

1.1 Introduction

The preparation of this environmental assessment is being done as a means to solicit interdisciplinary input for consideration in selecting the appropriate alternative. This process is mandated by the National Environmental Policy Act of 1969 (as amended) and the Federal Land Policy and Management Act of 1976. The Proposed Action as well as the No Action alternative will be analyzed and compared.

A variety of vegetation treatment methods are being proposed for consideration under the Proposed Action, i.e., prescribed fire, wildland fire for resource benefit, thinning, and mechanical vegetation treatments. The intent of this document is to analyze the impacts of applying these treatment methods to two dominant vegetation communities (rangeland/woodland) within the Guadalupe Mountain management area.

The project includes proposals to maintain, improve, and increase native grass habitat, herbaceous understory, and overall forest health in the Guadalupe Mountain management area. The preservation of native grass species in this area is an important component to maintain wildlife habitats within the area. Within the project area, expansion of big sagebrush (*Artemisia tridentata*), pinyon pine (*Pinus edulis*) and juniper (*Juniperus spp.*), has decreased other native vegetation communities and has impacted wildlife habitat areas.

By treating existing monocultures of pinyon pine, juniper and big sagebrush, it is intended that the result would benefit both wildlife and livestock by not only increasing forage production, but also providing greater edge or transitional habitat and structural diversity throughout the entire area. In addition, the project would also improve woodland health in and around the wildland urban interface of the village of Cerro, NM.

The Taos Field Office treated approximately 2,100 acres of similar habitat in the North and South Chiflo management areas in the spring of 2008, and successfully treated and reduced big sagebrush with minimal disturbance. An additional 1,000 acres was mechanically treated in 2004 and 2005 within the Guadalupe Mountain management area with positive response from native grasses and browse species. The continuation of these treatments would eventually lead to the restoration of grassland and woodlands within the Guadalupe Mountain management area.

The BLM Taos Field Office proposes to restore vegetation communities to reasonable densities of sagebrush, pinyon pine, and juniper, which would allow other native vegetation such as warm and cool season perennial grasses, forbs, and favorable shrub species to exist and/or recover.

The Guadalupe Mountain restoration area totals approximately 12,669 acres, consisting of primarily BLM land, with 2 sections of State land (see Appendix 1). Approximately 10,135 acres of the project area (12,669 acres) has restoration potential, either by mechanical, wildland fire for resource benefit, or prescribed burning methods.

1.2 Purpose and Need for Action

The purpose of the Guadalupe Mountain Treatment Plan is to reduce the density of big sagebrush shrub species, pinyon pine, juniper and decadent, overgrown, shrubs like oak, mountain mahogany, and other

browse species. Big sagebrush expansion into native vegetation communities has been previously described in the *Cerro Montoso Vegetation Treatment Project Environmental Assessment*, EA# NM-220-08-053. Forest stands in the project area now have a high density of pinyon-juniper woodland species, with little grass and forb production, low regeneration of ponderosa pine, and continuous distribution of ladder fuels which could lead to a stand-replacing burn in the event of wildfire. The proposed project area is high priority for treatment because of the high density of vegetation such as sagebrush and pinyon juniper communities.

The primary goal of treatments on sections 21, 22, 23, 24, 26, 27, 28, 29, 32, 33, 34 T29N, R12E, and sections 2, 3, 4, 5, 6, 8, 9, and 17 T28N, R12E would be wildlife habitat improvement (see Map 2a in Appendix 1). Deer and elk populations in the area require a higher production of understory grasses and shrubs and a greater mosaic of cover and forage areas. Mechanical thinning would be used to open the understory and create openings in dense forest, stimulating forage production and creating the mosaic of forage and cover that deer and elk require. After mechanical thinning, prescribed fire would be used to maintain both the grasslands and the forest under story.

In designated areas, stand replacement fires would create natural openings and increase the amount of transitional zone between different habitat types for wildlife that depends on more than one habitat type. For example, deer and elk require open areas which produce forage and browse, but also utilize adjacent dense forested areas for cover. In addition to the creation of more edge, some wildlife species would use the new habitat created in the burn itself. Newly created snags would provide foraging opportunities and nesting habitat for many cavity nesting birds. Grasses and shrubs, previously suppressed by the dense pinyon-juniper understory, would provide habitat for many other species of birds and mammals.

Treatment objectives for parts of section 10, 11, 13, and 14 T29N R12E would be hazardous fuels reduction in the wildland urban interface (see Map 2a in Appendix 1). BLM land on these sections borders private land and residential structures, and BLM is responsible for protecting private lands from wildfire that starts on BLM land. Mechanical thinning would be used to reduce levels of hazardous fuels and prescribed fire would be used to maintain an open understory and low stand density in the thinned areas.

Although management goals differ between sites on the management area, management techniques used to accomplish these different goals are generally the same across sections. For example, the restoration projects planned for hazardous fuels reduction in the urban interface would also be improving elk and deer habitat, and wildlife habitat enhancement projects would be reducing the risk of wildfire.

1.3 Land Use Plan Conformance

The Proposed Action is in conformance with the *1988 Taos Field Office Resource Management Plan* (RMP), as required by the Federal Land Policy and Management Act of 1976 (FLPMA); The *Rio Grande Corridor Final Plan* (2000); and the *2010 Farmington District Fire Management Plan* (FMP), which was updated in 2010.

Project objectives are consistent with the intent in the Taos Field Office RMP's recommendations to manipulate vegetation cover on federal land to enhance native grass species by restoring healthy vegetative grassland and forest communities. Project objectives are also consistent with findings that the exclusion of fire is resulting in sagebrush and pinyon-juniper expansion throughout much of the proposed project area.

1.4 Identification of Issues

The proposed project was posted in the Taos Field Office online NEPA log on February 15, 2011. On March 8, 2011, the proposed project was discussed by Taos Field Office resource specialists at a monthly NEPA coordination meeting. Issues discussed included the size and scope of the project, wildlife impacts, soil impacts, consultation requirements on threatened and endangered species, and needs related to archaeological clearance. A follow up site visit, staff meetings and consultations were held with field office resource specialists to further discuss the scope of this analysis.

Based on internal scoping efforts, the following issues are considered relevant to the analysis of this management action:

1. Air Quality - *How would the Proposed Action and Alternatives affect the quality of air within the project area?*
2. Climate – *What impacts would the Proposed Action have on climate change?*
3. Cultural Resources - *How would the Proposed Action and Alternatives impact the condition and integrity of cultural resources present in the area?*
4. Rangeland Management - *What impact would the Proposed Action and Alternatives have on forage within the area?*
5. Migratory Birds - *How would the Proposed Action and Alternatives affect bird nests, including habitat for migratory birds within the project area?*
6. Soils - *What impact would the Proposed Action and Alternatives have on the integrity and stability of soil within the project area?*
7. Threatened and Endangered Species Including Special Status Species - *How would the Proposed Action and Alternatives affect threatened and endangered and special status species within the project area?*
8. Vegetation - *How would the Proposed Action and Alternatives affect the quality, extent of grasses, including other native vegetation available within the project area?*
9. Visual Resources/Recreation - *How would the character of the view shed and opportunities for hiking and sightseeing be maintained?*
10. Wildlife - *How would critical mule deer and big game winter range habitat be affected by the Proposed Action and Alternatives?*

Chapter 2: Description of Alternatives

2.1 Alternative A: Proposed Action

The Proposed Action would take place within the boundaries of the areas outlined in this environmental assessment. Treatment goals for forest and rangeland restoration projects include maintaining the long-term health of the Guadalupe Mountain management area, improving herbaceous growth, understory recovery, and winter range forage by treating big sagebrush and hazardous fuels within the project area. Treatment on BLM land within the project area would be given highest priority, while treatments on State and Private land would only occur after consultation and agreements have been established.

The project area is located within the Wild Rivers Recreation Area, in Taos County, New Mexico. Management activities are proposed for sections 9, 10, 11, 13, 14, 15, *16, 20, 21, 22, 23, 24, 26, 27, 28, 29, 31, *32, 33, 34, and 35 of T29N, R12E and for sections 2, 3, 4, 5, 6, 8, 9, 10, 16, 17, and 20 of T28N, R12E (see Map 1 in Appendix 1).

*denotes sections owned by the New Mexico State Land Office (NMSLO).

As show in **Table 2-1** below, the approximate total treatable acres for the Restoration area is 10,135. Draws, bottomland near the Rio Grande, and clayey sites would not be treated to preserve any arroyo and grassland type vegetation that is important to wildlife species, soil stability or watershed health.

Table 2-1: Potentially treatable vegetation in acres (total project GIS acres)

Vegetation Type	Acreage
Sagebrush/grassland/rangeland	2,930
Pinyon pine/juniper/woodland	5,945
Browse species/half shrubs/other	1,260
Total Acres	10,135

The objective is to reduce existing sagebrush, and pinyon/juniper/oak brush densities through the use of prescribed fire, wildland fire for resource benefit, thinning, and mechanical vegetation treatments. It is expected that vegetation treatments would take place each year for the next several years. Treatment areas would be selected based on one or more of the following site characteristics:

- The site’s ability to recover with proper soil stability and native vegetation.
- Soil is present which tends to exhibit good results with mechanical treatment.
- A seed source is present and available for desirable vegetation.
- Cooperation with the grazing allotment operator for adequate grazing deferment.
- The area is favorable for prescribed fire, and/or mechanical treatment.
- The treatment would have no negative impact on non-target plant or animal components of the community.

Taos FO resource specialists will review areas to be treated as this project is implemented to identify mitigation and determine if climatic conditions are appropriate for treatment area recovery - which will occur through normal ID team review. Information and monitoring reports will be shared with the ID team periodically to address project needs and targets.

Funding will play a significant role in determining the rate at which the projects are developed and targets met. Other factors such as environmental conditions, timing, and availability of personnel could also impact project progress and development. Areas with higher canopy cover of treatable vegetation would be given priority for treatments.

Based on implementation of recent and comparable projects, it is expected that the total number of acres treated per year will include up to 1,000 for mechanical. Broadcast burns would be determined on a case by case basis and will not exceed 5,000 acres per year.

2.1.1 Project Design and Management Actions

Treatment would first focus on the areas managed by the Bureau of Land Management Taos Field Office. Areas with a significant deviation from the potential natural levels of sagebrush, pinyon pine, and juniper encroachment would be the priority. The following design features and management actions would be incorporated into the project to attain the resource objectives described above.

Treatments (Management Actions)

Various treatments would be conducted to some extent on all BLM sections and include: prescribed fire, wildland fire for resource benefit, thinning, and mechanical vegetation treatments to accomplish resource objectives described in this environmental assessment.

Prescribed fire would include broadcast burns and pile burns, and would occur at any time of the year as conditions allow and when fuels are dry and able to carry a fire. Broadcast burns would be implemented in areas encroached by sagebrush and/or pinyon-juniper, encouraging grass recolonization of the site and maintaining the grassland. On selected portions of pre-thinned pinyon-juniper forest with heavy sagebrush understory, fire would be used to burn out pockets of continuous pinyon-juniper forest to create more suitable habitat for deer and elk.

Following thinning activities, pile burning would be used to eliminate high concentrations of surface fuels, then broadcast burning of the understory would be implemented to reduce duff and litter accumulations on the forest floor. Pile burning would most likely occur in the late fall and winter. All burn operations would be conducted under the supervision of a certified prescribed burn boss. Both broadcast burns and pile burning would continue throughout the duration of the project and to some extent on all sections.

Wildland fire (for resource benefit) is the action of allowing a natural ignition (lightning) to burn under a pre-determined set of environmental conditions. Areas proposed for wildland fire for resource benefit include sections that are entirely under BLM ownership in the north and central portions of the project area. These areas are predominantly pinyon-juniper savannah and pinyon-juniper woodland, including several small and isolated stands of ponderosa pine.

Mountain tops are typically identified for wildland fire for resource benefit primarily because of the success observed in such cases. For example, in the year 2000 a natural wildland fire occurred on the Pot Mountain, mountain top, and since then, the area has seen tremendous recovery and a diversity of native plant species. The area has also served as an effective natural fuel-break in containing potential wildfire starts and could be used as a fuel-break for project burns.

Wildland fire will be used to protect, maintain, and enhance resources consistent with management objectives outlined in the Taos Field Office Resource Management Plan.

Thinning would be done by chainsaw and would be conducted by BLM fuels crew or contract crews who are trained in proper thinning protocol and under direct supervision of a fuels foreman. Thinning would be conducted in areas with high concentrations of pinyon pine, and juniper.

All thinning prescriptions would be developed by the Taos Field Office Fire management staff in collaboration with resource specialist for wildlife and would include mitigation measures outlined in the 2010 Farmington District Fire Management Plan. Fuelwood gathering of down wood on designated sites would be allowed to assist in excess fuel removal.

Mechanical vegetation treatments would be implemented on rangeland/grassland communities of the project area. Mechanical vegetation treatments would provide opportunity to increase vegetation competition against expanding species such as big sagebrush and would serve as a way to provide conditions where grass could be used as a carrier fuel for future prescribed fires used to maintain the grassland.

Mechanical vegetation treatments could include one or more of the following techniques in any sequence and during any time of the year: shaving, mowing, rangeland disking, drill seeding, Dixie Harrow/ seeding, chipping, mulching, pruning, or plowing. If seeding is required following treatment, only a certified weed-free mix of native grasses, shrubs and forbs would be used.

Similar treatments in the area have been reseeded with a mix of blue grama, western wheatgrass, vetch species, Indian rice grass, side-oats grama, and sand drop seed. The need for follow-up treatments will be determined by the BLM resource specialists including range, fire and wildlife staff using an adaptive management approach.

2.1.2 Mitigation Measures

The following mitigation measures will be taken as a regular part of the project as necessary.

- To reduce risk of water erosion, all treatments resulting in shallow or deep soil disturbance will be limited to areas with slopes of 5% or less.
- Due to their small percent cover within the project area and hazards associated with implementing treatments on them, treatments will not be done in areas containing soils PGC, OMD, RcG, HPC, MxE, PfC, SED, OTG as shown on Map 4 in appendix 1.
- To minimize soil damage and speed recovery, no new roads will be created in treatment areas. Temporary roads will be closed using a variety of techniques. No temporary roads will be created in the Guadalupe Mountain area.
- To minimize green house gases, crews will not idle any equipment unnecessarily.
- To minimize green house gases,, crew will reduce number of trips to project areas and carpool to reduce vehicles.
- To avoid impacts to river corridors, a buffer of 10 yards will be maintained on the Rio Grande and Red River rim. The buffer outer edge will start where slope is 5% or greater.
- To assure that large areas of soils will not be exposed to damage, treatment areas will require 25% recovery of predicted vegetation cover prior to implementing treatment on new areas. Also, resource specialist will review predicted climate conditions to determine if future treatment recovery may be compromised.
- To minimize the potential for wind erosion on FHB soils (Table 3-1), rangeland mechanical treatments will be implemented to increase shrub-grass edged, will provide shrub island or corridors and will implement other best management practices appropriate to that end.
- To minimize soil damage, all mechanical treatments and treatments using vehicles will be discontinued when the soil is water saturated or when an inch of rain or more falls within a day. Treatments may continue when soil saturation declines or within 12 hours after rainfall.

2.1.3 Inventory and Monitoring

Baseline vegetation inventory was collected to aid in the analysis of this environmental assessment. Methods used included photo points, site visits, and specific rangeland transect establishment using the 2008 Farmington District Fire Monitoring protocol. Geographic Information System (GIS) mapping, LANDFIRE data, and existing computer models were also used to calculate acreage of existing vegetation within the project area.

In addition to the baseline vegetation data, pre and post treatment inventories in the treatment areas will be conducted. Pretreatment studies will be done prior to any implementation activities and will include rangeland transects, permanent vegetation plots, and cultural resource inventories. Site-specific post treatment monitoring will involve assessing the effectiveness of the treatment or control method on

specific species relative to application rate, method, and treatment area. Monitoring methods, in most cases, will be quantitative and commensurate with the level of treatment complexity and size and extent of the project.

Cultural inventories will be conducted as determined by the BLM in consultation with affected Tribes and the New Mexico State Historic Preservation Office. Archaeological clearance intensity levels will be determined by a BLM Archaeologist.

Landscape level monitoring would be used over the long term to track various vegetative species' occurrences and would be accomplished through Geographic Information System (GIS) mapping.

2.1.4 Maintenance

Maintenance of treatments would be an essential component to long-term forest and rangeland health. In the absence of maintenance, overall treatment effectiveness would decrease dramatically over time. It is recommended that treatment maintenance be considered every 7 to 10 years, depending on the individual site conditions and original treatment intensity. Inventory and monitoring strategies outlined in Section 2.1.3 along with the latest science, and adaptive management techniques would support the decisions in this process.

2.2 Alternative B: No Action

Under the No Action alternative there would be no treatments conducted in the proposed resource management area. The No Action alternative would result in the likely succession of the pinyon/juniper and sagebrush vegetation types towards plant communities where herbaceous species are generally absent or severely under-represented. The basis in making this assertion is that over time the competition for soil moisture, nutrients and sunlight from the overstory of pinyon/juniper and sagebrush would exceed the herbaceous and shrubby browse plant species' ability to compete for these elements (Bates et al. 1998). From an overall ecological perspective, succession of this sort within these plant communities would also have a negative impact to wildlife.

Chapter 3: Affected Environment

This chapter describes the affected environment (resources that are affected by the alternatives). The general effects of each alternative on resource categories are addressed in Chapter 4.

The proposed treatment area occupies approximately 12,669 acres and located within the Wild Rivers Recreation Area, approximately 1 mile southwest of the community of Cerro, in Taos County, New Mexico. The entire project area lies in Taos County, New Mexico.

The project area has a limited range of vegetation zones and habitat types and is highly varied and includes sagebrush flats and grasslands and the heavily forested Guadalupe Mountains. Elevation on the site ranges from 7,500 ft in the lowlands to 8,722 ft at the Peak of Guadalupe Mountain. Annual precipitation is approximately 15 inches with the majority of accumulation in late summer. Riparian communities are located along the western project boundary and include the Rio Grande and Red rivers with a few scattered aspen stands also occur in higher elevations.

State and private lands can be found throughout the project area. Red River State Fish Hatchery is in operation south of Guadalupe Mountain. Residential structures exist in private land bordering the east and northeast portions of the project area in sections 11, 12, and 13 T29N, R12E.

Road access throughout most of the project area is limited to primitive 2-track roads accessible by high-clearance 2wd vehicles during dry weather driving conditions. These primitive roadways provide at least one access point to all sections of the project area. Thick forest stands in the lower and middle elevations and basalt boulders in the higher elevations make off-road travel difficult to impossible in most areas. Only resources that are actually impacted by the Proposed Action will be addressed in this document.

Issues to be analyzed:

3.1 Air Quality

3.1.1 The project area falls within the Upper Rio Grande Valley Intrastate - Air Quality Control Region (AQCR) 157 and covers approximately 6,136 square miles in the northern section of the state. AQCR 157 is composed of Santa Fe, Taos, and Los Alamos Counties and that portion of Rio Arriba County lying east of the Continental Divide and not included within the Jicarilla Apache Reservation.

The project area does not fall within a non-attainment area for air quality standards. Air quality in this area may be affected by particulate matter, volatile organic compounds, and carbon monoxide as primary pollutants emitted mostly wildland fires and wood burning. Automobile exhaust from the more densely populated areas contributes to air pollution. This is especially evident during the winter when temperature inversions prevent the escape and dispersion of polluted air to higher altitudes. Winter inversions are usually of short duration because of storm fronts and unstable cold air masses moving through the area. Fugitive dust caused by high wind scouring of unvegetated or paved surfaces is also a cause of degraded air quality in the region.

3.2 Climate

3.2.1 The climate in the region is usually pleasant with an average annual temperature of 50° F, an average high of 70.4° F in July and an average low of 29.9° F in January. Daily low and high temperatures usually vary as much as 30° F. The average annual precipitation in the region is 15 inches, with June and July being the wettest months and November being the driest.

3.3 Cultural Resources

3.3.1 In general the area was used in prehistoric times for hunting and gathering activities. Within the treatment area, sites have been recorded along arroyos, near natural lakes, on mountains or hills, and mesa tops. Historic uses of the area are predominantly concerned with livestock grazing and hunting activities.

Prior consultation with cultural resources specialist during initial planning stages will be constituted as an integral component in the proposed implementation of any resource management activity that might pose an adverse affect to known or unknown cultural resources.

3.4 Rangeland Management

3.4.1 There are 4 livestock grazing allotments within the project area with over 775 animal unit months (AUMs) allocated to these allotments. Designated grazing allotments found within the project area include allotments 604, 606, 608, and 640.

3.5 Migratory Birds

3.5.1 The project area is located near a migratory flyway and avian concentration area referred to as the Central Flyway. The majority of the birds that use it make direct north and south journeys from breeding grounds in the North to winter quarters in the South. (Birdnature.com) and adjacent to an Important Bird Area as designated by the National Audubon Society. BLM migratory bird species of conservation concern that have the potential to occur in the project area include golden eagle, peregrine falcon, ferruginous hawk, prairie falcon, Western burrowing owl, black-throated gray warbler, juniper titmouse, mountain bluebird, olive-sided flycatcher, mountain plover, loggerhead shrike, mourning dove, pinyon jay, Brewer’s sparrow, and sage sparrow.

3.6 Soils

3.6.1 A variety of soils types exist within the project boundary with shallow to deep soils on mesas, cones, hills, and alluvial fans. **Table 3-1** lists each soil type and acreage found within the project boundary and properties relevant to the Proposed Action (NRCS 2008). Erosion Hazard for Off Road and trail indicates the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. Erosion Hazard for Road and trail indicates the hazard of soil loss from un-surfaced roads and trails. Mechanical Site Prep indicates the suitability for use of surface-altering soil tillage equipment during site preparation for the part of the soil from the surface to a depth of about one foot.

Dominant soils found within the project area include Raton-Rock outcrop (RRE) occurring in the woodland areas and Fernando-Hernandez associations (FHB) occurring in sagebrush areas. RRE soils have not been rated for most activities identified in the Proposed Action. FHB soils are generally well suited to proposed treatment types with the exception that they have high wind erosion potential, which is a concern in the treatment area. Most soils throughout the project area support vegetation that is used by livestock and serves as wildlife habitat (see Soils map in Appendix 1).

Table 3-1: Soil types found within the project area.

Soil Name	Percent of Area	Map Symbol	Acreage	Erosion Hazard: Off-Road&trail/Rd&trail	Mechanical Site Prep/Discing	Water/Wind Erosion Potential
Rock outcrop-Raton complex	60%	RRE	7,574	Not rated/Same	Not Rated/Same	Not Rated/same
Fernando Hernandez associations	29%	FHB	3,655	Slight/Same	Well suited/Somewhat limited	Low/High
Petaca-Silva	2.8%	PGC	353	Slight/Moderate	Poorly Suited/Somewhat limited	High/Very Low
Orejas-Montecito association	2.5%	OMD	311	Moderate/Severe	Poorly Suited/Very Limited	High/Very Low
Rock outcrop	1.8%	RcG	222	Not rated/Same	Not Rated//Same	Not Rated/same
Hernandez-Petaca association	1.4%	HPC	178	Slight/Moderate	Poorly Suited/Somewhat Limited	High/Low
Montecito-Rock outcrop complex	1.0%	MxE	119	Moderate/Severe	Poorly Suited/Very Limited	High/Low
Fernando cobbly loam	0.9%	FaC	112	Slight/Moderate	Well Suited/Not Limited	Moderate/Very Low

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Petaca-Prieta complex	0.4%	PfC	55	Slight/Moderate	Poorly Suited/Somewhat Limited	High/Low
Silva loam	0.2%	SmB	30	Slight/same	Well Suited/Not Limited	Very Low/Low
Sedillo-Silva association	0.2%	SED	26	Moderate/Severe	Poorly Suited/Very Limited	High/Very Low
Orthents-Rocks outcrop association	0.1%	OTG	14	Very Severe/Severe	Unsuited/Very Limited	Very High/Very Low
Total	-	-	12,649			

3.7 Threatened and Endangered Species Including Special Status Species

3.7.1 Federally listed threatened (T) and endangered (E) species in Taos County include: black-footed ferret (*Mustela nigripes*) (E); Southwestern willow flycatcher (*Empidonax traillii extimus*) (E); and Mexican spotted owl (*Strix occidentalis lucida*) (T). There is no designated critical habitat for any species listed by the U.S. Fish and Wildlife Service (USFWS) within the treatment area.

In Taos County, the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), yellow-billed cuckoo (*Coccyzus americanus*), and Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*) are federal candidate species and BLM Sensitive species. The mountain plover (*Charadrius montanus*) is a federal proposed species.

Additional BLM Sensitive species that could occur within the allotments include several bat species, Gunnison’s prairie dog (*Cynomys gunnisoni*) (montane subspecies), bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), ferruginous hawk (*Buteo regalis*), Western burrowing owl (*Athene cunicularia hyougaea*), and loggerhead shrike (*Lanius ludovicianus*).

Special status species that could likely be found within the project area include Western burrowing owl (*Athene cunicularia hypugea*), and Loggerhead shrike (*Lanius ludovicianus*). During winter months there are two state-listed threatened species that could be in the area, the Bald eagle (*Haliaeetus leucocephalus*) and Baird’s sparrow (*Ammodramus bairdii*). The American peregrine falcon (*Falco peregrinus anatum*), a state-listed threatened species, could use the area as foraging grounds as there are occupied territories adjacent to the project area in the Rio Grande gorge. It is possible that Ferruginous hawk (*Buteo regalis*), a BLM Sensitive species, could be found in the area, however, there have been no accounts of this species in or adjacent to the project area to date. Various bat species, all listed as BLM Sensitive, could be using the project area either as roosting or foraging habitat due to its proximity to the Rio Grande.

It is determined that the proposed action would have no impact on federally listed threatened or endangered species, and no adverse affect on Federal proposed, candidate or BLM Sensitive species.

3.8 Vegetation

3.8.1 A range of vegetative zones and habitat types occur within the project area. Most of the plant communities are undergoing a stage of species expansion in which big sagebrush and high density pinyon-juniper forests continue to dominate the vegetation that influences the ecological processes on the site. In general, the composition of vegetation has been severely impacted by the high cover of big sagebrush and density of pinyon-juniper woodlands.

Vegetation includes riparian plant communities directly along the Rio Grande and Red River consisting of Apache plume (*Fallugia paradoxa*), various grasses, willow (*Salix scouleriana*), cottonwood (*Populus fremontii*) and tamarisk (*Tamarix ramosissima*). The Guadalupe Mountains have dense spacing of

pinyon, juniper, Engelmann spruce (*Picea engelmannii*), and ponderosa pine (*Pinus ponderosa*) with an understory of mountain mahogany (*Cercocarpus montanus*), gambel oak (*Quercus gambelii*), serviceberry (*Amelanchier arborea*), chokecherry (*Prunus virginiana*) and many grass species.

The rangeland areas consist of big sagebrush (*Artemisia tridentata*), Indian ricegrass (*Achnatherum hymenoides*), needleandthread (*Stipa comata*), blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*) and scattered pinyon (*Pinus edulis*) and juniper (*Juniperus spp.*).

3.9 Visual Resources/Recreation

3.9.1 Visual Resources: The Rio Grande Gorge is a striking landform with cliffs, benches and terraces cut by the river. It is characterized by steep, layered basalt walls rising as high as 800' above the river in some locations. Those who descend into the gorge experience a strong sense of enclosure and narrow, steep walls restrict their views. The river canyon is managed for VRM Class I objectives. Wild Rivers remains relatively remote and undisturbed, surrounded by rangelands and woodlands which are managed for VRM Class II where most project treatments would occur. The developed recreation sites are managed for VRM Class III.

- Class I Objective: Aims to preserve the existing character of the landscape. Level of change should be very low and must not attract attention.
- Class II Objective: Aims to retain the existing character of the landscape. The level of change should be low. Management activities may be seen, but should not attract the attention of the casual observer.
- Class III Objective: Aims to partially retain the existing character of the landscape. The level of change should be moderate. Management activities may attract attention but should not dominate the view of the casual observer (USDI 1986).

3.9.2 Recreation: The entire project area lies within Wild Rivers Recreation Area named after the Rio Grande and Red River; both charter rivers with the passage of the Wild and Scenic Rivers Act in 1968. The two most popular recreation activities reported in a BLM Visitor's Survey Site Report in 2003 were sightseeing and hiking, followed by camping, fishing, biking, swimming, interpretation, and hunting.

Wild Rivers received over 17,000 visits in 2010. The project area is viewed by travelers on NM 522 near Questa and NM 378 near Cerro, as well as along the paved 13 mile BLM Backcountry Byway leading through the recreation area. Trails located directly in the project area on the rim and in the woodlands include Rinconada, Pescado, Red River Fault Loop, Guadalupe, and Vistas de Questa. The recreation area also includes five campgrounds, four day use areas (one on NM State Lands), and a visitor center as well as additional trails leading into the canyon to the Rio Grande and Red River.

3.10 Wildlife

3.10.1 Wildlife is abundant and diverse throughout the Guadalupe Mountain Plan area. A wide range of large and small mammals can be found, including the big game species Rocky Mountain elk, mule deer, antelope, Rocky mountain bighorn sheep, black bear, and mountain lion, as well as various bat species, skunk, badger, fox, coyote, bobcat, squirrels, chipmunks, pocket gophers, Gunnison's prairie dogs, various mice and rat species, porcupine, cottontail, and jackrabbit.

Avian species are varied and include over 100 different species throughout the Taos Plateau area, including: turkey vulture, Swainson's hawk, band-tailed pigeon, black-chinned hummingbird, broad-

tailed hummingbird, vesper sparrow and Bullock's oriole. Various reptiles, amphibians, and insects can also be found through the project area.

Management goals and objectives for wildlife in this area, as described in the *Taos Resource Management Plan* (1988), and *San Antonio/Pot Mountain Habitat Management Plan* (1992), include improving shrub and forb components; increasing density and composition of cool season herbaceous species for deer, and elk; and a high ratio of edge between cover and openings.

Within the project area, there are two key wildlife habitat types (USGS, 2011) consisting of Southern Rocky Mountain Pinyon-Juniper Woodland (summer range) comprising 75% in some areas and Inter-Mountain Basins Big Sagebrush Shrubland (winter range) comprising 25%.

These habitat types contain critical winter range, summer range and a migratory corridor for elk and mule deer. Winter range important to these big-game species include sagebrush-steppe, pinyon-juniper woodlands, mountain shrub, and ponderosa pine below 7,500 feet. Winter diets for mule deer are a combination of forbs, browse, and new growth on cool-season grasses. Browse becomes an increasing portion of the diet as snow accumulates or forbs and grasses become depleted. Summer diets are typically comprised of a mixture of succulent forbs, deciduous browses and leaves, and growing grasses.

In northern New Mexico, mule deer become concentrated on winter ranges with densities of 20-100 deer/square mile in suitable habitat (Watkins and Bishop et al. 2007). Improvement of winter range is critical because these areas support higher densities of mule deer and elk on less available forage. Improvements are designed to address a large landscape level ecosystem approach. Treated areas must be sufficiently large enough to produce a "treatment effect within a landscape. Within the landscape the most beneficial treatments are those that are smaller mosaic or patchy patterned treatments than one large treatment in the center of the habitat. Periodic disturbance is often necessary to stimulate plant productivity which can be achieved through controlled grazing, fire, or chemical or mechanical means.

Chapter 4: Environmental Effects

4.1 Direct and Indirect Effects

This chapter describes the anticipated effects on the resource issues if the alternatives are implemented. The general effects of each alternative on resource categories are addressed. Direct effects are caused by an action and occur at the same time and place. Indirect effects are caused by an action and occur later in time or farther removed in distance.

4.1.1 Alternative A: Proposed Action

As described in chapter 2, the Proposed Action is located on several sections of the Wild Rivers Recreation Area. Management actions of the Proposed Action for the Guadalupe Mountain Treatment Plan project include maintaining the long-term health of vegetation in the project area, improving herbaceous growth, understory recovery, and winter and summer range forage by treating big sagebrush and hazardous fuels within the proposed project area.

Issues to be analyzed:

4.1.1.1 Air Quality

Issue: The greatest impacts to air quality would be from prescribed fire and would have an immediate, but short term impact on air quality in the immediate area due to smoke. During burn operations, smoke

would be released into the atmosphere. The timing, size of burn, fuel arrangement, fuel moisture, ignition techniques and patterns, as well as weather conditions would be specified in a BLM approved Prescribed Fire Plan to keep smoke amounts within acceptable limits. Acceptable smoke limits, as defined by the New Mexico Air Quality Bureau would be strictly followed. Each Prescribed Fire Plan would also include BLM established prescribed fire guidelines.

4.1.1.2 Climate

Issue: The assessment of GHG emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process. It is currently not feasible to know with certainty the net impacts from the Proposed Action on climate—that is, while the Proposed Action may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science. The BLM does not have the ability to associate a BLM action’s contribution to climate change with impacts in any particular area.

4.1.1.3 Cultural Resources

Issue: Under the Proposed Action many of the proposed activities could have adverse effects on Cultural Resources. Most obviously, fire can destroy features constructed of wood. Intense, high temperature fires can alter archaeological features such as fire hearths and artifacts. However, these possible impacts to inventoried sites can be reduced or eliminated through protective measures taken during the burning operation, such as foaming or black-lining around existing sites.

As discussed in section 2.1, archaeological inventories would be performed before prescribed fire and non-fire fuels treatment projects. The intensity of archaeological inventory would be determined for each proposed project based on the potential for earth disturbing activities, fuel types, projected site types, etc. Inventory methods would help mitigate potential impacts to cultural resources.

Short-term effects may include an increase in erosion due to the initial loss of vegetation cover. Erosion is a major cause for the loss of archaeological resources. Long-term effects of the proposed project would likely have a positive effect on cultural resources due primarily to forest, grassland and watershed restoration which should reduce long-term erosion.

4.1.1.4 Rangeland Management

Issue: Rangeland restoration treatments to enhance forage, prescribed broadcast burns, and other vegetation restoration projects would result in direct surface and vegetation disturbance. These treatments in the short term would remove vegetation and could potentially impact livestock forage within the project area. Treatments would be implemented and completed when livestock are not in the project area. Each treatment area would be determined on a case-by-case basis in consultation with a BLM rangeland management specialist. Grazing permit holders of allotments within the project area may also be held off for 1 year to allow fuel build up for burns.

Following treatments from mechanical application and/or prescribed burning, the treated areas would be rested for a minimum of 2 years, or until range conditions are deemed suitable for limited livestock grazing as determined by BLM staff, to allow for the successful establishment of key vegetation. This post-treatment rest could be considered a negative impact to livestock operators as alternative grazing must be located for their livestock.

4.1.1.5 Migratory Birds

Issue: If the Proposed Action is implemented during the primary breeding season (April through August) there is the potential to impact reproductive and/or foraging activities, resulting in a negative effect on individual birds, eggs, young, and/or nesting habitat due to trampling, vegetation removal or disturbance from human noise and commotion. This would not have a measurable negative effect at the population or species level due to improved structural and vegetation diversity as a result of the Proposed Action.

If project activities commence during the nesting season (April-August), a bird survey will be required to ensure there are no nesting birds in targeted trees or shrubs. If vegetation must be removed, it would be recommended that this occurs from August 15 through April 15 to avoid impacts to nesting birds. If this cannot be accomplished, a pre-treatment survey for actively nesting birds may be conducted by a qualified wildlife biologist. If active bird nests are found, coordination with the USFWS is required and a permit must be obtained in order to move or disturb any active nest.

Increase in vegetative diversity and control of nonnative invasive vegetation could positively affect local macroinvertebrate populations, resulting in an increase in the avian prey base, indirectly benefiting migratory birds in and adjacent to the project area.

4.1.1.6 Soils

Issue: Direct impacts of the proposed project will include disturbance of soil surface and subsurface as a result of mechanical removal of sagebrush. Administrative vehicle use for thinning and prescribed fire operations will contribute to a direct, short term increase in road erosion, and the initial loss of vegetative cover from thinning and prescribed fire operations will result in a short term increase in soil erosion. Prescribed fire and wildfire would directly affect soil condition by removing vegetative cover and heating or sterilizing soils in some areas. These impacts would result in short term impacts that may increase risk of water and wind erosion prior to revegetation.

Long-term impacts would be beneficial. Thinning activities and prescribed fire in woodland areas would stimulate groundcover vegetation which would act as soil stabilizers; reducing erosion risk (Wilcox et al. 1996). Increase in grass cover vegetation in post treatment years on rangeland portions of the project would result in a reduction of bare ground relative to untreated areas. This would decrease the long-term soil erosion risk.

Based on mitigation outlined in the proposed action and analysis of past treatment areas, it is expected that the possible short term impacts of the proposed action will not have a significant effect on soil condition.

Overall, the removal of encroaching sagebrush, pinyon pine, and juniper would be beneficial to the soils and watershed components of these lands.

4.1.1.7 Threatened and Endangered Species including Special Status Species

Issue: No federally listed species are likely to occur in the project area. Because no federally listed species are found in the project area, the Proposed Action will have no affect on federally listed threatened or endangered wildlife species. There could be a positive result for special status species by implementing a disturbance regime that would provide a more diverse habitat.

4.1.1.8 Vegetation

Issue: Under the Proposed Action, target species in treated areas would be directly affected. The overall effect of treatments would be to achieve the desired successional stage, and to create a more stratified age structure for wildlife habitat improvement.

Plants may vary greatly in their sensitivity to different treatment methods. Effectiveness may vary with different climatic and soil conditions. Soil-applied herbicides are less effective on fine textured soil relative to coarse-textured soil, because herbicide molecules may be adsorbed to clay colloids. Response of non-target plant species to herbicides depends not only on their susceptibility to the herbicide directly, but also on their response to a decrease of target plant species in the community.

Prescribed fire typically does not kill southwestern grass species (Warren et al 1999). This is because fires are usually fast moving and do not burn into the root crown. This allows the grass plants to re-sprout. Mechanical treatments would also impact vegetation. Depending on the type of vegetation being treated, impacts from these types of treatments would be minimal and used to achieve the desired condition.

Grass species recovery is dependent upon post-treatment precipitation, plant vigor prior to burning, relative humidity at time of burning, and post-treatment grazing pressure. Depending upon the amount of post-treatment precipitation, grasses can recover as quickly as the first growing season. Without sufficient post-treatment moisture, recovery could take several years to reach pre-treatment levels and support less desirable species during the interim.

4.1.1.9 Visual Resources/Recreation

Issue (Visual Resources): The following contrasts are anticipated from thinning with the prescription and mitigation referenced in **Table 4-1** no contrasts to the landform, weak contrasts to line, color, and texture of the vegetation. The thinning treatment would meet VRM Class II objectives. Contrasts to line, color, and texture from fire could be weak, moderate, or strong; especially in the short term and in the case of wildfire. No contrasts to landform from fire are anticipated. However, any creation of roads could create contrasts to line, color, and texture unless mitigation is successful. Fire treatments should meet VRM Class II objectives although mitigation may be more challenging.

Contrasts to line, color, and texture of rangeland from clearing and seeding have the potential for moderate contrasts but can be mitigated with methods described in **Table 4-1**. In particular, mitigating a line from clearing will be a challenge. Although color and texture will be completely different after the treatments, they may still appear as a natural disturbance, clearing, or transition zone. Any creation of roads could create contrasts to line, color, and texture unless mitigation is successful. No contrasts to landform are anticipated. With mitigation, it is possible for the range treatments to meet VRM Class II objectives.

Issue (Recreation): Public perception of different forest management practices can vary according to subjective expectations within and across cultures. Overall people seem to value large trees, especially in lower density stands when viewed or hiking within the stand, (Robert and Stenger 2011). Other characteristics valued in a forest are species diversity, large trees of uniform trunk size, and moderate densities. Access and views within the trees seems to be important and makes sense in terms of being able to engage in recreation opportunities. On the other hand, there is a dislike for slash, burned over areas, clear cuts, and over thinning, (Ribe 1989).

According to general preferences of forest management techniques, it is anticipated that the woodlands treatment and mitigation identified in **Table 4-1** would have a positive effect to recreation users and viewers of Wild Rivers Recreation Area. In the future, recreation users may enjoy larger trees, more ponderosa pine in relation to pinyon and juniper, and access and views into the forest as a result of the thinning treatment.

An additional benefit of the identified woodlands and rangeland treatments would be increased opportunities to view wildlife.

Table 4-1: Recreation /Visual Resource Analysis Criteria.

TREATMENT	PRESCRIPTION/MITIGATION
Woodland (5,945 acres) Thinning	<ul style="list-style-type: none"> • Take juniper, pinyon, ponderosa up to 12”dbh, • Provide 8-15’ crown spacing, • Provide 250-400 stems/acre. • Preference order for leave: (ponderosa, pinyon, juniper). • Leave ponderosa and fir snags over 8” dbh • Cut stumps down to 3”
Rangeland (2,930 acres) Clearing/ Plowing/seeding	<ul style="list-style-type: none"> • Mimic natural disturbance • Avoid large clearings • Use irregular clearing shapes • Provide large islands and peninsulas: (ex: two to ten acres or larger) • Scallop and feather edges • Avoid repeated patterns, symmetry, or creation of a focal point • Carefully plan edges relative to angle and duration of observation and features such as paved access road/Backcountry Byway, rim, contour lines
All Treatments (includes fire)	<ul style="list-style-type: none"> • Dispose of slash as soon as possible • Use existing roads • Avoid creation of new roads and immediately rehabilitate • Provide buffers for facilities and rim • Mimic natural disturbance • Avoid work from Memorial Day through Labor Day • Provide project information to the public on site

4.1.1.10 Wildlife

Issue: The proposed action would beneficially affect the following habitats which support local wildlife populations: grasslands, shrublands, pinyon-juniper forests, and ponderosa pine forests. The restoration of these habitats to historic conditions, which are described in Chapter 1 of this environmental assessment, would provide long-term benefits to the native wildlife populations that are dependent upon them.

Prescribed fire, thinning activities, and seeding would accomplish the following habitat management goals: an increased understory production of native grasses and forbs (Brockway et al. 2002), establishment of a higher amount of “edge,” or transition zone between different habitat types, and creation of a mosaic. An increased understory production of native grasses and forbs would also provide increased forage opportunities for deer, elk, pronghorn and small mammals, as well as provide nesting habitat for ground nesting birds, and would support insect populations which many bird species require for food. The cool season component would provide valuable forage for lactating doe.

The creation of more edge in large unbroken blocks of the pinyon-juniper forests would provide more forage and cover opportunities in close proximity to one another. Edge is an important structural component for many species' habitats, and benefits deer, elk, and many other mammal and bird species. Creation of a mosaic in the burn areas would provide habitat for cavity-nesting birds and support insect populations which many bird species would use for food.

Short term effects of the proposed management actions on wildlife populations include disturbance from machinery, administrative motor vehicle use, and prescribed fire. There would also be short-term impacts to individual birds due to disturbance during the implementation phase of the project; there would be long-term benefits from an increase in diversity of vegetation. There could also be a slight reduction in the quantities of seeds and berries produced in the project area due to reduction of pinyon pine and juniper, decreasing the amount of forage available for birds dependent on those resources. There will be a reduction in sagebrush obligate and semi-obligate species habitat within in the project area, including that for sage sparrow, sage thrasher and Brewer's sparrow, while grassland avian species habitat could increase over the long-term.

4.1.2 Alternative B: No Action

Under the No Action alternative there would be no vegetative treatments conducted in the Guadalupe Mountain management area. The No Action alternative would result in the likely succession of pinyon/juniper and sagebrush vegetation types towards plant communities where herbaceous species are generally absent or severely under-represented. The basis in making this assertion is that over time the competition for soil moisture, nutrients and sunlight from the overstory of pinyon/juniper and sagebrush would exceed the herbaceous and shrubby browse plant species' ability to compete for these elements (Bates et al. 1998). From an overall ecological perspective, succession of this sort within these plant communities would also have a negative impact to wildlife.

Issues to be analyzed:

4.1.2.1 Air Quality

Issue: Taking no action would preclude nitrogen dioxide, hydrocarbons, carbon monoxide, and particulate matter from motor vehicles caused by project related travel to and from the site of the target species. Many roads within the Taos Field office are dirt roads that when disturbed by vehicles can cause blowing dust which contributes to air pollution.

4.1.2.2 Climate

Issue: It is currently not feasible to know with certainty the net impacts of the No Action alternative on climate—that is, while BLM actions may contribute to the climate change phenomenon the specific effects of those actions on global climate are speculative given the current state of the science. The assessment of GHG emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process.

4.1.2.3 Cultural Resources

Issue: The No Action alternative would have no short-term effects on noncombustible cultural resources. Combustible cultural resources could be at risk under the no action alternative due to the higher risk for wildfire associated with monocultures of non native invasive plants and vegetation. Long-term effects on cultural resources could include less opportunity for accurate surveys due to infestations.

4.1.2.4 Rangeland Management

Issue: The No Action alternative could likely result in the succession of the pinyon/juniper and sagebrush vegetation types, allowing for undisturbed plant communities where herbaceous species are under-represented. Livestock could be affected by changes in forage due to the encroachment of invasive plants outcompeting herbaceous vegetation.

4.1.2.5 Migratory Birds

Issue: The No Action alternative could benefit some species, specifically sagebrush or woodland obligates that prefer climax vegetation conditions, while negatively impacting grassland species that are precluded from these habitat conditions. Generally, migratory birds would find fewer habitat niches within existing conditions and, therefore, the No Action alternative would have a negative impact on these species.

4.1.2.6 Soils

Issue: Under the No Action alternative, no direct effects would result to the soil. The long term indirect effect of continued big sagebrush expansion would result in the reduced or absent interspatial plant communities. Over the long-term, the increased percent of bare ground from the loss of understory species could result in accelerated soil erosion, loss of site productivity, decreased watershed function, and reduced nutrient and energy cycling (Wilcox et al. 1996).

4.1.2.7 Threatened and Endangered Species including Special Status Species

Issue: A No Action alternative would create long term changes to the food base for some special status species. Invasive vegetation could out-compete native vegetation, creating monocultures of vegetation. Because of this lack of biodiversity, the macro invertebrates and small mammals could be forced to find different native habitat or may decline due to lack of habitat. These species are part of a food web that could directly or indirectly impact special status species.

4.1.2.8 Vegetation

Issue: With the No Action alternative invasive plants such as sagebrush and pinyon-juniper present within the project area would continue to exist and would likely expand their dominance. This would result in the vegetation moving more toward a monoculture instead of a mosaic of natural vegetation and higher biodiversity.

4.1.2.9 Visual Resources/Recreation

Issue: There could be negative effects to recreation users with no thinning of woodlands within Wild Rivers Recreation Area. A high density of trees can have negative effects to access and scenic beauty of the forest. “Visual penetration enhances perceived beauty, particularly in contrast to dense young forests” (Ribe 1989). In addition, potential benefits of providing larger trees, and increased species diversity would not be realized. Opportunities for an increase in wildlife viewing from increased forage could be missed from taking no action for vegetative treatments to rangeland and woodland. There would be no change to the current characteristic landscape from No Action.

4.1.2.10 Wildlife

Issue: The No Action alternative would leave wildlife habitat in the management area in their current conditions, allowing them to degrade over time. Relative to the conditions that the Proposed Action is likely to create, current habitat conditions would exhibit a decreased production of native understory grasses and forbs and would produce larger unbroken blocks of sagebrush.

Under this alternative, the management area would also be more susceptible to large stand replacement pinyon-juniper encroachment, which could remove the native cover and forage that many wildlife species require.

4.2 Cumulative Effects Analysis

A cumulative impact, as defined in 40 CFR 1508.7, is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other action.

When further information on the cumulative impacts to climate change is known, such information would be incorporated into the BLM's planning and NEPA documents as appropriate. It is not, however, possible at this time to predict with any certainty the causal connection of site specific emissions from the Proposed Action or other alternatives in this EA to impacts on the global and regional climate.

There is an assumption, however, that certain related activities in the alternatives (e.g., mechanical, fire treatments) would contribute to short-term emissions of GHGs for the duration of a given project. Examples of some of these short term activities or sources, which may contribute to GHS, include small particulates from chainsaw usage, smoke from prescribed fires, and vehicle emissions.

4.2.1 Cumulative Actions

4.2.1.1 Past, Present and Reasonably Foreseeable Actions

Past Actions that have affected the natural and human resources within the proposed project area include ranching, forest thinning and small farming, large areas plowed and seeded with crested wheatgrass, development of roads and pipelines, and the use of herbicides to treat sagebrush encroachments.

Present actions including the aforementioned Proposed Action, may also include continued farming, ranching, recreational activities, hunting, fuelwood gathering, and road maintenance.

Overall, the cumulative impacts, and more specifically management actions mentioned in the Proposed Action of this project would be positive; this project would reduce overall density levels, reduce fuel loadings and lead to more diverse rangeland and woodland ecosystem use that is healthy and sustainable.

Table 4-1. Historic and foreseeable vegetation treatments in acres within the Guadalupe project area.

Treatment	Historic (2000 through 2010) Bureau of Land Management	Future (2010 through 2020) Bureau of Land Management	Total Acres
Thinning	0	625	625
Prescribed Fire	0	1,707	1,707
Mechanical	1,029	4,190	5,219
Seeding	1,029	4,190	5,219
Total Acres	2,058	10,712	12,770

In addition to the 12,669 acres proposed forest and rangeland restoration treatment actions, reasonably foreseeable actions may include additional BLM prescribed burns, other mechanical treatments, as well as other restorative initiatives within the project area (see table 4-1).

Any additional actions would require further NEPA analysis prior to project implementation.

4.2.2 Cumulative Effects

Issues to be analyzed:

4.2.2.1 Air Quality

Treatments with prescribed fire would have an immediate, but short term impact on air quality in the immediate area due to smoke. Thinning treatments would have an immediate short-term impact on air quality due to chainsaw particulates and exhaust. Other impacts to air quality might come from nearby pollutants such as oil and gas developments, road maintenance and regular traffic.

4.2.2.2 Climate

The incremental contributions to global GHG gases as a result of the proposed alternatives cannot be translated into effects on climate change globally or in the area of this site-specific action. It is currently not feasible to know with certainty the net impacts from the proposed action on global or regional climate—that is, while BLM actions may contribute to the climate change phenomenon, the specific cumulative effects of those actions on global climate are speculative given the current state of the science.

4.2.2.3 Cultural Resources

BLM staff archaeologists have been integrated into the assessment process to promote proactive, long-term management of cultural resources. Proposed activity areas, which have not been intensively inventoried, and at-risk resources would be delineated for minimizing activity impacts with their perimeters. No cumulative impacts to cultural resources within the Project area would occur under either alternative.

4.2.2.4 Rangeland Management

Cumulative impacts from rangeland restoration treatments to enhance livestock forage, prescribed broadcast burns, and other vegetation restoration projects would result in surface and vegetation disturbance. These treatments in the short term would disturb and remove vegetation and could potentially impact livestock grazing forage within the project area. In the long term, these management

actions would assist with maintaining and improving the overall vegetation conditions for a variety of resource objectives including increases of forage of native grasses for livestock grazing.

4.2.2.5 Migratory Birds

While there would be short-term impacts to individual birds due to disturbance during the implementation phase of the project, there would be long-term benefits from an increase in diversity of vegetation. Cumulative actions could also result in a slight reduction in the quantities of seeds and berries produced in the project area due to reduction of pinyon pine and juniper, decreasing the amount of forage available for birds dependent on those resources, as well as reduce sagebrush obligate and semi-obligate species habitat.

4.2.2.6 Soils

Cumulative impacts from the actual implementation of operations would be minimal. Some physical soil disturbance would occur from vehicle use, but would only affect small localized areas and natural recovery would occur within two to five years of the disturbance.

Global climate change scenarios indicating changes in vegetation communities and soil moisture regimes for the region including the project area will impact soil cover and erosion risk. The proposed project will offset these impacts by restoring and maintaining vegetation communities that improve soil condition.

4.2.2.7 Threatened and Endangered Species including Special Status Species

Cumulative impacts to special status species include actions from woodland and rangeland treatments to enhance wildlife habitat. These treatments in the short term would disturb and remove vegetation. In the long term, these management actions would assist with improving biodiversity that could benefit special status species.

4.2.2.8 Vegetation

Forest and woodland treatments, rangeland treatments to enhance livestock and wildlife forage, prescribed fire, and other vegetation restoration projects would result in surface and vegetation disturbance. These treatments would, in the short term, disturb and remove vegetation. In the long term, these management actions would assist with maintaining and improving the overall vegetation conditions meeting a variety of resource objectives, including increasing vegetation diversity and abundance, increasing vegetation structural diversity, improving resiliency to wildfire impacts, increasing water infiltration, and decreasing erosion, among others.

4.2.2.9 Visual Resources/Recreation

Effects to visual resources from past, present, and future vegetative treatments could result in the appearance of a managed landscape compared to a relatively natural one. The VRM Objective, which is Class II, in the treatment area is to avoid actions that attract the attention of the casual observer. Scenic impacts are most likely to affect visitors traveling along the 13 mile Backcountry Byway and hikers, bikers, and equestrians using the Guadalupe and Vistas de Questa Trails. In general treatments are not expected to change the recreation setting. However, large scale fires or other vegetative clearings could adversely affect recreation and visual resources.

4.2.2.10 Wildlife

Cumulative impacts of the proposed management actions on wildlife populations include disturbance from machinery, administrative motor vehicle use, and prescribed fire. There would also be short-term impacts to individual species due to disturbance during the implementation phase of the project; however, there would be long-term benefits from an increase in diversity of vegetation composition and structure.

In general, the cumulative impacts of this forest restoration project on wildlife would be positive; this project would reduce fuel loadings and decrease threats of catastrophic wildfires that bring temporary loss of wildlife habitat until, or if, recovery is accomplished. The Proposed Action in combination with other federal actions would lead to more diverse woodland ecosystems that are healthy and sustainable.

Chapter 5: Consultation and Coordination

The following people or agencies have been consulted for their comments in regards to the proposed action. The comments and suggestions expressed during the consultation have been incorporated into this Environmental Assessment.

5.1 List of Consultation Participants

Federal and State Agencies

USDA FS – Carson National Forest, Questa Ranger District
USDA NRCS – Northern Rio Grande Resource Conservation and Development
US FWS – U.S. Fish and Wildlife Service Southwest Region
NMDGF – New Mexico Department of Game and Fish
NMSLO – New Mexico State Land Office

See Appendix 2 for the complete list of contacts.

Organizations

See Appendix 2 for the complete list of organizations that were consulted.

Grazing Allotment Operators

Grazing allotment operators for allotments 606, 608, and 640 were notified of this proposal.

5.2 Summary of Public Participation

5.3 List of Preparers

Greg Gustina, Fisheries Hydrologist
Pam Herrera-Olivas, Wildlife Biologist
Merrill Dicks, Archaeologist
Jacob Young, Rangeland Management Specialist
Tami Torres, Outdoor Recreation Planner
Patricio Martinez, Geographic Information Specialist
Kyle Sahl, Fire Management Specialist
Peter Hoagland, Biological Technician
Brad Higdon, Planning and Environmental Coordinator
Raul Hurtado, Lead Biological Technician

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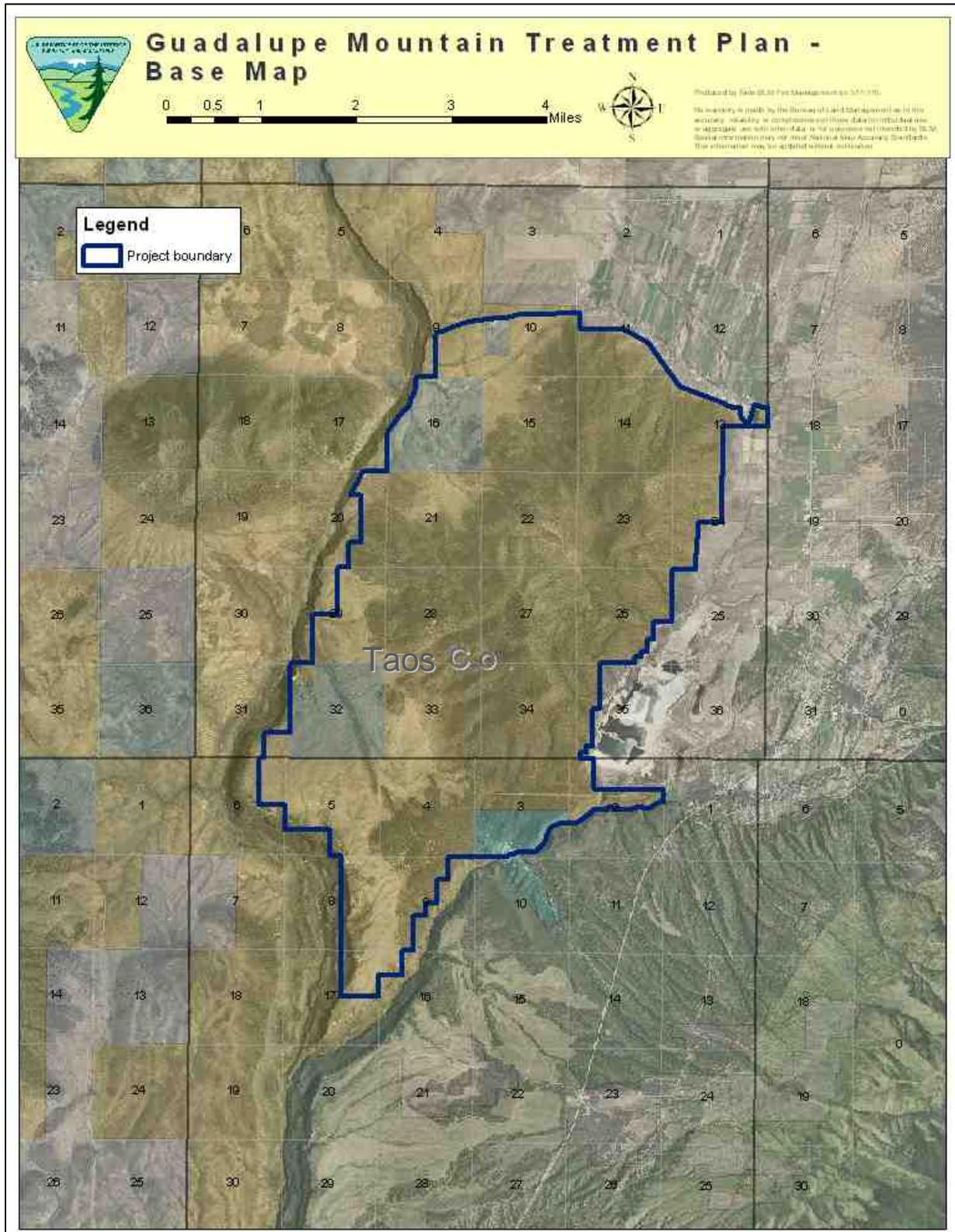
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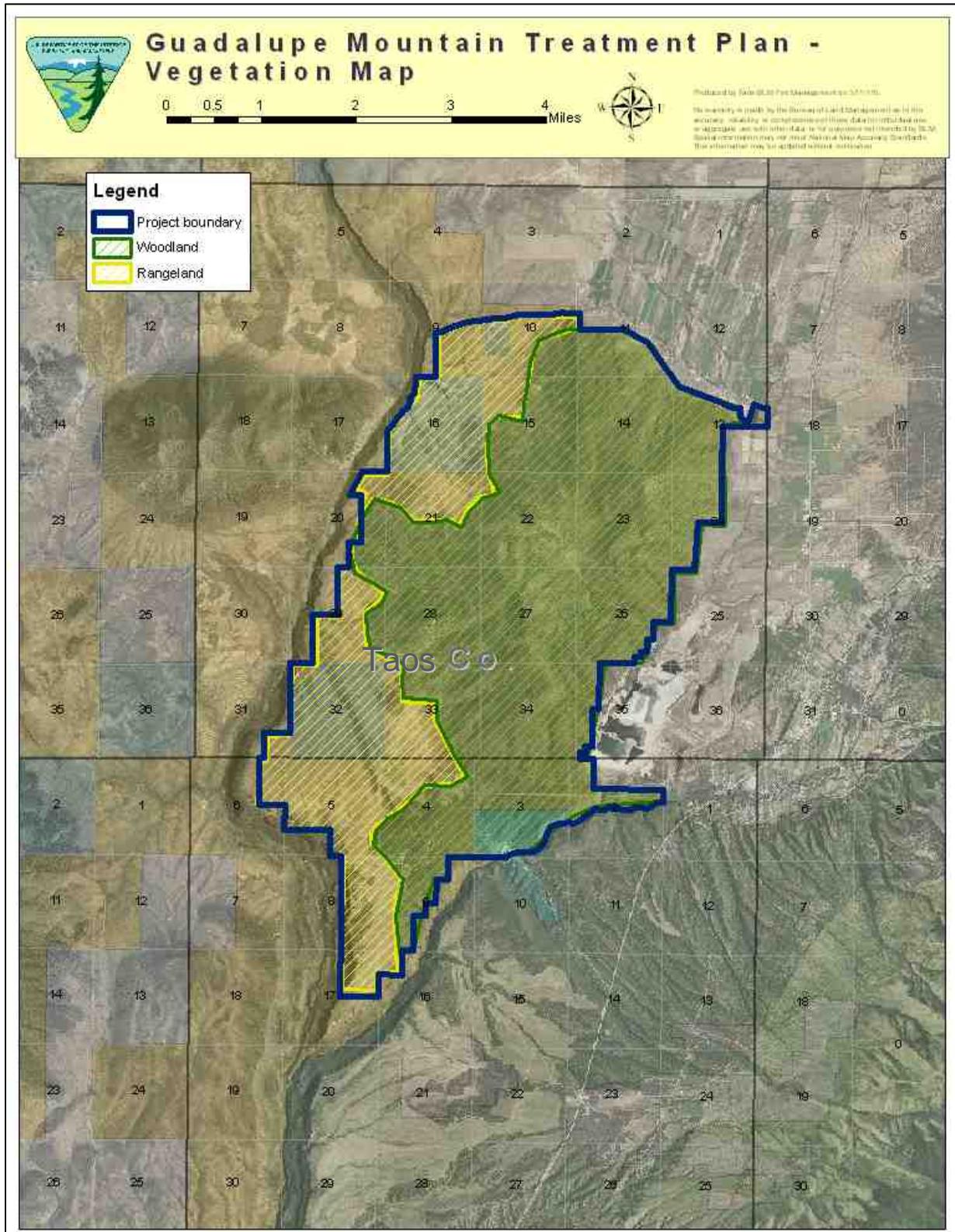
Appendix 1

Project Maps

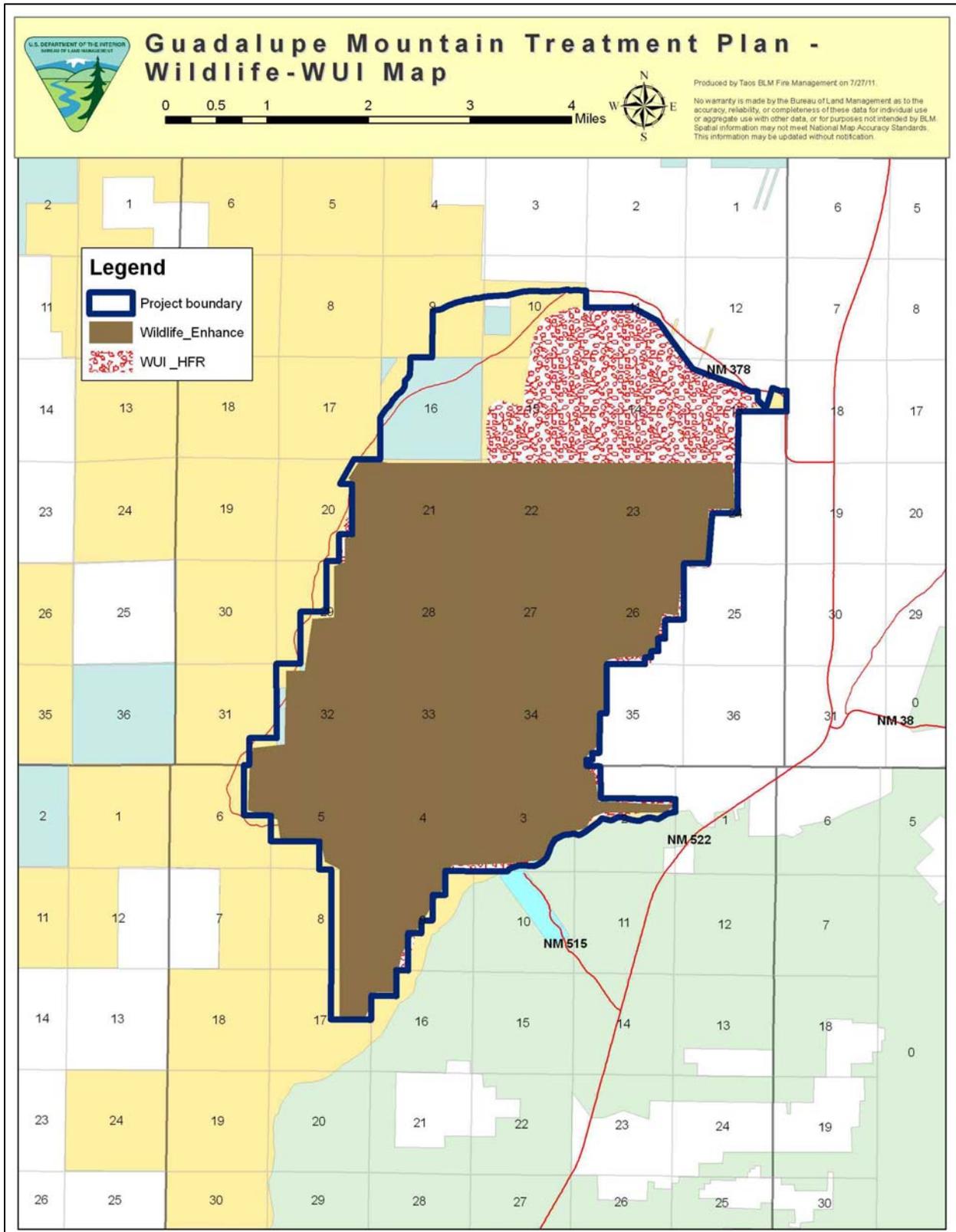
MAP 1 – Project Boundary



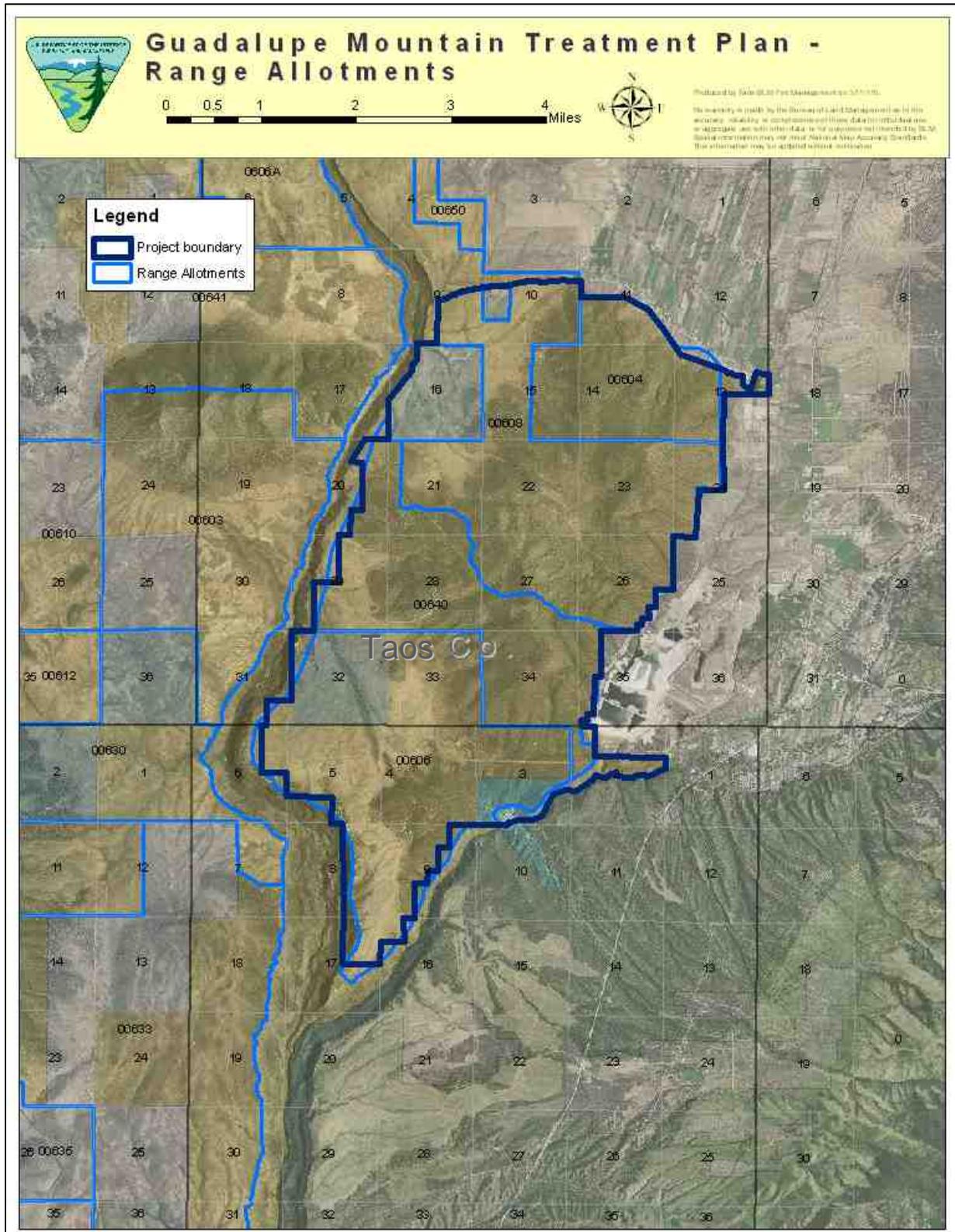
MAP 2 – Treatment Areas (woodland/rangeland composition)



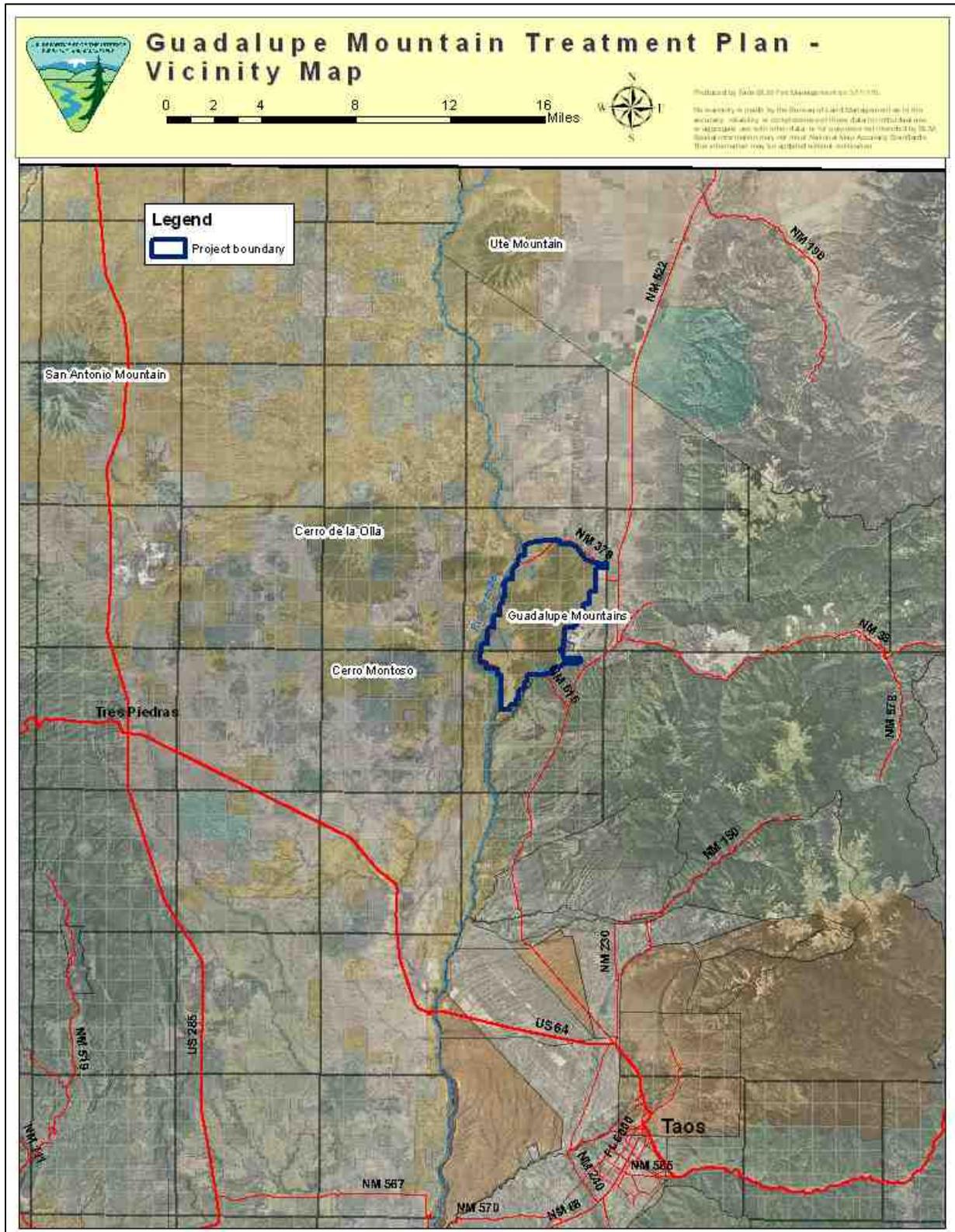
MAP 2a – Wildlife - WUI Project Areas



MAP 3 – Range Allotments



MAP 5 – Vicinity Map



Appendix 2

List of Organizations Consulted

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The following entities were contacted as part of project scoping and solicited for input.

Amigos Bravos - P.O. Box 238, Taos, NM 87571

Center for Biological Diversity - P.O. Box 53166, Pinos Altos, NM 88053

Hawks Aloft Inc. - P.O. Box 10028, Albuquerque, NM 87184

Taos Native Plant Society - P.O. Box 568, Arroyo Seco, NM 87514

NM Wilderness Alliance - P.O. Box 25464 Albuquerque, NM 87125

New Mexico Department of Game and Fish - P.O. Box 25112, Santa Fe, NM 87504

Rocky Mountain Bird Observatory - 230 Cherry Street Suite 150, Fort Collins, CO 80521

Taos Land Trust - P.O. Box 376, Taos, NM 87571

Taos Soil and Water Conservation District - P.O. Box 2787, Ranchos de Taos, NM 87557

The Nature Conservancy - 212 E. Marcy Street, Santa Fe, NM 87501

US Fish and Wildlife Service, Southwest Region - P.O. Box 1306, Albuquerque, NM 87103

USDA – Northern Rio Grande RC&D - 424 S. Riverside Drive, Espanola, NM 87532

Carson National Forest, Questa Ranger District – P.O. Box 110 Questa, NM 87556

Wild Earth Guardians - 312 Montezuma Avenue, Santa Fe, NM 87501

Taos Noxious Weed Committee - P.O. Box 1961, El Prado, NM 87529

Carson Forest Watch - Box 15 Llano, NM 87543

NM Cattle Growers Association - P.O. Box 7517, Albuquerque, NM 87194

NM State Land Office - P.O. Box 1148, Santa Fe, NM 87504

Natural Heritage New Mexico - UNM Biology Department MSC03 2020 1UNM Albuquerque, NM 87131

Southern Ute Tribe - P.O. Box 737, Ignacio, CO 81137

Ute Mountain Ute Tribe - General Delivery, Towaoc, CO 81334

Appendix 3

Project Area Photos

Guadalupe Photo No. 1 – North



Guadalupe Photo No. 2 – South



Guadalupe Photo No. 3 – East Southeast



Guadalupe Photo No. 4 – South Southwest



Guadalupe Photo No. 5 – South Southwest



Guadalupe Photo No. 6 – East Northeast



