Wildlife, Fish, and Rare Plant Report

HALE LAKE and EAST HALE LAKE GRAZING ALLOTMENT PROJECT

Smokey Bear Ranger District
Lincoln National Forest
Lincoln County, New Mexico

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INTRODUCTION

The purpose of this “Wildlife Report" is to disclose the existing conditions, proposed actions, effects and opportunities for species of concern within the Hale Lake and East Hale Lake allotments in sufficient detail to achieve a base from which all project alternatives can be analyzed and selected.

In general, the effects of past actions are reflected in the current conditions described for each species, habitat, or species group. Effects of the alternatives will also be described, based on the base lines established.

This project is located within the Smokey Bear Ranger District of the Lincoln National Forest. The land within the assessment area was designated as Management Area 1J in the Lincoln National Forest Land and Resource Management Plan, or “Forest Plan” (USDA-FS 1986). Management direction from the Plan calls for management of all resources at moderately low levels with emphasis on preserving soil productivity. Rangelands within the allotments are to be managed towards or maintain levels C and D, which is to provide for deferment of pastures and improvement in livestock distribution.

The Hale Lake Allotment consists of approximately 15,539 acres ranging in elevation between 6,750 feet up to 8,070 feet.

No grazing has occurred under the current Hale Lake term grazing permit since it was issued in 2003. The new term grazing permit for the Hale Lake grazing allotment would allow cattle grazing measured in animal-unit-months (AUMs), which are used as a measure of the amount of forage used by one cow for one month. The new term grazing permit would be issued up to 10 years and authorize up to 3,288 AUMs on a year-long basis, which was the maximum authorized prior to 2003. Management of the allotment would focus on maintaining and/or improving rangeland vegetation, native plant and wildlife habitat, and long-term soil productivity, while improvements and practices that assist with livestock distribution would ensure that forage use remains at acceptable levels.

The East Hale Lake Allotment consists of approximately 2,151 acres ranging in elevation between 6,200 feet up to 6,850 feet.

The expired year-round permit for the East Hale Lake allotment provided for the use of 360 animal-unit-months, or AUMs, of forage each year on a continuous year-long basis. At this time, the allotment is grazed by two permittees under their current permits. A new Term Grazing Permit will be issued for up to ten years and additional permits may be issued as long as desirable resource conditions continue to be maintained or are moving toward desired future conditions.

A complete inventory of all range improvements within the Hale Lake allotment was conducted in the spring of 2005 and revealed that most of the range improvements (fence, water troughs, pipelines, windmills, cattle-guards, gates, etc.) are in nonfunctional condition. Upon completion of proper maintenance and repair of improvements, and as pastures become functional, they will be incorporated back into the management system and the cattle number adjusted.
Field inspections indicate that utilization levels have been maintained at 40% use guidelines for key forage species. The recent nonuse combined with use prior to 2003 within the Hale Lake Allotment has resulted in a general improvement in percent ground cover and species composition. Good and improving range conditions presently exist within the Hale Lake and East Hale Lake allotments.

Dominant overstory vegetation within both the Hale Lake and East Hale Lake allotments vary primarily with elevation and aspect, and include ponderosa pine (*Pinus ponderosa*), Colorado piñon (*Pinus edulis*), alligator juniper (*Juniperus deppeana*), oneseed juniper (*J. monosperma*), wavy-leaf oak (*Quercus undulata*) and Gambel oak (*Q. gambelii*). In general, dominant warm season herbaceous species used by livestock are blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), sideoats grama (*B. curtipendula*) and wolftail (*Lycurus phleoides*), while cool season species include mountain muhly (*Muhlenbergia montana*), June grass (*Koeleria macrantha*), and pine dropseed (*Blepharoneuron tricholepis*). Key forage species monitored on this allotment are blue grama, sideoats grama, and wolftail.

**PAST, PRESENT, AND FUTURE ACTIVITIES**

Past, present, and reasonably-foreseeable future activities that were considered for cumulative effects analysis are presented in Tables 1 and 2.

**DESCRIPTION OF ALTERNATIVES**

**Alternative 1 - No Grazing (No Action)**
If Alternative 1 is selected, livestock grazing on the Hale Lake allotment would cease at the end of the current permit term. Under this scenario, no proposed construction, maintenance, or other management activities would occur in the project area unless authorized under separate NEPA review and/or documentation. Previously authorized activities may continue to occur in the project area, such as controlling spread of invasive plants; firewood cutting; recreational use including hunting, dispersed camping, and horseback riding; and implementing the Travel Management (motorized use) Plan.

**Alternative 2 – Grazing with Adaptive Management (Proposed Action)**
The Proposed Action consists of six components: authorization; installation of new improvements; maintenance of existing improvements; adaptive management; monitoring; and resource protection. Grazing will continue to be managed with an adaptive management approach and with improvements and practices that assist with livestock distribution.

Capacity on the allotments would be adjusted according to where improvements are functioning properly. No capacity would be allocated for the pastures that have unsatisfactory improvements associated with them. Upon completion of proper maintenance and repair of improvements, capacity will be adjusted accordingly. As pastures become functional, they would be incorporated back into the management system and cattle number adjusted. Livestock within the Hale Lake allotment would be restricted to only the West Hale Lake pasture until other improvements are repaired to standard.
Table 1. Past, present, and reasonably foreseeable activities within the Hale Lake allotment.

<table>
<thead>
<tr>
<th>Treatment type</th>
<th>Activity</th>
<th>Acres</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuelwood</td>
<td>Combined collection areas</td>
<td>1,565</td>
<td>Past</td>
</tr>
<tr>
<td>Prescribed burns (total 5,575 acres)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cook</td>
<td>447</td>
<td>2008</td>
</tr>
<tr>
<td></td>
<td>Deadhorse</td>
<td>296</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Hale Lake</td>
<td>96</td>
<td>2009</td>
</tr>
<tr>
<td></td>
<td>Hale Lake #2</td>
<td>562</td>
<td>1997 / 2001</td>
</tr>
<tr>
<td></td>
<td>Lucas</td>
<td>643</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Lucas Additional</td>
<td>21</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Maverick</td>
<td>15</td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>Minter</td>
<td>108</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Pepper</td>
<td>142</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Pine Spring</td>
<td>1768</td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>Pothole</td>
<td>627</td>
<td>2009</td>
</tr>
<tr>
<td></td>
<td>Skillet</td>
<td>618</td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>Skillet Ridge</td>
<td>229</td>
<td>2007</td>
</tr>
<tr>
<td>Thinning, pushes, and habitat improvements (total 3,629 acres)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bird</td>
<td>355</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Cook</td>
<td>577</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Deadhorse Push</td>
<td>296</td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>Fox</td>
<td>347</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Grape</td>
<td>32</td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>Hale Lake #2</td>
<td>96</td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>Lucas</td>
<td>264</td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>Old Road</td>
<td>312</td>
<td>2009</td>
</tr>
<tr>
<td></td>
<td>Pine</td>
<td>224</td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>Pothole</td>
<td>627</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Poult</td>
<td>87</td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>Skillet Ridge</td>
<td>411</td>
<td>2006</td>
</tr>
<tr>
<td>Habitat Stamp Projects (HSP)</td>
<td>Rusty Barrel phase 1</td>
<td>N/A</td>
<td>2011</td>
</tr>
<tr>
<td></td>
<td>Deadhorse Trick Tank</td>
<td>N/A</td>
<td>2008</td>
</tr>
<tr>
<td></td>
<td>Downs Trick Tank</td>
<td>N/A</td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>Waterhole Trick Tank</td>
<td>N/A</td>
<td>2002</td>
</tr>
<tr>
<td></td>
<td>Doherty Trick Tank</td>
<td>N/A</td>
<td>1996</td>
</tr>
</tbody>
</table>

Table 2. Past, present, and reasonably foreseeable activities within the East Hale Lake allotment.

<table>
<thead>
<tr>
<th>Treatment type</th>
<th>Acres</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribed burns</td>
<td>2,150</td>
<td>Past</td>
</tr>
<tr>
<td>Thinning and pushes</td>
<td>176</td>
<td>Future</td>
</tr>
</tbody>
</table>
Grazing permits are issued with the provision that all existing range improvements, as identified in the Term Grazing Permit, will be maintained to functional standard, orderliness, and safety acceptable to the Forest Service. New water developments will improve the water storage capacity of the current system.

The proposed action consists of six components:

- Reauthorize livestock grazing for up to 10 years;
- Install new range improvements including water distribution systems, a corral with trap, and fencing;
- Maintain existing improvements including water distribution systems and fencing;
- Use adaptive management strategies to maintain and/or improve rangeland vegetation use, plant and wildlife habitat, and long-term soil productivity;
- Monitor impacts to resources to ensure Forest Plan objectives are being met; and
- Follow project design features that would ensure protection of valued resources.

**Permit Authorization**

The Smokey Bear District Ranger, Lincoln National Forest, proposes to continue to authorize livestock grazing on the East Hale Lake allotment by issuing a new term grazing permit allowing light to moderate grazing intensity (Holechek & Galt 2000) with up to 3,288 AUMs on a year-round basis. The permit would be issued for up to 10 years. After 5 to 7 years, Lincoln National Forest resource specialists will reevaluate capacity as a result of past and proposed range improvement project work. Additional permits may be issued as long as desirable resource conditions continue to be maintained or are moving toward desired future conditions.

The proposed livestock grazing intensity and forage use is a continuation of current practices and is based on ground cover and botanical composition of studies completed in 2009, actual use data on the allotment from the past 16 years (Douds 2013a and 2013b), and the effects of this use on resource conditions. It also reflects the annual forage production available for cattle on the allotment considering climate, forage use by wildlife, and the duration, timing, and intensity of proposed livestock grazing.

**New Improvements**

The proposed action includes the following new structural improvements (also see Tables 3 and 4). See the Range Specialist Report (Douds 2013a and 2013b) for locations of new improvements for both allotments.

- Construct and maintain access to new polypropylene pipeline on both allotments;
- Install and maintain access to new water storage tanks. Within the Hale Lake allotment a new storage tank with 12,000-gallon storage capacity and a drinker will be installed adjacent to the Rusty Barrels well. Also install drinkers and plumb overflow on In additional, two tanks located approximately 1 mile north and 1 mile east of the Rusty Barrels well will be plumbed with two drinkers installed. A valve-type control system will be installed at the primary storage tank to control water being pumped to the other two tanks;
- On the Hale Lake allotment approximately 1.75 miles of fence and a livestock trap leading to a
A corral covering approximately 0.5 acre will be constructed; 
- Install and maintain access to livestock water troughs on both allotments; and 
- Remove nonfunctioning pipeline on both allotments;

Table 3. Hale Lake Allotment new range improvements

<table>
<thead>
<tr>
<th>Range improvements</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipeline</td>
<td>5.5 miles</td>
</tr>
<tr>
<td>Fence</td>
<td>1.75 miles</td>
</tr>
<tr>
<td>Water troughs</td>
<td>2</td>
</tr>
<tr>
<td>Storage tanks</td>
<td>4</td>
</tr>
<tr>
<td>Corral</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4. East Hale Lake Allotment new range improvements

<table>
<thead>
<tr>
<th>Range improvements</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipeline</td>
<td>0.6 miles</td>
</tr>
<tr>
<td>Fence</td>
<td>0.9 miles</td>
</tr>
<tr>
<td>Storage tanks</td>
<td>2</td>
</tr>
<tr>
<td>Stock tanks</td>
<td>1</td>
</tr>
<tr>
<td>Troughs</td>
<td>2</td>
</tr>
</tbody>
</table>

Existing Improvements

The new term grazing permit would include a list of all improvements which the permittee(s) would be required to maintain at a level that effectively meets their intended uses and purposes. Range improvements will be inspected periodically during the term of the permit to document their conditions. Any range improvements needing maintenance would be identified in the AOIs.

The proposed action includes the maintenance of the following existing improvements. See the Range Specialist Report (Douds 2013) for locations of existing improvements for each allotment.

- Reconstruct existing pipelines and troughs on the allotments.
- Maintain closed roads or trails as needed to access range improvements in need of maintenance. Other motorized use is not authorized.
- Maintain to standard existing fence lines.

Adaptive Management

Management of the allotment would focus on maintaining and/or improving rangeland vegetation, native plant and wildlife habitat, and long-term soil productivity, while improvements and practices that assist with livestock distribution would ensure that forage use remains at acceptable levels. Grazing would continue to be managed using adaptive management principles.
Adaptive management is designed to provide sufficient flexibility so that management can be adjusted in recognition of changing circumstances such as drought, wildland fire, or seasonal fluctuations in forage production. If monitoring indicates that progress toward desired conditions is not being achieved on an allotment, management will be modified in cooperation with the permittee(s). Changes may include but are not limited to administrative decisions, such as altering the number of livestock authorized annually; specific dates of grazing; class of animal (cow/calf pairs vs. yearlings, steers or heifers, etc.); or livestock herd movement, but such changes will not exceed the limits for timing, intensity, or duration defined in this proposed action. Timing is the time of year the livestock are present in a pasture. Intensity is the degree to which herbage is removed through grazing and trampling of livestock. Duration is the length of time livestock are present in a given pasture.

When adjustments are needed, they are implemented through the AOI. Livestock numbers, range management, and range improvements would be managed so annual indicators of progress such as forage use, health, and diversity are consistent with achieving the desired conditions. This adaptive strategy allows native and forage plant species; soils; wildlife and their habitats; and watershed conditions to be maintained or improved.

Under the adaptive management approach, annual rangeland monitoring may indicate the need for administrative changes in livestock management within the scope of the proposed action. The need for these changes would be based on the magnitude of or repeated reoccurrence of deviations from guidelines provided by the Forest Plan, or due to a lack of progress in achieving the desired resource conditions based on initial management strategies. AOIs and AMPs would be modified as appropriate to adjust management within the parameters of this proposed action in order to meet the purpose and need of the project. These changes may include but are not limited to adjustments in the number of head stocked on an allotment in a particular year or season; periods of rest; or deferment or nonuse of portions on all or part of an allotment for a period of time, as conditions warrant. The timing of such management changes would reflect the urgency of the need for adaptation. This approach to management would more proactively respond to the need for management changes and address climatic conditions and other dynamic influences on the system in order to make progress toward, reach, and/or maintain desired resource conditions.

Future proposals that would authorize the use of additional management tools, such as prescribed fire or mechanical treatments to control juniper encroachment, would be subject to separate analysis under the National Environmental Policy Act. Adaptation of livestock management may be applied to accommodate use of these tools.

Monitoring Requirements

Resource monitoring would be included in the proposed action. Monitoring results would be documented and reviewed to determine whether adjustments in design features should be made. The type and frequency for this monitoring would include:

**Effectiveness Monitoring:** Scheduled and unscheduled monitoring for the effectiveness of management activities in maintaining or achieving the desired conditions would occur. Range conditions and trends,
including soil and watershed condition indicators, would be monitored at established sites using accepted range science protocols.

**Invasive Plants Monitoring:** Conduct periodic visual surveys for the presence of nonnative, invasive plant species across the allotment. Where new or expanded populations are discovered, update the invasive plants inventory and apply appropriate eradication or control measures as authorized by the Lincoln National Forest noxious weed program. Much of this monitoring would be achieved through informal inspections by permittee(s) as a routine part of project implementation.

**Compliance Monitoring:** This type of monitoring would involve scheduled and unscheduled inspections of the project area to ensure that all livestock and grazing management measures stipulated in permits, AMPs and AOIs are being implemented (e.g. cattle numbers, on/off dates, rotation schedules, maintenance of improvements, mitigation measures).

Project activities and impacts would be periodically monitored during project implementation to ensure that project design features are fully implemented to reduce potential adverse impacts on valued resources. For activities conducted outside a contract or permit, additional field inspections by a qualified specialist would be needed.

**Annual Rangeland Monitoring:** Annual indicators of rangeland conditions such as forage utilization, stubble height, and species composition will be monitored on each allotment at key areas; other areas may be monitored as necessary and feasible. In addition, other parameters, such as soil moisture and pellet groups, may be monitored as appropriate. Methods may include agency-accepted range science protocols. Annual rangeland monitoring would determine:

- If individual plants have a sufficient opportunity to recover, grow, and reproduce following grazing impacts;
- If sufficient residual forage remains at the end of the growing season to provide for other resource values and requirements, such as soil stability, wildlife habitat, and dormant season use across an allotment;
- If additional maintenance or improvement of rangeland conditions are indicated; and
- If management adjustments are warranted for the following season to provide for the physiological needs of the primary forage species.

Holechek and Galt (2000, 2004) provide residual forage guidelines as indicators of grazing intensity for common forage species and growth forms. These guidelines are used as a tool to assist in maintaining or improving range conditions. Under this proposed action, grazing intensity, as measured at the end of the growing season, will be managed for light to moderate levels in piñon-juniper and grassland habitats.

Meeting or improving upon guidelines established for annual indicators is not in and of itself a management objective, as point-in-time measurements do not provide conclusive information about resource condition and trend. When and where residual forage conditions on an allotment are obviously better than that called for under these guidelines, actual measurements may or may not be recorded every year for all key areas; however, at a minimum, observed general forage conditions at the end of
each growing season will be documented by rangeland managers for the allotment. The level of forage use may be revised as conditions warrant and as monitoring indicates the status of progress toward desired future conditions.

The key warm season forage species to be monitored on this allotment will be blue grama, western wheatgrass, sideoats grama, and wolftail. Cool season species will include mountain muhly, June grass, and pine dropseed. As an annual indicator, residual forage conditions will be determined by ocular estimates (where conditions are obvious), or by measuring forage stubble height (residual leaf length of key forage species) using accepted range science protocols.

**SPECIES SELECTION AND IDENTIFICATION**

A list of species to be addressed for this project was developed after a complete review of all pertinent literature, District survey records, informal consultations, and threatened, endangered, and forest sensitive species lists. The project area was then mapped and reviewed for possible conflict with any of the above listed species to determine presence or absence from the proposed project area. This analysis area has been surveyed for these species and habitat at various times from 1992 to the present by Lincoln National Forest personnel as well as other species and habitat experts. The survey records are retained in the Smokey Bear Ranger District and Lincoln National Forest Supervisor’s offices.

Tables 5, 6, and 7 summarize species that are known to occur or may have suitable habitat within these project areas. See Appendix A for species that were reviewed but not analyzed in detail in this report.

**Table 5. USDA Forest Service Region 3 Forest Sensitive species that may use the project area but the nature of the proposed action, the species' life histories, or their habitat requirements preclude measurable or detectable effects to individuals, habitats, or populations.**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pale Townsend’s big-eared bat</td>
<td>Corynorhinus townsendii pallescens</td>
<td>SC</td>
<td>Occasional foraging</td>
</tr>
<tr>
<td>Spotted bat</td>
<td>Euderma maculatum</td>
<td>S</td>
<td>Cave habitat will not be altered</td>
</tr>
<tr>
<td>Zone-tailed hawk</td>
<td>Buteo albonotatus</td>
<td>S</td>
<td>Residual herbaceous cover for prey species will be met. No range improvements are proposed that would have the potential to affect this species.</td>
</tr>
</tbody>
</table>

Status key:  
S = sensitive  
SC = species of concern
Table 6. USDA Forest Service Region 3 Management Indicator Species with corresponding ecosystem and habitat requirements.

<table>
<thead>
<tr>
<th>Species</th>
<th>Ecosystem Represented</th>
<th>Key Habitat Factor</th>
<th>Selection Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Goshawk</td>
<td>Ponderosa pine &amp; Mixed-</td>
<td>Forest habitat generalist</td>
<td>Will be addressed</td>
</tr>
<tr>
<td></td>
<td>species</td>
<td>Mature Ponderosa pine</td>
<td></td>
</tr>
<tr>
<td>Gray vireo</td>
<td>Piñon-Juniper Woodlands</td>
<td>Open to dense woodland/shrub component</td>
<td>Will be addressed</td>
</tr>
<tr>
<td>Rufous-crowned sparrow</td>
<td>Desert shrub</td>
<td>Brushy mountain slopes</td>
<td>Will be addressed</td>
</tr>
<tr>
<td>Western meadowlark</td>
<td>Gramma galleta</td>
<td>Open weedy grasslands</td>
<td>Will be addressed</td>
</tr>
<tr>
<td>Juniper titmouse</td>
<td>Woodland</td>
<td>Trees with naturally occurring cavities</td>
<td>Even though habitat exists within the allotments. Grazing activities will not affect Key Habitat Factor of large trees with cavities. Therefore, no further analysis will be conducted.</td>
</tr>
<tr>
<td>Pygmy nuthatch</td>
<td>Ponderosa pine</td>
<td>Snags and large trees</td>
<td>Grazing activities do not affect key habitat factors.</td>
</tr>
<tr>
<td>Red squirrel</td>
<td>Engelmann spruce</td>
<td>Mixed conifer with trees of cone bearing age.</td>
<td>The existing mixed conifer (&lt;161 acres) are on slopes greater than 50%. There is no grazing activity taking place within the mixed conifer. Therefore, there will be no impacts to the key habitat factors within this habitat.</td>
</tr>
<tr>
<td>Mexican vole</td>
<td>Mixed conifer</td>
<td>Mesic mountain meadows</td>
<td>The meadow habitat present in the project area is not high mountain meadow and thus not habitat for Mexican vole.</td>
</tr>
<tr>
<td>Elk</td>
<td>Mixed conifer</td>
<td>Open mixed conifer and mountain meadows</td>
<td>The existing mixed conifer (&lt;161 acres) are on slopes greater than 50%. This species will be addressed as a game species only.</td>
</tr>
<tr>
<td>Mule deer</td>
<td>Woodland</td>
<td>Shrub cover, browse species and dense cover</td>
<td>Will be addressed</td>
</tr>
</tbody>
</table>
Table 7. Threatened, Endangered, or Forest Service sensitive plant and wildlife species that are known or suspected to occur in the Hale Lake or East Hale Lake range allotment project area along with associated habitat for each.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
<th>Habitat Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuenzler hedgehog cactus</td>
<td><em>Echinocereus fendleri</em> var. <em>kuenzleri</em></td>
<td>FE</td>
<td>rocky substrates</td>
</tr>
<tr>
<td>Northern goshawk</td>
<td><em>Accipiter gentilis</em></td>
<td>FSS</td>
<td>Mature ponderosa pine</td>
</tr>
</tbody>
</table>

Status key:
- FE = Federally listed as endangered under the Endangered Species Act
- FT = Federally listed as threatened under the Endangered Species Act
- FSS = Listed as sensitive by Region 3 of the U.S. Forest Service

SPECIES EVALUATIONS

FOREST SERVICE SENSITIVE SPECIES

**Northern Goshawk**

**Scientific Name:** *Accipiter gentilis*

**Status:** Forest Service Region 3 Sensitive

**a. Affected environment/Affected habitat**

The northern goshawk is a generalist species that utilizes a wide range of mature and immature forest habitat types. The principal forest types occupied by the northern goshawk in the Southwest are ponderosa pine, mixed conifer, and spruce-fir (Reynolds et al. 1983). In general, northern goshawks nest in mature to old forest stands of relatively large trees with closed canopies and an open understory. Northern goshawks typically prefer forests with a relatively high canopy closure and greater tree density (Beier and Drennan 1997). The best northern goshawk foraging habitat consists of forested stands with complex structure having large-amounts of downed logs, woody material and snags. Adequate perches (i.e. large horizontal branches) for hunting and flight space for maneuvering are other important characteristics of forested stands used for foraging by northern goshawks. Jays, flickers and squirrels make up the bulk of their diet.

Breeding habitat includes a nesting area, a post-fledging family area (PFA) and a foraging area. The Southwestern Region of the Forest Service established direction for managing northern goshawk habitat, which is contained in all forest plans in the region (U.S. Forest Service 1986: 208A-E).

The Region 3 Forest Service Policy recommendations call for vegetation structural stage (VSS) distribution of: 10 percent grass/sbforb/shrub (VSS1), 10 percent seedling sapling forest (VSS2), 20 percent young forest (VSS3), 20 percent mid-aged forest (VSS4), 20 percent mature forest (VSS5), and 20 percent old forest (VSS6). Snags, downed logs, woody debris, and openings with reserve trees are important components of northern goshawk habitat. At least 3 large snags (greater than 18 inches dbh) per acre are needed in northern goshawk habitat. Canopy cover for a mid-aged ponderosa pine forest outside a Post Fledgling Area (PFA) should average 40%. Canopy cover for a mid-aged ponderosa pine stand within a PFA would be >60 percent cover in one-third of the stand and >50 percent cover in two-thirds of the stand. At least 5 large down logs (≥12 inches diameter at mid-point, ≥8 feet long) per acre are needed in ponderosa pine foraging habitat. Other canopy types are mixed conifer, spruce-fir, and woodland. At least three snags
and five downed logs are needed in spruce-fir and mixed conifer northern goshawk foraging habitat. Ideally, canopy cover for a mid-aged mixed conifer stand would be >60 percent cover in one-third of the stand and >40 percent cover in two-thirds of the stand. Woodland foraging habitat requires uneven age conditions with varied vegetation densities, age classes, and species composition. Reserve trees, snags, and down debris should be preserved in woodland areas.

The Region 3 Forest Service Policy recommendations also call for an average of 5 to 7 tons/acre of woody debris larger than 3 inches in diameter within the northern goshawk habitat in the ponderosa pine vegetation type. In spruce-fir and mixed conifer habitats, an average of 10 to 15 tons/acre of woody debris is needed.

b. Historic Information, Data Sources, and Surveys Conducted

These two allotments do not contain any known occupied habitat. Suitable northern goshawk habitat in the southwest corner of the Hale Lake allotment (West Hale Lake Pasture) was surveyed in 1998 and again 2002 with negative results. The scattered ponderosa pine stringers within both Hale Lake and East Hale Lake allotments have not been surveyed. These areas have marginal habitat and is very unlikely to contain nesting habitat, but could serve as foraging habitat.

c. Affected Habitat Description

There are no established PFA's or dispersal PFA's within the two allotments. Potential habitat for northern goshawks exists within the two allotments. There is approximately 1,600 acres of suitable habitat for this species to utilize for roosting or nesting within these allotments. The majority of this habitat exists in the southwest corner of the Hale Lake allotment. The majority of the VSS percentages fall within the VSS2 and VSS3 range. There are a few areas that contain mid-aged forest (VSS4) within the West Hale Lake Pasture. There is no known VSS5-6 in the mixed conifer and ponderosa pine forest types within the two allotments.

d. Analysis of Effect

Effects to northern goshawks were assessed by determining if foraging habitat and potential nest/roost habitat would be reduced by grazing.

e. Determination of Effects – Northern Goshawk

Alternative 1 - No Grazing (No Action)

Under the No Action alternative, no permits would be issued and there would be no grazing within any of the allotments. There would be no maintenance of any of the existing improvements. Since there would be no grazing or associated management activities within the allotment, then there would be no impact to the species or its potential habitat.

Alternative 2 – Grazing with Adaptive Management (Proposed Action)

Grazing would be authorized within potential nest/roost and foraging habitat within these allotments. Grazing could affect foraging habitat structure and composition of prey cover, as well as the availability and diversity of prey in certain areas of the allotments. However, managing to the 40 percent utilization guidelines outlined in the proposed action will ensure that foraging habitat structure and composition of prey cover are maintained. Maintenance of existing range improvements and installation and
maintenance of new improvements would disturb areas used as foraging habitat, but would not affect any nest/roost habitat. These impacts would be of short duration and localized to the area immediately surrounding the improvements. As northern goshawks are known to make use of a variety of foraging habitats, the impacts to foraging habitat would not be a limiting factor for this species. If breeding pairs are found within this area, a breeding season restriction would be adopted (March to September) for any noise producing activities within a designated PFA.

It is my determination that with this alternative there may be a minor effect to this species in the short-term and long-term. Mitigations to minimize grazing impacts include monitoring for northern goshawk occupancy on the allotment and adaptive management principles to manage grazing as specified in the proposed action to ensure sufficient vegetation cover is retained within the allotment to maintain suitable habitat for the species.

Cumulative Effects
The Smokey Bear Ranger District is the analysis area used for cumulative effects analysis because northern goshawk habitat is widespread across the district, and goshawks could reasonably be expected to move between habitat areas on different parts of the district. Northern goshawk habitat is not continuous or linked between the other districts on the Lincoln National Forest.

Numerous wildland fires since 2000 have impacted northern goshawks on the district. Northern goshawk habitat has been reduced. In addition, fuel reduction treatments, including a 1,200-acre prescribed fire in 2004 on the Hale Lake Allotment, impacted northern goshawk habitat in the analysis area. Ponderosa pine on the allotments primarily occurs within steep drainages where livestock grazing is limited. Therefore, impacts to northern goshawks from livestock grazing on the Hale Lake and East Hale Lake allotments would not exacerbate impacts from fuels treatments or wildland fires in the area. Together these treatments would cumulatively reduce the risk of a large, high-intensity crown fire. Fuel reduction treatments on national forest lands would continue to preserve key goshawk habitat features and avoid activities during breeding season in PFAs. Large snags and down logs would continue to be plentiful in both treated and untreated forest areas. Insects and diseases would continue to kill the larger, more stressed trees, but at a greatly reduced rate. Thus, goshawk habitat conditions would improve over a larger geographic area in combination with other activities in the surrounding forest lands within the district boundary.

Gray Vireo
Scientific Name: *Vireo vicinior*
Status: Forest Service Region 3 Sensitive

a. General Ecology
In central New Mexico, the Gray Vireo typically uses one-seed juniper (*J. monosperma*) savannas at 1676 – 2134 m (5500 – 7000ft). In west-central New Mexico, the species may occasionally be found in juniper savannas above 2195 m (7,200 ft). Gray vireos occupy piñon-juniper habitat with a mix of open savannah to dense canopy cover with a variety of understory shrubs and grasses on rocky slopes, arroyos, or steep hillsides (NMDGF 2006). In many cases where dense piñon-juniper was treated/thinned, forage quality increased where noxious weeds did not invade (NMDGF 2007). Food consumed during the breeding season is almost exclusively insects. Nesting occurs in forks of trees close to the ground or on the ground (NMDGF 2007). There is a threat of brood parasitism by brown-headed cowbirds and habitat alteration.
b. Data Sources, including surveys conducted and planned
The piñon-juniper habitat has not been surveyed previously within these two allotments. There are plans to begin surveying piñon-juniper woodlands for gray vireo prior to any planned activities.

c. Habitat Description
There is a large amount of piñon-juniper woodland habitat scattered throughout both allotments. These areas are potential nest/roost habitat for the gray vireo. Much of this habitat is very dense woodland, while some areas have been thinned by vegetation treatments as well as altered by prescribed fire.

d. Analysis of Effect
Effects to gray vireo were assessed by determining if potential foraging habitat and potential nest/roost habitat would be reduced by grazing, and if reproduction would be disturbed in these allotments by maintenance of existing range improvements.

Alternative 1: No Action/Grazing Alternative
Under the No Action alternative, no permits would be issued and there would be no grazing within these allotments. There would be no maintenance of any of the existing improvements. Since there would be no grazing or associated management activities within these allotments, then there would be no impact to the species.

Alternative 2 – Grazing with Adaptive Management (Proposed Action)
Grazing would be authorized within potential nest/roost and foraging habitat of these two allotments. Grazing could affect nest/roost and foraging habitat structure and composition, as well as the availability and diversity of prey within suitable habitat on both allotments.

Following 40 percent utilization guidelines would maintain sufficient cover for nests/young. These guidelines would also maintain foraging habitat. Habitat immediately adjacent to existing improvements as well as proposed new improvements, such as dirt stock tanks and drinking troughs, would be of lower quality for nesting. Nesting habitat would be reduced around the troughs and dirt stock tanks because these areas would tend to be highly used, with high vegetation trampling. In addition, the maintenance of range improvements may reduce some nesting habitat. Areas near these improvements may continue to provide foraging habitat.

It is unknown if there are any breeding pairs within these allotments, but presence is very likely with the amount of available habitat on these allotments. Reproductive activities for the gray vireo could potentially be disturbed. However, potential impacts to individuals and nests are speculative. Livestock grazing would most likely degrade the conditions of the habitat for this species, but impacts are expected to be minimal and lasting only as long as livestock are on the allotments.

Foraging and nest/roost habitat would likely be impacted by existing improvement maintenance, and possibly trampling by livestock. Impacts to gray vireos may occur in suitable habitat on the allotments. However, any impacts would be highly localized and of short duration because livestock tend to congregate near water sources, such as troughs. Therefore, the project may impact individuals, but is not
likely to result in a trend toward listing.

**Cumulative Effect** – The past projects within these allotments have improved the overall habitat for the gray vireo by creating more forested edges and allowing more grass to flourish within the allotments, which improved nest/roost and foraging habitat availability for the species. Projects in the reasonably foreseeable future listed in Tables 1 and 2 will continue to improve the habitat for the species by creating more forested edges and allowing increased production of grass species which would potentially improve nest/roost habitat. The overall increase in grass productivity would continue to provide forage for livestock. However, fuels treatments on steep slopes and drainages are unlikely to be used by livestock. Therefore, potential gray vireo habitat in these areas would have little to no disturbance from livestock. These improvements may offset the negative effects from authorizing grazing within the allotments. Therefore, the project may impact individuals, but is not likely to result in a trend toward listing.

**MANAGEMENT INDICATOR SPECIES (MIS)**

**Rufous-crowned sparrow**  
* (Aimophila ruficeps)*

**a. Affected environment/Affected habitat**

Rufous crowned sparrows prefer brushy mountain slopes below 7,500 feet in elevation for nesting and foraging habitat. These birds prefer to feed on insects. The home range of a pair is approximately 25 acres. The area of analysis for the sparrow is the suitable brush habitat found in both allotments on National Forest Land.

**b. Historic Information, Data Sources, and Surveys Conducted**

It is likely that the historic grazing and the fire frequency that occurred on the Lincoln National Forest early in this century increased (to an unknown extent) the presence of brush. Most of these brush-dominated slopes have become over-mature due to the lack of fire in the recent past (last 20 years). However, the recent prescribed burns and treatments (thinning and pushing) have changed these conditions back to a healthier habitat on a portion of the Hale Lake and East Hale Lake allotments (See Tables 1 and 2).

Overall, the amount of desert shrub habitat forest-wide has remained constant. The forest habitat trend for desert shrub for the rufous-crowned sparrow is expected to remain stable forest-wide (USDA-FS 2006). The Big Pine Spring and the Hale Lake prescribed fires burned through stands of mixed conifer, ponderosa pine and piñon-juniper and have come back in the form of grass, forbs, and scrub oak, which has been very successful in improving habitat for this species.

Unfortunately, information on population numbers for this species on the Smokey Bear Ranger District is lacking, so no inferences can be made as to current population numbers, distribution or trends. However, bird monitoring surveys conducted by Steve West on the Guadalupe Ranger District from 1994 through 2004 indicate the overall population trend for this species is stable. The statewide data shows a slight
downward trend in population and a “secure” ranking for New Mexico. On the Guadalupe Ranger District, West considers the rufous-crowned sparrow to be “rather common in well-managed grassland and shrub areas although numbers drop in areas that are overgrazed, especially during times of drought and in areas where the brush becomes too dense”. Density threshold was not defined by West.

c. Affected Habitat Description

The Hale Lake and East Hale Lake allotments according to the vegetation data have approximately 324 acres considered brush or desert shrub and possible habitat for rufous-crowned sparrows. The brush-dominated habitat on this allotment is currently providing suitable nesting and foraging habitat. Good and improving range conditions exist and thus habitat improvement occurs throughout both allotments. Most of the browse habitat is accessible to livestock, but stocking and current timing of use has led to minimal browse use. This is especially true in the recent past in which the allotment has been under non-use.

d. Analysis of Effects

**Alternative 1 – No Grazing (No Action)**

**Direct and Indirect Effects** – This alternative will not cause any direct mortality to the species or its habitat. No shrub habitat would be affected because no grazing will be occurring. Because of the small number of elk and deer using the area, heavy use (> 50%) of shrub would not be an issue. This alternative will not degrade the nesting, breeding, or foraging habitat conditions for this species.

**Alternative 2 – Grazing with Adaptive Management (Preferred Action)**

**Direct and Indirect Effects** – This alternative will not cause any direct mortality to the species. Under this alternative there may be some localized direct loss of shrub habitat due to trampling, but should have only a minimal effect. This alternative is predicted (even with current deer and elk use) to maintain the existing range conditions thus brush species will continue to be maintained as suitable habitat. The low amount of use by cattle in the long term should improve the shrub habitat as cattle graze mostly on grasses. Currently, only the West Hale Lake pasture is authorized for grazing and will occur only in this pasture until utilization standards are met for the other pastures within the allotments. When all standards are met, this alternative will at least maintain existing habitat conditions for this species.

**Cumulative Effect** – The past prescribed burns have increased habitat in portions of the Hale Lake (southwest and northwest sections) and East Hale Lake allotments, however, as successional processes continue in these areas, habitat for this species will decrease. In the areas not affected by the prescribed burns and where suitable brush habitat exists, browse species continue to re-sprout and grow and should continue on a stable trend. In the recent past there have been numerous improvement projects (thinning and prescribed burn) that have improved the grass, forb, and brush component within the allotment. These actions along with the projects (meadow restoration and hazardous fuels reduction) listed in Tables 1 and 2, have improved habitat for this species. Under this alternative, grazing effects compounded with past and future projects will not degrade any of the existing conditions on the allotments as long as allowable use levels are maintained at or below 40%.

It is my determination that this alternative is expected to leave sufficient nesting and foraging habitat to
maintain existing numbers and habitat conditions now and in the long term. Annual monitoring to ensure use guidelines are followed would help maintain nesting and foraging habitat.

**Western Meadowlark**  
*Sturnella neglecta*

a. **Affected environment/Affected habitat**

The western meadowlark is an indicator species for meadows or grama grasslands. Low elevation open fields and meadows are the preferred habitat. These birds summer in lower elevation (up to 7,500 feet) grasslands and nest on the ground in a natural or scraped depression lined with grass. Grass cover is important for protection of young and structure. Controlled livestock grazing is generally not considered a threat to this species, and, in fact, is usually beneficial.

b. **Historic Information, Data Sources, and Surveys Conducted**

It is likely that the historic management that occurred on the Lincoln National Forest early in this century decreased the quality of open grasslands and savannah woodlands. Current fire suppression techniques have caused an increase in the number of trees regenerating in the piñon-juniper woodlands, further decreasing the quality of grasslands for the western meadowlark.

Overall, the amount of low elevation grassland on the forest has increased from 1986 (46,225 acres) to 2005 (70,645 acres). The forest trend for low elevation grasslands as habitat for the western meadowlark is expected to increase in quantity and quality as treatments are implemented to reduce overstocked tree densities on the forest and grazing utilization levels are brought into compliance. The low elevation grassland habitat is in an upward trend on the Lincoln National Forest (USDA-FS 2006). Past treatments (thinning, prescribed burns, and pushes) have impacted many of the trees invading the meadows throughout both allotments. These treatments have been successful in improving habitat for this species.

Unfortunately, information on population numbers for this species on the Smokey Bear Ranger District is lacking, so no inferences can be made as to current population numbers, distribution or trends. However, bird monitoring surveys conducted by Steve West on the Guadalupe Ranger District from 1994 through 2004 indicate the overall population trend for this species is downward (USDA-FS 2006).

c. **Affected Habitat Description**

The Hale Lake and East Hale Lake allotments, according to the vegetation data, have approximately 611 acres considered meadow and possible habitat for western meadowlarks. Because of the absence of grazing within the Hale Lake allotment for nearly a decade, suitable nesting and foraging habitat has most likely increased within these meadow habitats. Past vegetation treatments within both allotments have improved habitat throughout.
d. Analysis of Effects

Habitat factors that will be analyzed are:
- Loss of open grassland habitat
- Height of herbaceous cover less than 4 inches

Alternative 1 – No Grazing (No Action)

Direct and Indirect Effects – This alternative will not cause any direct mortality or other effects to the species or its habitat. Under this alternative grazing will continue to be absent from the allotments so no direct loss of open grassland habitat or herbaceous cover will occur. This alternative is predicted (with current mule deer and elk use) to maintain the existing range conditions thus grass species will continue to be maintained as suitable nesting and foraging habitat. The only possible affect is that the elk and mule deer herds may increase so utilization of grass could become high within the 10 year permit period.

Alternative 2 – Grazing with Adaptive Management (Proposed Action)

Direct and Indirect Effects – This alternative will not have any direct loss of grass habitat and herbaceous cover is expected to be over 4 inches. Annual monitoring will ensure that 40 percent utilization guidelines are. When all standards are met, this alternative would maintain existing habitat conditions for this species. This alternative allows for management flexibility during dry periods to include reduced livestock numbers, time of use, or season of use. Due to the Hale Lake allotment being in non-use since 2003, forage conditions are presently good and improving within the allotments. Even though the East Hale Lake allotment has seen improvement of habitat for the western meadowlark by past treatments, it only has a small percentage of open meadow habitat within the drainages and narrow ridge tops. This alternative is predicted (with all species use) to maintain the existing range conditions; thus, herbaceous cover will continue to be maintained as suitable habitat. Habitat for eastern meadowlarks (*Sturnella magna*) has been shown in some cases to improve with light grazing (Powell 2008). However, it is unknown if impacts of light grazing are similar for western meadowlarks.

Cumulative Effect – The past treatments have increased suitable habitat in the allotments. These actions, along with the projects listed in Tables 1 and 2, will not change the improving condition. The 40% use guidelines are predicted to maintain or improve range condition. The only possibility of negative effects would be if the elk and mule deer herd were to increase dramatically during the 10 year permit period. However, the adaptive management principles identified in the proposed action would minimize impacts of grazing competition between livestock and ungulates.

It is my determination that this alternative is expected to leave sufficient nesting and foraging habitat to maintain existing numbers and will improve habitat condition now and in the long term. Habitat conditions on the allotments will continue on an upward trend. It will not change the existing forest trends of either population or habitat, because of the amount of acres involved.

Mule Deer
*Odocoileus hemionus*

The mule deer is an indicator of woodland. Habitat factors that will be analyzed are: forage/cover ratio on the allotment and New Mexico Game Unit 36 and road densities.
a. **Affected environment/Affected habitat**

The ideal forage to cover ratio for deer is approximately 60:40 (Gordon and Helmer-Hirschberg 1964). Under optimal conditions approximately 10% of the cover habitat should provide thermal cover and 30% should provide hiding cover. The optimal conditions for road density are less than 1 mile per section.

b. **Historic Information, Data Sources, and Surveys Conducted**

Mule deer use habitat throughout both allotments and throughout the seasons. Seasonal patterns don’t usually dictate patterns of use in either allotment. Alterations of habitat (fire, roads, and hunting) have affected this species and its habitat.

Overall, the amount of piñon-juniper habitat has remained constant from 1986 (527,630 acres) to 2005 (526,703 acres). The forest trend for piñon-juniper as habitat for mule deer is expected to increase in quantity and quality as treatments are implemented to reduce overstocked tree densities on the forest. The habitat trend for piñon-juniper habitat was listed as stable on the Lincoln National Forest in 2006 (USDA-FS 2006). The recent Rx-burns and other treatments (thinning and pushing) have cut and/or burned many of the trees in the Hale Lake allotment improving the forage habitat for this species.

Data collected in 2002-2003 by the New Mexico Game and Fish show that Unit 36 has a population of approximately 1,800 mule deer. The number has remained stable as estimated in 2005 by New Mexico Game and Fish. These figures show a slight downward trend when compared to 1999-2000 data. Based on data provided by the Game & Fish Department, the population trend for mule deer on the Lincoln National Forest appears to be stable across the forest as a whole (USDA-FS 2006).

c. **Affected Habitat Description**

In the early 2000’s, the forage to cover ratio for the Hale Lake and East Hale Lake allotments was estimated to be 48:52. Since that time the conditions have improved drastically due to habitat improvement projects (i.e. thinning, prescribed fire, and pushes) completed within both allotments. The current forage to cover ratio has not been formally measured but in general the amount of forage has increased greatly, while the amount of cover has been reduced greatly. There is a good potential for this area to see an increase of elk due to habitat quality.

Road densities are estimated at 1.6 miles per section, which is above recommended numbers, but access to the roads is limited due to private land and steep terrain (with the exception of FS Road 443). Use on the majority of the roads is limited to water maintenance and the movement of cattle. There is also a slight increase in use during the hunting season; however, the poor road conditions and access through private land have limited the use within the allotment.
d. Analysis of Effects

Habitat factors that will be analyzed are:
- Maintain optimum forage/cover ratio on the project area and the game unit 36
- Keep open road density near 1 mile per section or lower

**Alternative 1 - No Grazing (No Action)**

**Direct and Indirect Effects** - This alternative will not change the existing ratio of forage to cover habitat because no treatment of vegetation will occur. The ratio of forage to cover will over time change within the piñon/juniper habitat, due in large part to the increase in cover from the re-sprouting of junipers, encroaching on the current levels of forage. This alternative does not affect road density. The only road use would continue to be along FS Road 443 and minor access on to primitive roads for use in water maintenance and during the hunting season. Use by mule deer at the present time will continue on a stable trend but will be regulated by the lack of forage.

**Alternative 2 – Grazing with Adaptive Management (Proposed Action)**

**Direct and Indirect Effects** - In this alternative, there are various direct effects to mule deer from the introduction of cattle to the landscape. These impacts range from dietary overlap to behavioral modification and avoidance. In Southern Colorado, Hansen and Reid (1975) found that a diet overlap of 38% occurred between mule deer and cattle; though it cannot be assumed that this is the case everywhere, as other research has shown. However, though cattle and ungulates focus on different vegetation, diet overlap may become greater in conditions when forage is less available (i.e. winter and early spring; Chaikina and Ruckstuhl 2006). It has also been shown however that an increase in winter forage can occur with proper grazing management (i.e. allowing sufficient time between grazing periods for plant regrowth and careful control of grazing intensity; Anderson and Scheninger 1975). Due to the acreage of potential overlap on both allotments and that livestock grazing on Hale Lake would not be authorized until range improvements are repaired, the existing forage to cover ratio will not be altered significantly in the short-term (5 years). Cattle also do not have any effect on cover (i.e. distribution of piñon pine and juniper trees) so the only impact would be to the foraging habitat.

Studies have also shown that cattle can have negative impacts on mule deer by causing behavioral changes and altering activity budgets that make foraging less productive. Mule deer have been known to practice avoidance behavior and adjust their use of an area, moving away from cattle (Stewart et. al 2002). Though this may be the case, use of the allotments by mule deer is likely to continue, as livestock grazing is limited by the terrain of the East Hale Lake allotment and since grazing is not authorized on the Hale Lake allotment until range improvements are functional. The levels of forage present within both allotments are high enough to support both cattle and large ungulates. The adaptive management principles included in the proposed action would provide livestock management flexibility in response to annual forage utilization for all grazing on the allotments. These management practices would further minimize any negative impacts on mule deer.

Over time the ratio of forage to cover will change within the piñon-juniper habitat, due in large part to the increase in cover from the re-sprouting of junipers. Livestock grazing within a 40% use guidelines will not change that condition in any direction.
In addition, a proposed wildlife water system and trick tank planned in 2013 and 2014 will be implemented within the allotment which will involve the utilization of an existing well to distribute year-round water over a 10,000 acre area. This water development will benefit all wildlife by providing year-round water throughout the allotment.

This alternative does not affect road density. The only road use would continue to be along FS Road 443 and minor access on to primitive roads for use in range improvement installation and maintenance and during the hunting season.

**Cumulative Effect:** The past treatments had a positive effect on the amount of forage within the allotments. The proposed action along with the reasonably foreseeable projects listed in Tables 1 and 2, will continue to improve the current condition. Use by mule deer of the area will be regulated by the amount of available forage; however, ongoing and future vegetation treatments will continue to improve the forage within the allotments, offsetting the negative effects from the proposed action.

It is my determination that this alternative will not change the existing forage to cover ratio significantly and would have no effect on road density. Habitat conditions on both allotments will continue on a stable trend.

**Elk**  
* (Cervus elaphus)  

**a. Affected environment/Affected habitat**

Elk currently occupy the majority of the Smokey Bear Ranger District during different times of the year. During the winter months, elk will winter at lower elevations within the piñon-juniper zone and up to the ponderosa pine type. The recommended forage/cover ratio for elk is 60% forage to 40% cover. Within the the recommended percent of cover, at least 25% of that should be thermal cover. Open road densities are recommended to be no more than 1 mile per section. Current population estimates conducted by the New Mexico Department of Game & Fish in 2002 indicate an Elk population of approximately 900 elk on the Smokey Bear Ranger District (i.e. Game Management Unit 36). There have been no survey data collected from 2003-2005 on the Smokey Bear Ranger District (Units 36 & 37), however, the elk population trend within Unit 36 is believed to be stable to increasing.

**b. Historic Information, Data Sources, and Surveys Conducted**

Elk are a special interest game species. Ever since the introduction of elk into the Mescalero Reservation (adjacent to the southern border of the Smokey Bear Ranger District), there has been some evidence of elk use within the Hale Lake allotment. Since the occurrence of prescribed burns within the allotment, elk have become more prominent in the area.

Elk use within the allotments occurs primarily during the winter but does occur with lesser frequency in
other times of the year. Past treatments have improved foraging habitat in the last thirteen years. Wildlife treatments (Sikes Act and Rocky Mountain Elk Foundation projects) have also improved the habitat for elk. In addition, there have been many treatments associated with the Turkey/Gavilan Wildland Urban Interface (WUI) project within the Hale Lake allotment with an emphasis to reduce hazardous fuels, decrease fire danger, and increase ecological integrity within the area. The lack of livestock grazing on the Hale Lake allotment since 2003, lack of access and low hunting pressure has made the area ideal for elk.

Current population estimates conducted by the New Mexico Department of Game & Fish (NMDGF) in 2002 indicate an elk population of approximately 900 elk on the Smokey Bear Ranger District (i.e. Game Management Unit 36). There have been no survey data collected recently on the Smokey Bear Ranger District (Units 36 &37), however NMDGF indicates the elk population trend within Unit 36 is believed to be stable.

c. Affected Habitat Description

In the early 2000’s the forage to cover ratio for the Hale Lake and East Hale Lake allotments was estimated to be 48:52. Since that time the conditions have improved drastically due to vegetation treatment and habitat improvement projects (i.e. thinning, prescribed fire, and pushes) completed within both allotments. The current forage to cover ratio has not been formally measured but in general the amount of forage has increased greatly, while the amount of cover has been reduced significantly. There is a high potential for this area to see an increase of elk due to habitat quality.

Road densities are estimated at 1.6 miles per section, which is above recommended numbers but access to the roads is limited due to private land and steep terrain (with the exception of FS Road 443). Use on the majority of the roads is limited to water maintenance and the movement of cattle. There is also a slight increase in use during the hunting season; however, the poor road conditions and access through private land have limited the use within the allotment.

d. Determination of Effects

Habitat factors that will be analyzed are:
- Maintain optimum forage/cover ratio for elk (60:40)
- Keep open road density below 1 per square mile where possible

Alternative 1 - No Grazing (No Action)

Direct and Indirect Effects - This alternative will not change the existing ratio of forage to cover habitat because no treatment of vegetation will occur. The ratio of forage to cover will over time change within the piñon/juniper habitat, due in large part to the increase in cover from the re-sprouting of junipers, encroaching on the current levels of forage. This alternative does not affect road density. The only road use would continue to be along FS Road 443 and minor access on to primitive roads for use in water maintenance and during the hunting season. Use by elk at the present time will continue on a stable trend but will be regulated by the lack of forage.
**Alternative 2 – Grazing with Adaptive Management (Proposed Action)**

**Direct and Indirect Effects** – In this alternative, there are various direct effects to elk from the introduction of cattle to the landscape. These impacts range from dietary overlap to behavioral modification and avoidance. In Southern Colorado, Hansen and Reid (1975) found that a diet overlap of 51% occurred between elk and cattle; though it cannot be assumed that this is the case everywhere, as other research has shown. However, though cattle and ungulates focus on different vegetation, diet overlap may become greater in conditions when forage is less available (i.e. winter and early spring; Chaikina and Ruckstuhl 2006). The primary period of use of the allotments for elk is during this period of time, when they travel downward in elevation seeking forage. It has also been shown however that an increase in winter forage can occur with proper grazing management (i.e. allowing sufficient time between grazing periods for plant regrowth and careful control of grazing intensity; Anderson and Scheninger 1975). Due to the acreage of potential overlap on both allotments and that livestock grazing on Hale Lake would not be authorized until range improvements are repaired, the existing forage to cover ratio will not be altered significantly in the short-term (5 years). Cattle also do not have any effect on cover (i.e. distribution of piñon/juniper trees) so the only impact would be to the foraging habitat.

Studies have also shown that cattle can have negative impacts on elk by causing behavioral changes and altering activity budgets that make foraging less productive. Elk have been known to practice avoidance behavior and adjust their use of an area, moving away from cattle (Stewart et. al 2002). Though this may be the case, use of the allotments by elk is likely to continue, as livestock grazing is limited by the terrain of the East Hale Lake allotment and since grazing is not authorized on the Hale Lake allotment until range improvements are functional, current levels of forage present within both allotments are high enough to support both cattle and large ungulates. The adaptive management principles included in the proposed action would provide livestock management flexibility in response to annual forage utilization for all grazing on the allotments. These management practices would further minimize any negative impacts on elk.

Over time the ratio of forage to cover will change within the piñon/juniper habitat, due in large part to the increase in cover from the re-sprouting of junipers and grazing with a 40% use will not change that condition in any direction.

In addition, a proposed wildlife water system and trick tank planned in 2013 and 2014 will be implemented within the allotment which will involve the utilization of an existing well to distribute year-round water over a 10,000 acre area. This water development will benefit all wildlife by providing year round water throughout the allotment.

This alternative does not affect road density. The only road use would continue to be along FS Road 443 and minor access on to primitive roads for use in water maintenance and during the hunting season.

**Cumulative Effect**: The past treatments had a positive effect on the amount of forage within the allotments. The proposed action along with the reasonably foreseeable projects listed in Tables 1 and 2, will continue to improve the current condition. Use by elk of the area will be regulated by the amount of available forage; however, ongoing and future vegetation treatments will continue to improve the forage within the allotments, offsetting the negative effects from the proposed action.
It is my determination that this alternative will not change the existing forage to cover ratio significantly and would have no effect on road density. Habitat conditions on both allotments will continue on a stable trend.

**FISHERIES**

There are no occurrences of fish within either allotment. However, there are fish within the Rio Ruidoso River, which is situated north of the Hale Lake and East Hale Lake allotments. Private land along the river separates the allotments from the river. The majority of the areas adjacent to private land are not utilized by livestock due to the steepness of the slope (> 40%) leading down into the river. Therefore, livestock use within the allotments will not add significantly to the existing soil conditions along these slopes.

**NEOTROPICAL MIGRANT BIRDS (NTMB)**

The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing or possessing of migratory birds unless permitted by regulations promulgated by the Secretary of the Interior. The MBTA was signed in 1918 and amended in 1936, 1974 and 1989. On January 10, 2001, President Clinton signed Executive Order (EO) 13186, placing emphasis on the conservation of migratory birds. In 2008, a Memorandum of Understanding (MOU) was signed between the USFS and the USFWS, outlining a collaborative approach to promote the conservation and reduce the take of migratory birds.

Eighteen bird species (many of which are migratory) were considered in the analysis of effects. Several species are protected under the provisions of the MBTA. Most of these species are Partners in Flight Regionally Important Species. Two species (rufous-crowned sparrow and western meadowlark) are also MIS and were evaluated in the previous section. Species listed in the analysis were evaluated for potential habitat or occurrence on the forest, and for any known historic or current sightings. Other bird species were not included in the analysis because they are not known to occur on the forest or unit, or within the habitat types which occur within the project area.

The effects of the proposal on selected bird species were determined primarily through coarse filter analyses, using the species primary habitat. These habitats or broad vegetational cover types are listed in the following section. These are focus vegetative community types for which properly functioning conditions and desired future conditions have been identified across the forest. The report includes a general analysis of effects on (1) vegetative community types (primary habitat for MBTA); (2) Regionally Important Species listed by Partners in Flight; (3) Important Bird Areas (IBA); (4) Important overwintering areas. These notes provide information about potential effects of livestock grazing to migratory birds within the Hale Lake and East Hale Lake grazing allotments. Table 8 summarizes potential impacts to species that are known to occur or may have suitable habitat within these project areas.
SPECIES OF CONCERN

The Lincoln National Forest lists priority species of concern by vegetation type. I reviewed all species of concern for vegetation types found in the allotments (i.e. ponderosa pine, piñon-juniper woodland, shrub land, and desert grass land). The percentage of Mixed conifer habitat is so small (< 1%) that it will not be addressed in this analysis.

Table 8. Neotropical migrant bird species of concern that may occur in or near the project areas.

<table>
<thead>
<tr>
<th>Vegetation Type</th>
<th>Species</th>
<th>Habitat</th>
<th>Habitat Impacts</th>
<th>Disturbance Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrub land</td>
<td>Black-chinned sparrow</td>
<td>Dense mature brush fields</td>
<td>The loss of mature brush</td>
<td>The Rx-burns removed some habitat for this species. The brush will continue to come back under the proposed 40% utilization guidelines for grazing of grass from any alternative.</td>
</tr>
<tr>
<td>Shrub land</td>
<td>Green-tailed towhee</td>
<td>Shrub fields</td>
<td>The loss of mature brush</td>
<td>The Rx-burns removed some habitat for this species. The brush will continue to come back under the proposed 40% utilization guidelines for grazing of grass from any alternative.</td>
</tr>
<tr>
<td>Low elevation grass land</td>
<td>Baird’s sparrow</td>
<td>Desert grassland, gramma grass</td>
<td>Winter Habitat only. Feeding occurs on insects and seeds from grass below 6,000 feet elevation.</td>
<td>The majority of the allotment is above 6,000 feet elevation.</td>
</tr>
<tr>
<td>Low elevation grass land</td>
<td>Loggerhead shrike</td>
<td>Desert grassland up to 7,000 feet in elevation. With some shrubs for nest and perching structure</td>
<td>This species utilizes grazed areas readily. Nest structure and perching structure important</td>
<td>The grazing in the allotment will not affect this species. Grazing use will not affect nest structure or perching</td>
</tr>
<tr>
<td>Low elevation grass land</td>
<td>Prairie falcon</td>
<td>Desert grassland with cliffs in vicinity</td>
<td>This area is mainly used for foraging. Nest structure is lacking.</td>
<td>The grazing in the allotment will not affect this species. Grazing use will not affect nest structure or perching</td>
</tr>
<tr>
<td>Vegetation Type</td>
<td>Species</td>
<td>Habitat</td>
<td>Habitat Impacts</td>
<td>Disturbance Effects</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------</td>
<td>----------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Low elevation grassland</td>
<td>Scaled Quail</td>
<td>Desert grassland with canyon brush.</td>
<td>This species likes to have a diverse grass composition with a varied forb component, plus scattered shrubs.</td>
<td>The allotment currently has diverse grasses with shrubs. Following 40% use guidelines is expected to leave that diversity in all alternatives.</td>
</tr>
<tr>
<td>Low elevation grassland</td>
<td>McCown’s longspur</td>
<td>Desert grassland with short grass.</td>
<td>This species likes open sparse grass land at elevation below 6,000’ only winter habitat in New Mexico</td>
<td>The majority of the allotment is above 6,000’ elevation. This species does not occur within the project areas.</td>
</tr>
<tr>
<td>Desert shrub very low</td>
<td>Crissal Thrasher</td>
<td>Dry washes</td>
<td>This species is totally associated with dry washes. These allotments has minimal habitat.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching.</td>
</tr>
<tr>
<td>elevation piñon/juniper</td>
<td>Ferruginous Hawk</td>
<td>Juniper savannah next to grassland</td>
<td>The Rx-burns improved habitat for this species.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching.</td>
</tr>
<tr>
<td>Piñon/Juniper savannah</td>
<td>Black-throated gray warbler</td>
<td>Mature piñon/juniper with dense canopy and dominated by piñon.</td>
<td>The Rx-burns changed a portion of the habitat for this species on the allotments.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching.</td>
</tr>
<tr>
<td>Piñon/Juniper</td>
<td>Gray Vireo</td>
<td>Mature piñon/juniper with dense canopy to open savannah dominated by piñon pine.</td>
<td>See TE&amp;S write-up in this document</td>
<td>See TE&amp;S write-up in this document</td>
</tr>
<tr>
<td>Piñon/Juniper</td>
<td>Gray flycatcher</td>
<td>Piñon/juniper with some oak.</td>
<td>The allotments are good habitat but were changed slightly by the Rx-burns.</td>
<td>The grazing in the allotments will not stop the piñon/juniper from coming back with time.</td>
</tr>
<tr>
<td>Piñon/Juniper</td>
<td>Montezuma Quail</td>
<td>Piñon/juniper with a variety of shrubs and diversity of grasses.</td>
<td>This species likes to have a diverse grass composition with a varied shrub component. Oak</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching.</td>
</tr>
<tr>
<td>Vegetation Type</td>
<td>Species</td>
<td>Habitat</td>
<td>Habitat Impacts</td>
<td>Disturbance Effects</td>
</tr>
<tr>
<td>-----------------</td>
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<td>----------------------------------------------</td>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Piñon/Juniper</td>
<td>Piñon Jay</td>
<td>Mature piñon/juniper.</td>
<td>Seed and mast production are key.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching</td>
</tr>
<tr>
<td>Ponderosa pine</td>
<td>Northern goshawk</td>
<td>Mature ponderosa pine habitat</td>
<td>See TE&amp;S write-up in this document</td>
<td>See TE&amp;S write-up in this document</td>
</tr>
<tr>
<td>Ponderosa pine</td>
<td>Flammulated owl</td>
<td>Open ponderosa pine forest. They are cavity nesters typically associated with large ponderosa pine</td>
<td>Good insect populations are important.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching</td>
</tr>
<tr>
<td>Ponderosa pine</td>
<td>Greater peewee</td>
<td>Tall conifer forests with clearings. Nest is often found in a high horizontal fork of a tree.</td>
<td>Insects and small fruits are important food base.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching</td>
</tr>
<tr>
<td>Ponderosa pine</td>
<td>Grace’s warbler</td>
<td>Ponderosa pine &amp; sometimes with an oak component. Nest is found in horizontal branches or crown of pine.</td>
<td>This species likes to have a varied shrub component. Oak seems to be key.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching</td>
</tr>
<tr>
<td>Ponderosa pine</td>
<td>Virginia’s warbler</td>
<td>Prefers open forests with wide variety shrubs, especially Gambel’s oak. Nest is usually well hidden by coarse grass near or associated with oak.</td>
<td>This species likes to have a diverse grass composition with a varied shrub component. Oak seems to be key.</td>
<td>The grazing in the allotments will not affect this species. Grazing use will not affect nest structure or perching</td>
</tr>
</tbody>
</table>
### CONTACTS/PREPARERS/CONTRIBUTORS

<table>
<thead>
<tr>
<th>Person</th>
<th>Organization/Unit</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. Cordova</td>
<td>Staff Wildlife Biologist</td>
<td>Review/Information/Opinion/Edits</td>
</tr>
<tr>
<td>G. Douds</td>
<td>Range Staff Officer</td>
<td>Information</td>
</tr>
<tr>
<td>T. Rawlinson</td>
<td>Habitat Specialist</td>
<td>Information/Opinion</td>
</tr>
<tr>
<td>R. Stewart</td>
<td>Forest Biologist</td>
<td>Information/Opinion</td>
</tr>
</tbody>
</table>

### SIGNATURES

Prepared by:

/s/ Larry Cordova 07/02/2013  
Larry Cordova,  
District Wildlife Biologist  
Smokey Bear Ranger District  
Lincoln National Forest

Date
LITERATURE CITED


New Mexico Department of Game and Fish [NMDGF]. 2006. Status report and biological review of the gray vireo in New Mexico. Santa Fe, New Mexico: New Mexico Department of Game and Fish, Conservation Services Division. 31 p. On file with: U.S. Department of Agriculture, Forest Service, Lincoln National Forest, Smokey Bear Ranger District, Ruidoso, NM; Project files

New Mexico Department of Game and Fish [NMDGF]. 2007. Gray Vireo (Vireo viciinnor) recovery plan. New Mexico Department of Game and Fish, Conservation Services Division, Santa Fe, New Mexico. 30 p. On file with: U.S. Department of Agriculture, Forest Service, Lincoln National Forest, Smokey Bear Ranger District, Ruidoso, NM; Project files


USDI. 2009. USFWS species currently listed as threatened, endangered, candidate, and species of concern by the USFWS, downloaded on 7/27/2009 from their web-site http://www.fws.gov/ifw2es/NewMexico/SBC_view.cfm?spcnty=Lincoln


APPENDIX A.

Federally threatened or Endangered species known to occur in Lincoln County, New Mexico, but not addressed due to lack of habitat within the project area and neighboring vicinity.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern aplomado falcon</td>
<td><em>Falco femoralis septentrionalis</em></td>
</tr>
<tr>
<td>Mexican spotted owl</td>
<td><em>Strix occidentalis lucida</em></td>
</tr>
<tr>
<td>Rio Grande cutthroat trout</td>
<td><em>Oncorhynchus clarki virginalis</em></td>
</tr>
<tr>
<td>New Mexico meadow jumping mouse</td>
<td><em>Zapus hudsonius luteus</em></td>
</tr>
</tbody>
</table>

USDA Forest Service Region 3 Sensitive species known or expected to occur within the Lincoln National Forest, that were considered but not addressed due to lack of habitat within the project area and neighboring vicinity.

### Amphibians

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sacramento Mountains salamander</td>
<td><em>Aneides hardyi</em></td>
</tr>
<tr>
<td>Plains leopard frog</td>
<td><em>Rana blairi</em></td>
</tr>
</tbody>
</table>

### Birds

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bald eagle</td>
<td><em>Haliaeetus leucocephalus</em></td>
</tr>
<tr>
<td>Swainson's hawk</td>
<td><em>Buteo swainsoni</em></td>
</tr>
<tr>
<td>Burrowing owl</td>
<td><em>Athene cunicularia</em></td>
</tr>
<tr>
<td>Bell's vireo</td>
<td><em>Vireo bellii</em></td>
</tr>
<tr>
<td>Gray vireo</td>
<td><em>Vireo vicinior</em></td>
</tr>
<tr>
<td>American peregrine falcon</td>
<td><em>Falco peregrinus anatum</em></td>
</tr>
<tr>
<td>Varied bunting</td>
<td><em>Passerina versicolor</em></td>
</tr>
</tbody>
</table>

### Crustaceans

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairy shrimp</td>
<td><em>Stretocephalus n. sp.1</em></td>
</tr>
</tbody>
</table>

### Fish

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headwater catfish</td>
<td><em>Ictalarus lupus</em></td>
</tr>
<tr>
<td>Rio Grande chub</td>
<td><em>Gila pandora</em></td>
</tr>
<tr>
<td>Rio Grande cutthroat trout</td>
<td><em>Oncorhynchus clarki virginalis</em></td>
</tr>
</tbody>
</table>

### Insects

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonito diving beetle</td>
<td><em>Deronotes neomexicanus</em></td>
</tr>
<tr>
<td>Polincoln's hairstreak</td>
<td><em>Fixsenia polingi</em></td>
</tr>
<tr>
<td>Sacramento Mountains checkerspot butterfly</td>
<td><em>Euphydryas anicia cloudcrofti</em></td>
</tr>
</tbody>
</table>

### Mammals

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray-footed chipmunk</td>
<td><em>Neotamias canipes</em></td>
</tr>
<tr>
<td>Dwarf shrew</td>
<td><em>Sorex nanus</em></td>
</tr>
<tr>
<td>New Mexico shrew</td>
<td><em>Sorex neomexicanus</em></td>
</tr>
<tr>
<td>Penasco least chipmunk</td>
<td><em>Eutamias minimus atristriatus</em></td>
</tr>
<tr>
<td>Animal Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>White Mountains ground squirrel</td>
<td><em>Spermophilus tridecemlineatus</em></td>
</tr>
<tr>
<td></td>
<td><em>monticola</em></td>
</tr>
<tr>
<td>White-ankled mouse</td>
<td><em>Peromyscus pectoralis laceianus</em></td>
</tr>
<tr>
<td>Ruidoso red squirrel</td>
<td><em>Tamiasciurus hudsonicus lynchuchus</em></td>
</tr>
<tr>
<td>Long-tailed vole</td>
<td><em>Microtus longicaudus</em></td>
</tr>
<tr>
<td>Guadalupe pocket gopher</td>
<td><em>Thomomys umbrinus guadalupensis</em></td>
</tr>
<tr>
<td>Yellow-faced pocket gopher</td>
<td><em>Crategeomys castanops</em></td>
</tr>
<tr>
<td>New Mexico meadow jumping mouse</td>
<td><em>Zapus hudsonius luteus</em></td>
</tr>
</tbody>
</table>

**Reptiles**

<table>
<thead>
<tr>
<th>Animal Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arid land ribbonsnake</td>
<td><em>Thamnophis proximus diabolicus</em></td>
</tr>
<tr>
<td>Mottled rock rattlesnake</td>
<td><em>Crotalus llipidu</em></td>
</tr>
</tbody>
</table>

**Snails**

<table>
<thead>
<tr>
<th>Animal Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern threeway</td>
<td><em>Humboltiana ultima</em></td>
</tr>
<tr>
<td>(no common name)</td>
<td><em>Oreohelix nogalensis</em></td>
</tr>
<tr>
<td>Capitan woodlandsnail</td>
<td><em>Ashmunella psuedodonta</em></td>
</tr>
<tr>
<td>Blunt ambersnail</td>
<td><em>Oxyloma retusum</em></td>
</tr>
<tr>
<td>Vagabond holospira</td>
<td><em>Holospira montivaga</em></td>
</tr>
</tbody>
</table>

**Plants**

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra-Blanca cliff daisy</td>
<td><em>Chaitopappa elegans</em></td>
</tr>
<tr>
<td>Chapline's columbine</td>
<td><em>Aquilegia chaplinei</em></td>
</tr>
<tr>
<td>Tall milkvetch</td>
<td><em>Astragalus altus</em></td>
</tr>
<tr>
<td>Kerr's milkvetch</td>
<td><em>Astragalus kerrii</em></td>
</tr>
<tr>
<td>Wright's marsh thistle</td>
<td><em>Cirsium wrightii</em></td>
</tr>
<tr>
<td>Wooton's hawthorn</td>
<td><em>Crategus wootoniana</em></td>
</tr>
<tr>
<td>Yellow lady's slipper</td>
<td><em>Cypripedium parviflorum var. pubescens</em></td>
</tr>
<tr>
<td>Guadalupe rabbitbush</td>
<td><em>Ericameria nauseosa var. texensis</em></td>
</tr>
<tr>
<td>Villard's pincushion cactus</td>
<td><em>Escobaria villardi</em></td>
</tr>
<tr>
<td>Arizona coralroot</td>
<td><em>Hexalectris spicata var. arizonicus</em></td>
</tr>
<tr>
<td>Wood lily</td>
<td><em>Lilium philadelphicum</em></td>
</tr>
<tr>
<td>Ladies' tresses</td>
<td><em>Microthelys rubrocallosa</em></td>
</tr>
<tr>
<td>Alamo penstemon</td>
<td><em>Penstemon alamosensis</em></td>
</tr>
<tr>
<td>Guadalupe penstemon</td>
<td><em>Penstemon cardinalis ssp. regalis</em></td>
</tr>
</tbody>
</table>