



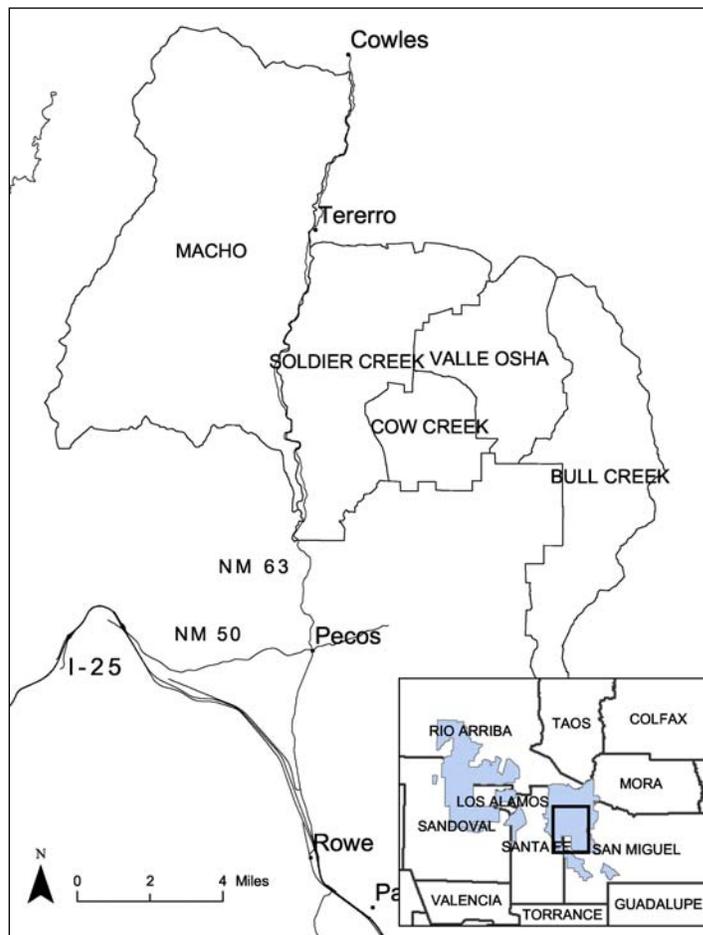
United States
Department of
Agriculture

Forest
Service

Southwestern
Region



Environmental Assessment for Five Range Allotments Santa Fe National Forest



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Chapter 1 – Purpose and Need

Purpose and Need for Action

The purpose of this project is to reissue grazing permits in compliance with the National Environmental Policy Act and Section 504 of the 1995 Rescissions Act on five allotments located on the Pecos/Las Vegas Ranger District of the Santa Fe National Forest. In doing so, the Forest Service would authorize grazing and develop Allotment Management Plans (AMPs) for the Bull Creek, Cow Creek, Macho, Solider Creek, and Valle Osha Allotments. The AMPs would incorporate grazing strategies and construct range facilities to refine the existing grazing management system.

The purpose of refining the existing grazing systems on all five allotments is to:

- Maintain or promote the vigor of riparian plants such as willow, alder, sedge, and rushes;
- Maintain or promote the vigor of native grasses and shrubs; and
- Have range facilities in place that would help permittees better manage their cattle.

In order to achieve these purposes, there is a need for:

- A formal grazing strategy for all five allotments;
- Infrastructure to implement rotational grazing strategies on the Bull Creek, Cow Creek, Macho, and Valle Osha Allotments;
- Dependable water in pastures comprising each allotment;
- Controlled use of riparian areas by livestock;
- Controlled use of upland pastures by livestock;
- Physical separation of the Valle Osha and Cow Creek Allotments;
- More use of the Ruidoso pasture, which is an entry pasture, on the Bull Creek Allotment;
- A formal grazing strategy in the Cow Creek Allotment; and
- A functional corral in the Bull Creek Allotment.

Existing Condition

The five allotments encompass approximately 83,100 acres, of which about 10,000 acres is private property. Of the approximate 73,100 acres on National Forest System lands, about 21% (15,200 acres) is considered “capable” range. Combined, the existing grazing permits authorize a total of 152 cattle to graze. The current grazing management system for each allotment is detailed in Table 1. The current grazing strategies on the allotments are informal, with most having no rotations. Natural barriers, herding, salting, and existing facilities are used to manage livestock.

Table 1. Current Grazing Management System by Allotment

	Bull Creek	Cow Creek	Macho	Soldier Creek	Valle Osha
Total Acres	14,536	5,182	38,582	15,888	8,957
Acres on National Forest land	13,353	4,399	36,648	10,084	8,644
Total Grazed Acres (approximate)	2,202	1,408	6,754	3,469 (historic)	1,388
Pastures	1. Valle Toro 2. Quemazon	1. Tijeras	1. Macho		1. Valle Osha
Grazing System	Two pasture informal rotation	Single unit, no rotation	Single unit, no rotation		Single unit, no rotation
Facilities					
-Spring developments	1 spring		3 partially developed springs		3 springs
-Corrals	2 corrals (one is abandoned)		1 corral		
-Fences	7.7 miles	2 miles	1.25 mile		9.1 miles
Dates	5/16-10/15	5/16-10/15	5/16-10/15	7/01-10/31 (historic)	6/01-9/30
Head months (# animals x # months)	240	55	80	0	308
Animal Use Months (AUM)	317	73	106	0	407
Number of Cattle	48	11	16	0	77

Based on inspections and monitoring conducted, less than one percent of the total grazed acres on these five allotments is in “unsatisfactory range management status”. This term describes the situation where the existing vegetation is not desired and where short-term objectives are not being achieved.

Rangeland is considered to be in “satisfactory range management status” when the existing vegetation is similar to the desired vegetative condition or the short-term objectives are being achieved to move the rangeland toward the desired condition. The existing condition of each allotment is described below.

Bull Creek

Approximately 300 acres of the Bull Creek Allotment are classified as being in unsatisfactory range management status. On these acres, increasing densities of cinquefoil and Kentucky

bluegrass are gradually displacing the desired species of Arizona fescue and mountain muhly. Uneven distribution of cattle contributes to lower vigor and composition of desired plants. For instance, cattle enter the allotment from Lower Colonias and Bull Creek then travel north quickly, concentrating in northern pastures rather than spending the allotted time in the southern end.

The uneven distribution of cattle is partially caused by a lack of range facilities. In the Valle Toro pasture, cattle drift onto FR (Forest System Road) 86 and private property. Penning cattle is difficult because there is no wing fence to help herd the cattle towards the Bull Creek corral, and the corral is in poor condition. The base of the corral is not level, and trees surrounding it make it difficult to herd cattle inside or back a trailer up to the corral. The second corral on the allotment has been completely abandoned.

Cow Creek

Very few acres of the Cow Creek Allotment are considered to be in unsatisfactory range management status. The Viveash Fire burned 90% of this allotment, creating an abundance of herbaceous vegetation. Over time, however, the lack of a grazing strategy could cause a shift towards less desirable plant communities, such as cinquefoil and Kentucky bluegrass.

Macho

About 50 acres of the Macho Allotment are classified as being in unsatisfactory range management status, where increasing densities of Kentucky bluegrass and iris are gradually displacing desired species such as pine dropseed and mountain muhly. On these acres, uneven distribution of cattle contributes to lower vigor and composition of desired plants. The uneven distribution of cattle can partially be attributed to a lack of range facilities; for instance, there is no dependable water upland. The gate on FR 123 is sometimes left open, allowing cattle to travel to the lower portion of the allotment towards State Highway 63.

Soldier Creek

Very few acres of the Soldier Creek Allotment are considered to be in unsatisfactory range management status because no authorized cattle grazing has occurred on the allotment for approximately ten years.

Valle Osha

Very few acres of the Valle Osha Allotment are considered to be in unsatisfactory range management status. Nonetheless, there are no range facilities to prevent cattle from congregating in the riparian area around Osha Creek; because there is no dependable water upland, cattle move into the riparian area instead of grazing upland. Cattle also drift between the Osha and Cow Creek Allotments because the fence that used to separate the allotments was destroyed in the Viveash Fire. The Viveash Fire burned part of this allotment, creating an abundance of feed. If left unchecked over time, however, improper distribution of cattle could cause a shift towards less desirable plant communities, such as cinquefoil and Kentucky bluegrass.

Desired Future Condition

Bull Creek

The entire allotment would be in satisfactory range management status. Over time plants such as Arizona fescue and mountain muhly would be the dominant plant species. As is the case now, very little exposed and compacted soil would exist since cattle would be evenly distributed. Riparian areas would have an abundance of willows, sedges, alder, and rushes. The distribution

of cattle on the allotment would be improved because they would spend more time in the Ruidoso pasture.

Cow Creek

Range plants would be used evenly because a formal deferred rotation grazing strategy would be in place; over time, the grasses reinvigorated by the Viveash Fire would be preserved. Soils would not be compacted or exposed because cattle would not congregate in one or two areas, but be evenly distributed across the allotment. Over time, the existing vegetation would continue to thrive and less desirable species would be less likely to establish themselves.

Macho

The entire allotment would be in satisfactory range management status. Plants such as pine dropseed and mountain muhly would continue to be the dominant plant species. Very little exposed and compacted soil would exist since cattle would be evenly distributed by having dependable water in the upland pastures. Riparian areas where cattle graze would have an abundance of plants such as willows, sedges, alder, and rushes. The distribution of cattle on the allotment would be improved, facilitating growth of desired plant species, because a formal deferred rotation grazing strategy would be in place.

Soldier Creek

Over time, the existing, desired vegetation would continue to thrive and less desirable species would establish themselves. Riparian areas would continue to have vigorous willows, alder, rushes, and sedges because use would be infrequent and closely controlled. Soils would not be compacted or exposed because cattle would be on the allotment infrequently.

Valle Osha

Over time, the existing vegetation would continue to thrive and no invasive species would establish themselves. Riparian areas would continue to have vigorous willows, alder, rushes, and sedges because use of them would be closely controlled. Soils would not be compacted or exposed because cattle would be evenly distributed across the allotment. Range plants would be more evenly used because cattle would remain in their assigned allotments and have dependable water in upland pastures. Over time, the grasses reinvigorated by the Viveash fire would be preserved.

Proposed Action

Table 2 summarizes the proposed grazing strategy for each allotment, and is followed by specific management prescriptions for each allotment. Since these actions are closely related with respect to timing and geography, they are considered similar actions (40 CFR 1508.25 (a) (3)). No additional acres are proposed for grazing; however, an allotment (Soldier Creek) that has not been grazed for at least ten years would be used. The maximum and minimum grazing season is determined from range monitoring of the specific allotment. A late entry onto an allotment would be caused by, for example, a lack of sufficient growth of grass due to climatic conditions, such as drought. An early removal from an allotment would be based on factors such as early snowfall or cold temperatures. Range facilities would be paid for on a 50:50 cost share basis; the Forest Service would provide materials and the permittee would provide labor.

Table 2. Proposed Grazing Management.

	Bull Creek	Cow Creek	Macho	Soldier Creek	Valle Osha
Total Acres	14,536	5,182	38,582	15,888	8,957
Total Grazed Acres (approx)	2,202	1,408	6,754	3,469	1,388
Pastures	1. Valle Toro 2. North 3. Quemazon 4. Bull (holding) 5. Ruidoso	1. Chaperito 2. Tijeras	1. Dalton 2. Indian Creek 3. Carpenter	1. North 2. South	1. Valle Osha 2. Manzanares 3. Osha 4. Ojitos
Grazing System	Four pasture deferred rotation	Two pasture deferred rotation	Three pasture deferred rotation	Occasional use, two pasture deferred rotation	Four pasture deferred rotation
New facilities -Spring developments -Corrals -Fences -Cattle guards	1 corral .75 miles	reconstruct division fence with Valle Osha	1 spring 1 well .5 miles 1 cattle guard		1 spring repair 1.75 miles 2 cattle guards
Total facilities -Spring developments -Corrals -Fences -Cattle guards	1 spring 3 corrals 8.5 miles	2 miles	3 springs partially dev. 1 developed spring 1 well 1 corral 1.75 miles 1 cattle guard		3 springs 10.7 miles 2 cattle guards
Maximum Grazing Season	5/16-10/15	5/16-10/15	5/16-10/15	6/01-10/31	6/15-9/30
Minimum Grazing Season	6/1-9/30	6/1-9/30	6/1-9/30	7/1-9/30	6/1-9/30
Max/ Min AUM (1 cow-calf pair for 1 month)	317/253	73/58	106/84	330/198	407/56
Number of Cattle	48	11	16	50	77

Bull Creek

The Forest Service proposes to construct two short drift fences (T16N, R14E, Sec. 13 and 15), approximately one-quarter mile long each, in order to create the Ruidoso Pasture and slow the movement of cattle between the Ruidoso and Quemazon Pastures. Figure 1 shows an example of the type of fencing to be constructed. The Forest Service would construct about one-quarter mile of wing fence (T16N, R13E, Sec. 26) from the east side of FR 86 to the corner of private land to assist in herding cattle towards the corral. The Forest Service would construct a new Bull Creek Corral (T17N, R12E, Sec. 26) about 200 yards from its current location to make it usable. To do so, about ¼ acre of ground around the new corral would be leveled. The new location would facilitate easy turning, loading, and parking. Figure 2 shows the locations of proposed range

facilities on the Bull Creek Allotment. No new fences would be constructed for the North or Bull Pastures; natural barriers serve as their boundaries. Rather, rotation between all five pastures would occur. The Bull Pasture would be a holding pasture.

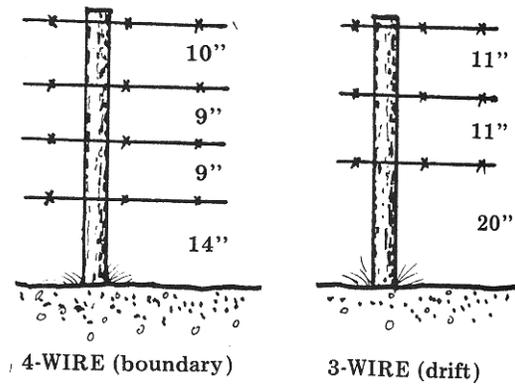


Figure 1. Example of Standard Fencing for Cattle

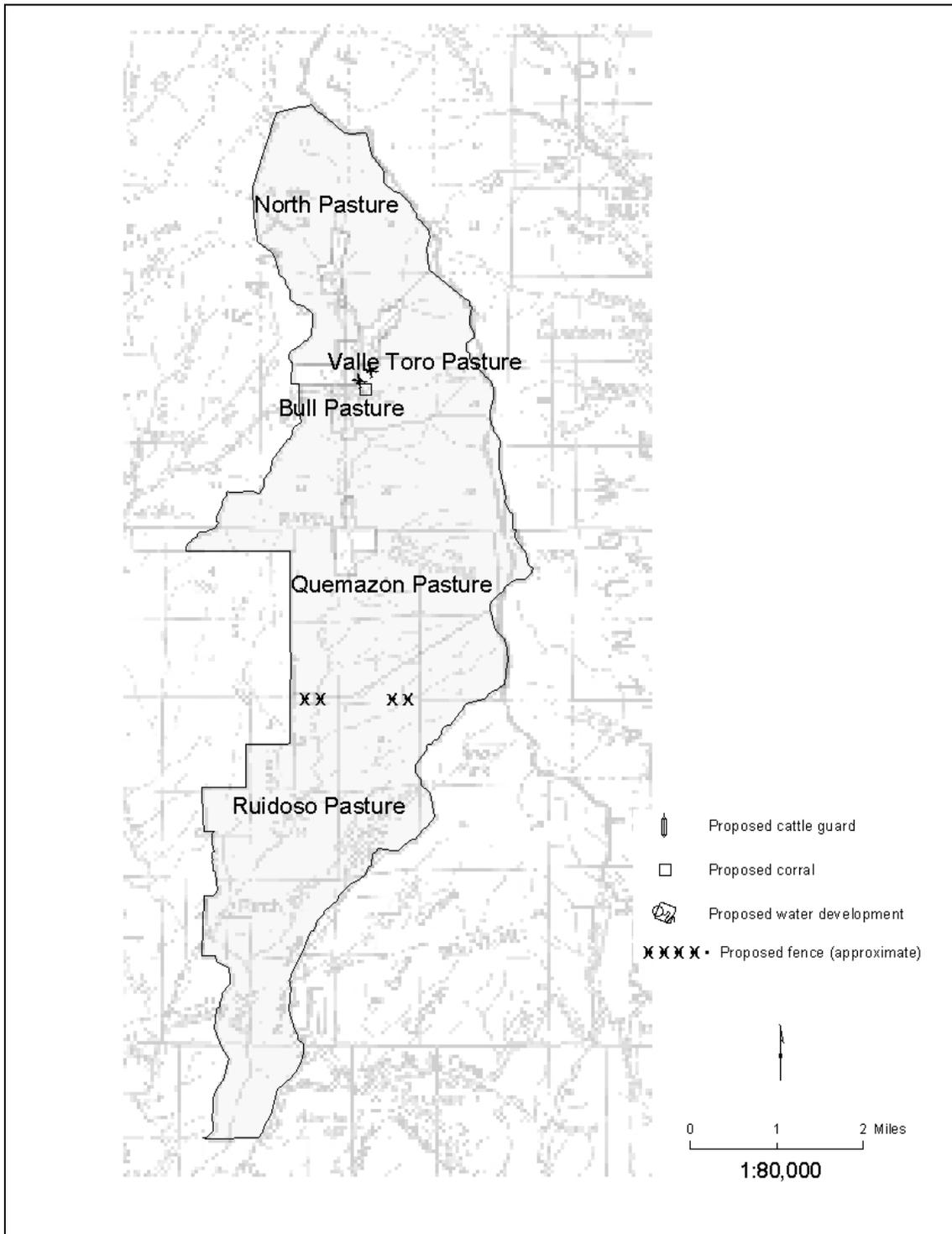


Figure 2. Proposed Action-Bull Creek

Cow Creek

The Forest Service would implement a two-pasture, deferred rotation strategy in the Cow Creek Allotment to achieve distribution objectives and maintain composition of range plants (Figure 3). The two pastures would be Chaperito and Tijeras. No fences are proposed to separate the pastures; rotation would be accomplished by herding.

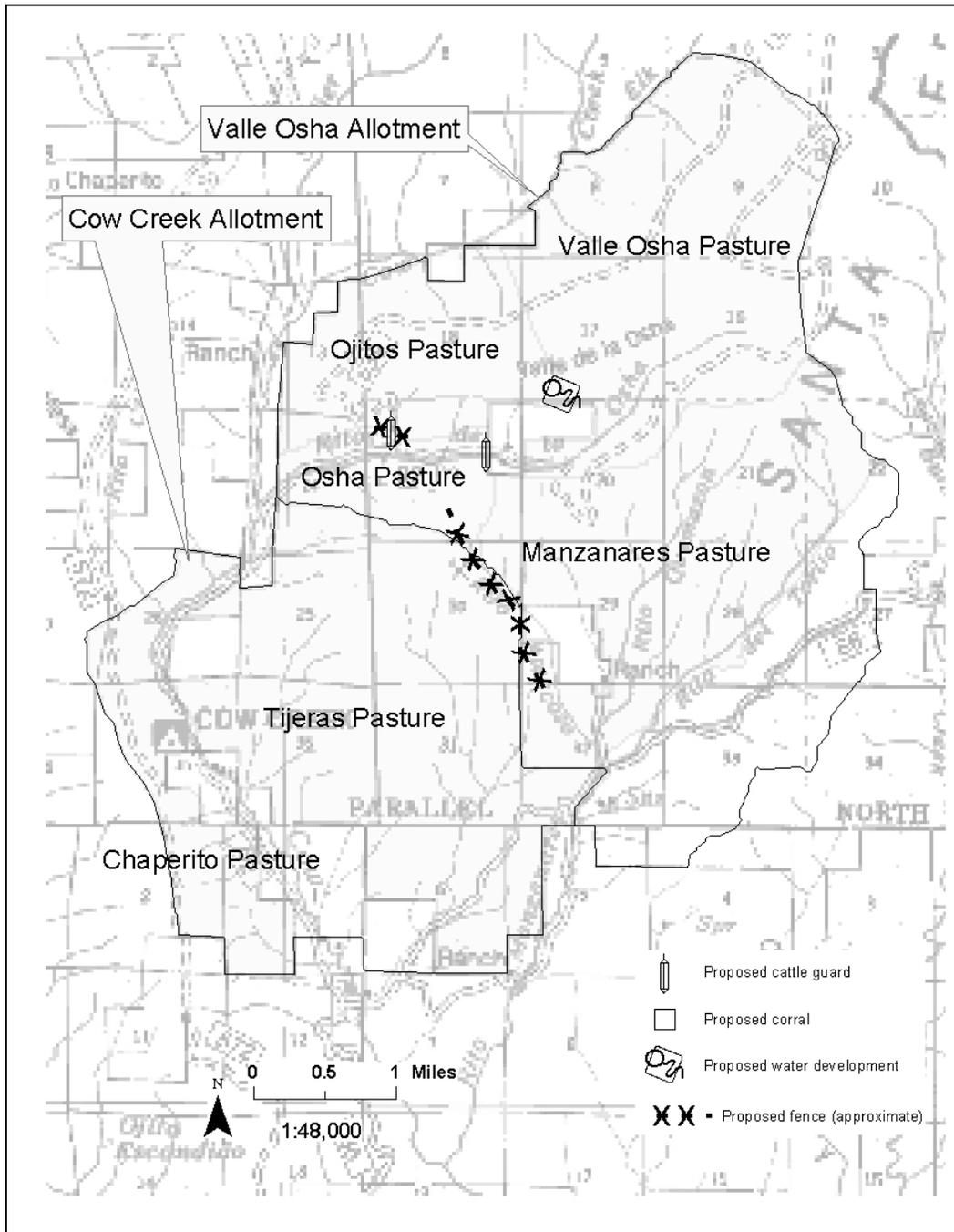


Figure 3. Proposed Action-Cow Creek and Valle Osha

Macho

On the Macho Allotment (Figure 5), the Forest Service would develop one spring with enclosure fence, pipeline, and water trough (see Figure 4) in the Dalton Pasture (T17N, R11E, Sec. 24) and a well in the Indian Creek Pasture (T18N, R12E, Sec. 31) to provide dependable water in the upland pastures. To manage the movement of cattle into the lower portion of the Dalton Pasture, the Forest Service would install a cattle guard on FR 123 and construct approximately one-quarter mile of fence (T17N, R12E, Sec. 30). Figure 6 depicts a typical cattle guard. Last, the Carpenter Pasture, a portion (about 8,300 acres) of which lies in the Pecos Wilderness, would be formally

included in the grazing rotation and used approximately twice every ten years. Though this pasture is part of the current grazing management, cattle do not frequent it.

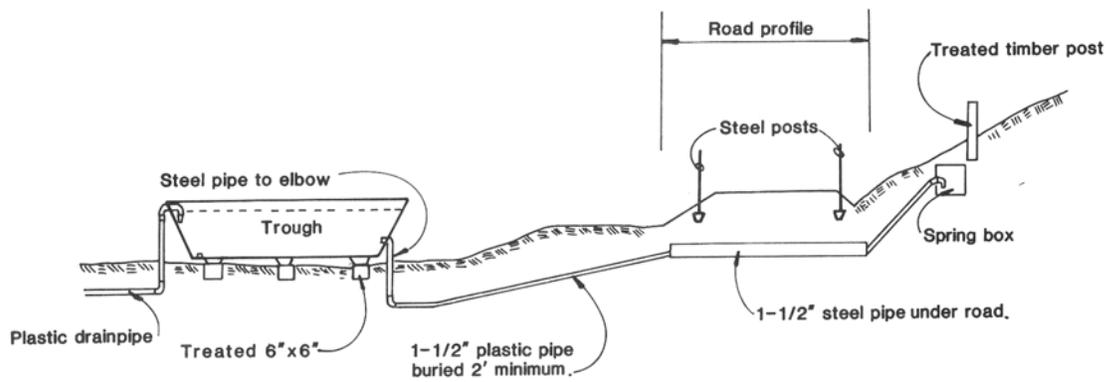


Figure 4. Example of a Spring Development

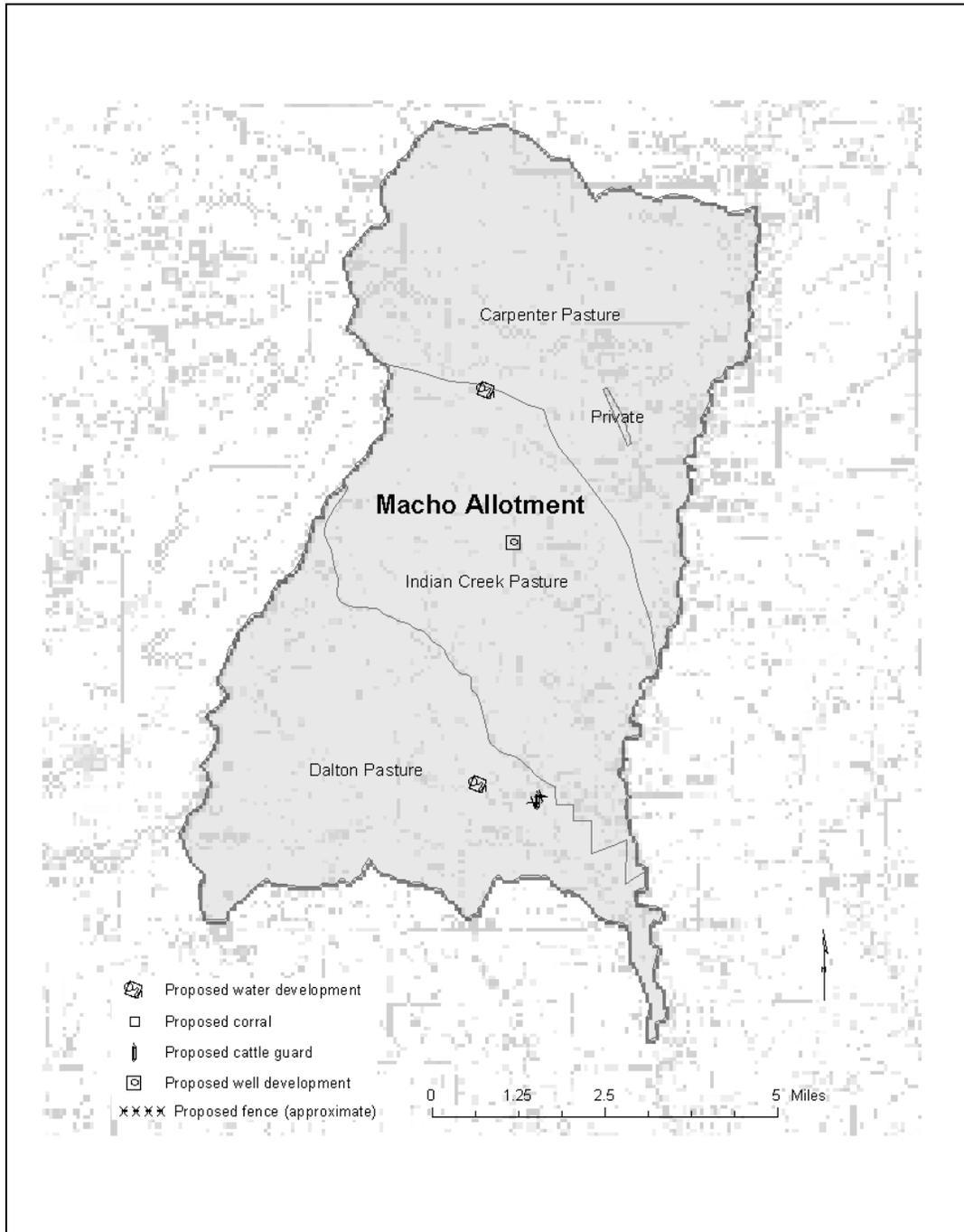


Figure 5. Proposed Action – Macho

Soldier Creek

The Forest Service would use Soldier Creek as a “swing allotment”, allowing cattle from over-used pastures to graze here on a short-term basis. This would alleviate overuse of other District allotments during extreme conditions, such as drought. Temporary grazing permits would be issued and the allotment would be managed under a two-pasture, deferred rotation system (North and South Pastures).

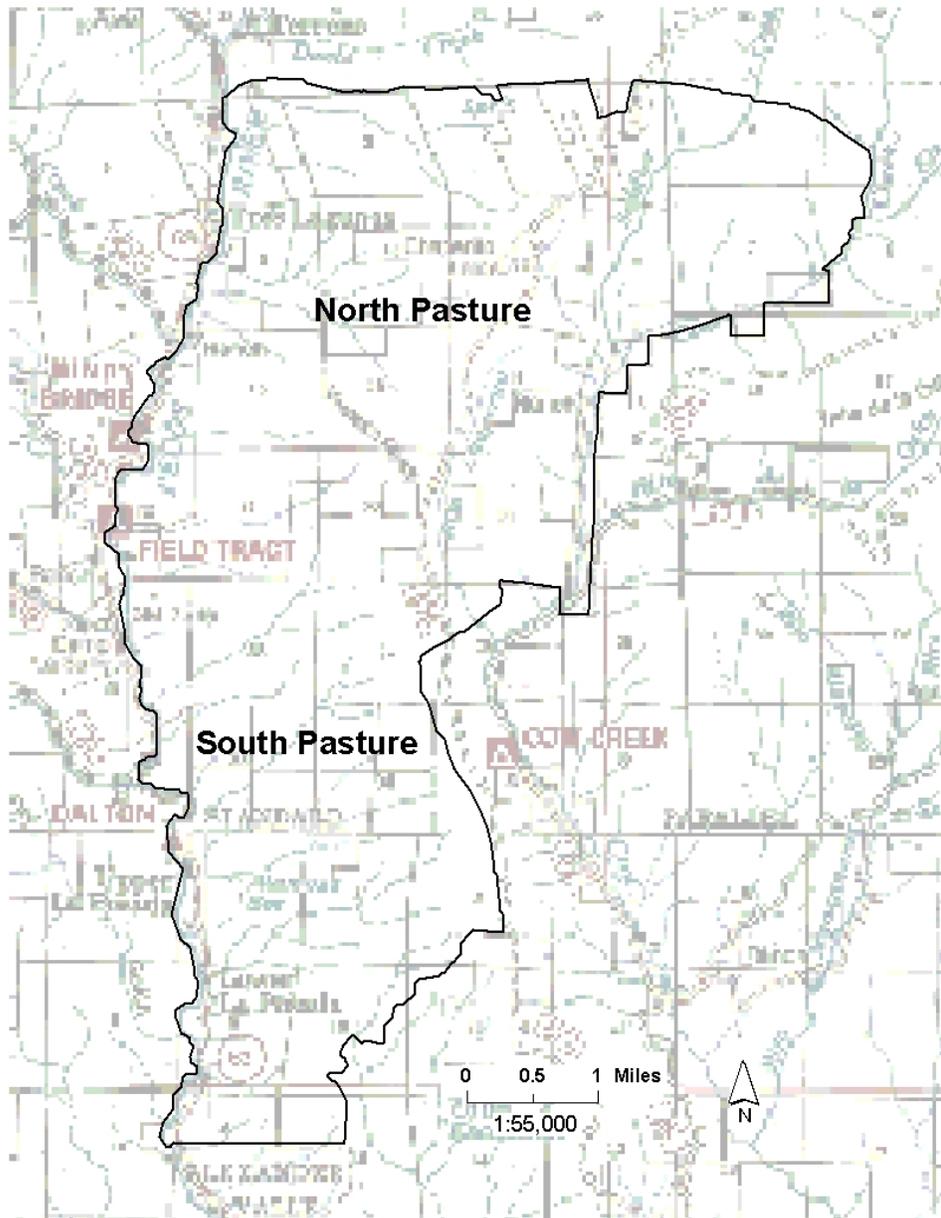


Figure 6. Proposed Action – Soldier Creek

Valle Osha

On the Valle Osha Allotment (Figure 3), the Forest Service would install two cattle guards (see Figure 6) on FR 92 and build about one-quarter mile of fence (T17N, R13E, Sec. 19) to create a pasture along Osha Creek (Osha Pasture). This would enable the Forest Service and permittees to control use of the riparian area. Approximately one and a half miles of division fence separating the Valle Osha and Cow Creek Allotments would be re-built (T17N, R13E, Sec. 30, 31, and 32) to keep cattle properly distributed in their respective allotments. The Forest Service would relocate the southern edge of the fence between the Ojitos and Valle Osha Pastures and repair the spring (T17N, R13E, Sec. 17) so water is shared between the two pastures.

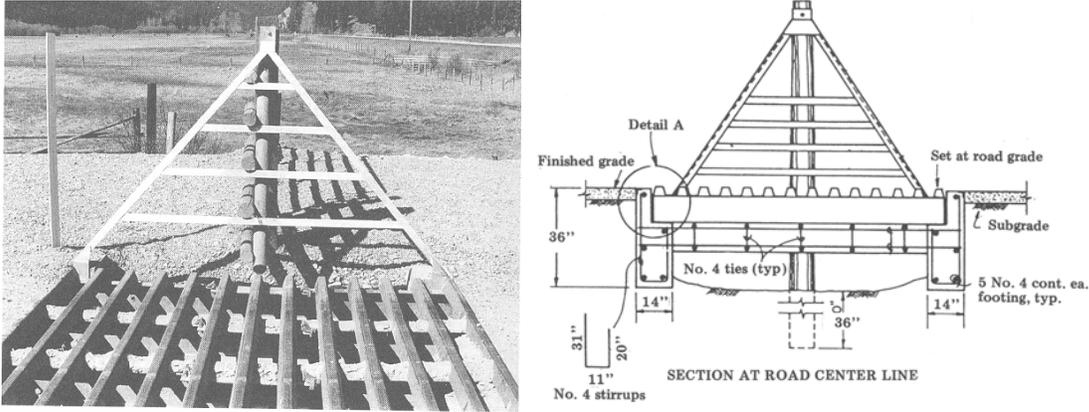


Figure 7. Example of Typical Cattle Guard and Foundation

Decision Framework

The Pecos/Las Vegas District Ranger will issue a decision for each of the five allotments; each decision will include a determination of the significance of the environmental effects and whether an environmental impact statement will be prepared. The District Ranger will decide whether or not to implement the proposed action (Alternative 3), the “no change” (Alternative 1), or the “no grazing” (Alternative 2) alternative. The decisions will include a determination of consistency with the Forest Plan, National Forest Management Act, National Environmental Policy Act, and other applicable laws, regulations, and executive orders.

The decisions will not include a determination of the allotments’ suitability for grazing. The requirements for suitability under the provisions of 36 CFR 219.20 were met upon completion of the Santa Fe National Forest Plan, including the plan’s allocation of acreage suitable for grazing.

Public Involvement

The Forest Service met with allotment permittees in December 2003. We sent a scoping letter to tribes, pueblos, and 125 individuals and organizations on March 25, 2004. We received five written responses to our letter. The proposed project is listed in the Forest’s Schedule of Proposed Actions, which is published quarterly on the Forest’s internet web site.

Key Issues

Key issues are concerns or debate about the potential effects of a proposed action. The Interdisciplinary (ID) Team met on May 6, 2004 to analyze the comments received during scoping and to determine if any key issues were raised. No key issues were identified (see project record).

Issues Eliminated from Detailed Study

At the meeting on May 6, 2004, the ID Team determined that some concerns were addressed by the proposed action (including mitigations), outside the scope of the proposal, conjectural, irrelevant to the decision, not supported by scientific evidence, or already decided by law,

regulation, or policy. The issues raised during scoping and eliminated from analysis are found in the project record.

Project Record Availability

Additional documentation is in the project record located at the Pecos Ranger Station (18 State Route 63, Pecos, New Mexico). The project record is available for the public's review from 8:00 am to 4:30 pm, weekdays. Please contact Julie True at (505) 757-6121 for more information.

Chapter 2 - Alternatives

This chapter describes and compares the alternatives considered for the five range allotments. It also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternatives Eliminated from Detailed Study

After preliminary analysis, the ID Team eliminated three alternatives, briefly summarized below, from detailed study. These alternatives did not meet the purpose and need.

Remove Carpenter Ridge pasture from Macho Allotment

This alternative would be essentially the same as the proposed action with one change; the Carpenter Ridge pasture would not be grazed due to the proximity of the pasture to areas having high recreational use. This alternative was dropped from further analysis because this pasture is needed as part of the rotation for the Macho Allotment.

Combine Solider Creek and Rosilla Allotments

This alternative is essentially the same as the proposed action except Solider Creek would not be kept as a swing allotment. Instead, it would be incorporated into the Rosilla Allotment. This alternative was dropped from further analysis because the Solider Creek Allotment needs to be available to the entire district in order to rest pastures in any allotment that are under stress from drought or other reasons.

Remove Dalton pasture from Macho Allotment

This alternative would eliminate grazing in the lower portion of the Dalton Pasture. This alternative was eliminated from further study because the lower pasture is needed as part of the rotation of the Macho Allotment.

Alternatives

Alternative 1 (No Change)

There would be no change from the current management of the allotments. The Forest Plan and annual operating instructions would continue to guide grazing on the allotments. None of the proposed actions would be implemented. Details of this alternative are presented in Table 1 (Current Grazing Management).

Alternative 2 (No Grazing)

Cattle grazing would no longer be allowed on these allotments. Permittees would be required to remove all cattle from their allotments when their current grazing permits expire (Table 3). No new permits would be issued. All range facilities would be evaluated for their value to soil, wildlife, and watersheds. Allotment boundary fences would not be removed as they would be needed to prevent excess use from cattle on neighboring allotments and private land.

Table 3. Grazing Permit Expiration Dates

Allotment Name	Grazing Permit Expiration Date
Bull Creek	12/31/2005
Bull Creek	12/31/2006
Bull Creek	12/31/2012
Cow Creek	12/31/2006
Macho	12/31/2010
Valle Osha	12/31/2010

Alternative 3 (Proposed Action)

Grazing would continue on the five allotments with changes incorporated to address needs identified in Chapter 1 (Purpose and Need and Proposed Action). Figures 1, 4, and 6 display proposed range facilities. Table 2 displays the proposed grazing management strategy.

Mitigation Measures Common to All Action Alternatives

The mitigation and monitoring measures contained in this section are common to all action alternatives unless otherwise noted. Mitigation measures are prescribed to avoid, minimize, or compensate for adverse environmental effects that could occur from implementing the project. The mitigation measures included here are limited to those for which the Forest Service has authority. These mitigation measures have been used on other projects and are considered to be effective. Monitoring determines whether the project was implemented as planned. Monitoring activities are indicated by an arrow (➤).

Soil and Water Quality – The objective is to prevent soil from being exposed, eroding, and delivering sediment to streams as a result of cattle grazing and range facility construction.

- Cattle will be moved when utilization of key forage species in key use areas approaches established standards (conservative levels¹).
- A salting plan will be developed that minimizes impacts to riparian zones, meadow ecosystems, and other forest resources (Forest Plan, p. 68). Salting locations will vary annually and will not be located within ¼ -mile of water sources.
- Implementation monitoring will include periodic inspections to ensure compliance with permit terms and conditions.

¹ Holecheck and Galt (2000) define conservative use as 31-40%.

- Effectiveness monitoring will determine if grazing standards and guidelines, grazing prescriptions, and Allotment Management Plan practices are effective in accomplishing the planned objectives. This will occur during annual meetings with permittees.
- Range readiness will be monitored before the grazing season begins to ensure that range conditions are appropriate before cattle are allowed onto the allotment.
- Stubble heights should be measured, at a minimum, at the midpoint of the grazing season for each pasture to ensure that sufficient ground cover is present during the grazing season and will still be present at the end of the grazing season.
- Validation monitoring will compare records of actual use and effectiveness monitoring to determine if the stocking rates are appropriate.
- The condition and trend of vegetation will be measured at five-year intervals to ensure long-term recovery of forage.

Wildlife, Fish and Plants- The objective is to mitigate impacts to wildlife from continued cattle grazing and from disturbance associated with the location and construction of range facilities.

- Cattle will not be moved onto an allotment or pasture until range readiness and facilities inspections indicate that appropriate conditions exist. This will ensure that forage will be maintained at or above a condition that assures recovery and continued existence of Threatened and Endangered Species (Forest Plan, Appendix D, p. 10).
- If any proposed, Threatened, or Endangered plant or animal species are discovered during construction of range facilities, work in the immediate vicinity of the sighting will stop until a Forest Service wildlife biologist has resurveyed the area and any newly recommended mitigation measures have been implemented.
- Construction of range facilities in or near northern goshawk nest sites and post-fledgling family areas will not occur during nesting season (March 1 - September 30). If a goshawk survey is conducted and there is negative response, construction may occur during this period.

Heritage Resources-The objective is to protect heritage resources from direct or indirect impacts caused by ground disturbing activities associated with the construction of range facilities and from those caused by grazing, such as cattle rubbing up against and knocking down standing archeological features or intensively trampling artifact scatters.

- Range facilities will be located so as to avoid having high concentrations of livestock on identified heritage resource sites.
- No ground disturbing activities will be conducted within known site boundaries (Forest Plan, p. 61).
- For the 1.5 miles of fence reconstruction under Alternative 3 (Proposed Action), a qualified archeologist must monitor the digging of postholes within the boundaries of the mica mine pursuant to the clearance with the State Historic Preservation Officer.
- No salting will occur within or immediately adjacent to site boundaries to prevent cattle from congregating on heritage resource sites.
- Heritage surveys of proposed range facilities involving ground disturbance or that have the potential to affect heritage resources will be conducted (Forest Plan, p. 60).

- If any unrecorded sites are discovered during the course of project implementation, all project activities in the vicinity of the site(s) will cease until the Resource Area or Forest Archeologist has resurveyed the area and any newly recommended mitigation measures have been implemented.
- If it is determined at a later date that impacts from grazing (e.g. trampling of artifact scatters, cattle rubbing against and knocking down standing features) are occurring to heritage sites, measures will be taken (e.g. fencing) to protect them.

Recreation-the objective is to maintain access to popular recreation areas and major travel corridors.

- Range facilities such as cattle guards and fences will be constructed so that they continue to allow recreational access.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Tables 4 and 5 provide a summary of the alternatives. The only items listed in Table 4 are those for which the outputs differed between alternatives.

Table 4. Comparison of Outputs

Actions included in each alternative	Alternative 1 No Change	Alternative 2 No Grazing	Alternative 3 Proposed Action
Fence construction (miles)	0	0	3.0
Total fence (miles)	21.1	21.1	23.0
Corrals	3	3	4
Developed springs	4	4	7
Wells	0	0	1
Number of cattle	152	0	202

Table 5. Comparison of Effects

		Alternative 1 No Action	Alternative 2 No Grazing	Alternative 3 Proposed Action
Soil, Water, and Air	Impaired soils (all allotments)	< 15% (primarily due to steep slopes); local disturbance around water sources	No change from Alternative 1	No change from Alternative 1
	Unsatisfactory soils (all allotments)	< 12% (primarily due to steep slopes)	No change from Alternative 1	No change from Alternative 1
	Water quality	No change – only Bull and Cow Creeks on 303(d) list	No change – only Bull and Cow Creeks on 303(d) list	No change – only Bull and Cow Creeks on 303(d) list
	Riparian habitat	All streams in proper functioning condition	All streams in proper functioning condition; incremental improvement in habitat	All streams in proper functioning condition; incremental improvement in habitat
	Miles of stream on national forest open to cattle grazing	18	0	18
	Meets Clean Air Act standards?	Yes	Yes	Yes
Vegetation	Vegetative structure	No change from existing condition	Incremental increase in grass cover	Incremental increase in grass cover; incidental trees removed for fence construction
	Satisfactory range	~ 14,870 acres	~ 15,220 acres	~ 15,220 acres
	Unsatisfactory range	~ 350 acres	0 (over time)	0 (over time)
	Invasive species	Some bull thistle on Soldier Creek and Macho Allotments	Some bull thistle on Soldier Creek and Macho Allotments	Some bull thistle on Soldier Creek and Macho Allotments
Recreation and Scenery	Meets visual quality objectives?	Yes, except southern end of Macho Allotment	Yes, except southern end of Macho Allotment	Yes, except southern end of Macho Allotment

		Alternative 1 No Action	Alternative 2 No Grazing	Alternative 3 Proposed Action
	Changes existing recreation opportunity spectrum?	No	No	No
	Encounters between recreationists and cattle?	Few	None	High probability for 2-4 weeks every 5 years that cattle graze in the Carpenter Ridge pasture (Pecos Wilderness)
Heritage Resources	Potential damage from construction of range facilities	None	None	None
	Potential damage from cattle	Very low	None	Very low
Wildlife and Fish	Population viability	No change	No change	No change
	Habitat quality	No change	Increase in grass cover	Increase in grass cover

(Summarized from specialist's reports)

Chapter 3 - Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for the comparison of alternatives presented in the table at the end of Chapter 2.

Soil - Affected Environment

The five allotments are located within the Sangre De Cristo Mountains. Soils in the area are primarily loams derived mainly from limestone, sandstone, and shale. Data from the Terrestrial Ecosystem Survey (TES) of the Santa Fe National Forest (USDA-FS, 1993) was used to determine soil condition. Soil condition affects nutrient recycling, vegetative productivity and diversity, and water storage and movement.

A soil condition rating of “satisfactory” indicates past and current uses have allowed soil to function properly and retain its inherent productivity. A rating of “impaired” indicates past and/or current uses have reduced the soil’s ability to function properly in a biological sense. Various activities, such as road use and maintenance, disturbance by livestock or wildlife, wildfires, steep slopes, landslides, or extreme rainfall, can cause impairment. A rating of “unsatisfactory” indicates land uses have resulted in a loss of soil function. Unsatisfactory areas have degraded so far that they are not likely to quickly recover, even if rested, without substantial restoration measures. Soil condition ratings for the five allotments are presented in Table 6. Nearly all of the soils on the five allotments are classified as satisfactory (Figure 8).

Table 6. Rating of soil condition by allotment.

	Bull Creek	Cow Creek	Macho	Soldier Creek	Valle Osha
Satisfactory	94%	~98%	96%	86%	~98%
Impaired	1%	<1%	3%	10%	<1%
Unsatisfactory	5%	<1%	1%	4%	<1%

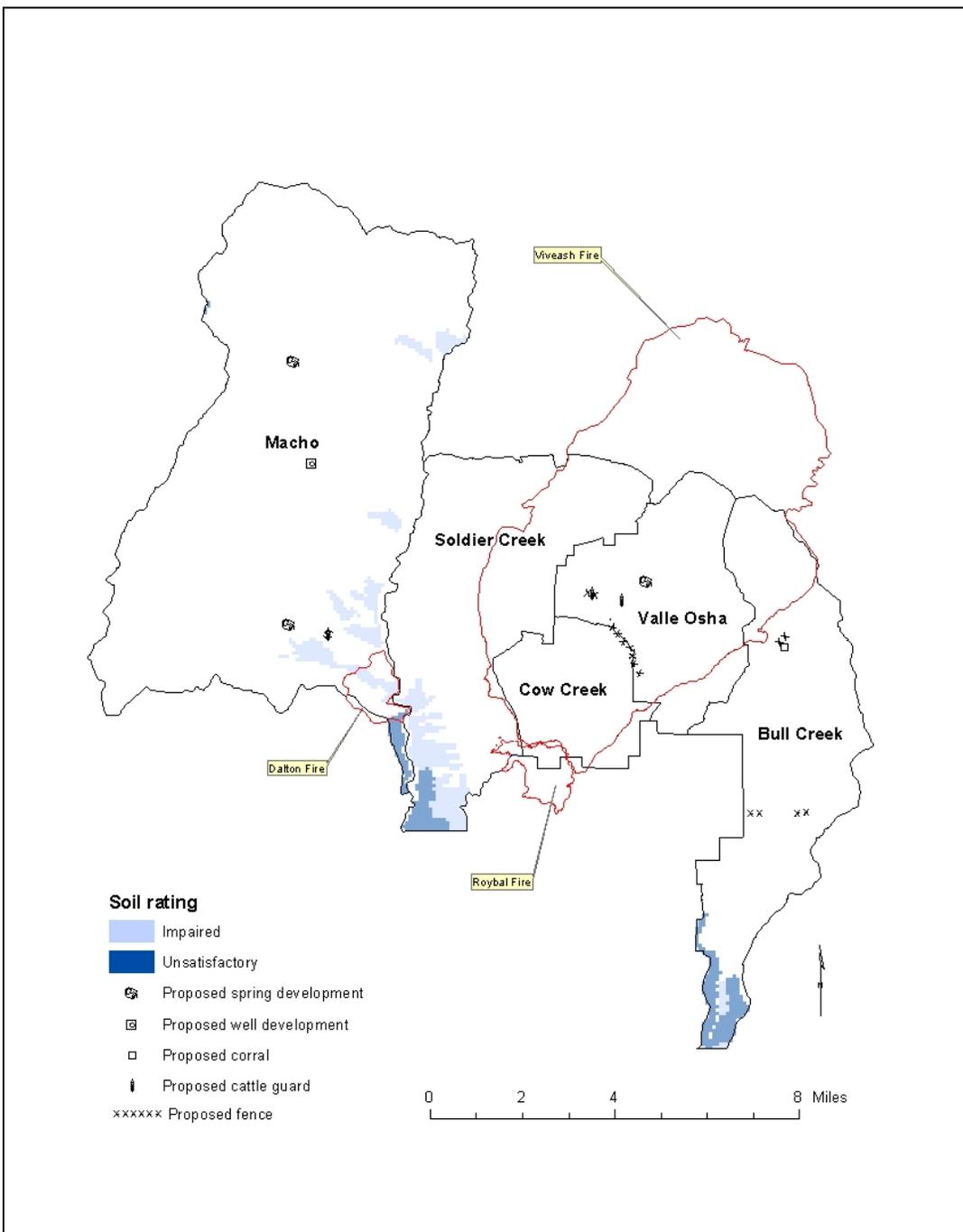


Figure 8. Soil rating for each allotment.

Bull Creek

The impaired and unsatisfactory soils are primarily a result of steep slopes. Minor areas of soil compaction occur in the existing corral and along existing fence lines where cattle trail. Bull Creek has two corrals on the allotment; only one of them is used.

Cow Creek

The District Natural Resources Staff Officer estimates that less than one percent of the entire allotment has impaired or unsatisfactory soils as a result of the Viveash and Roybal Fires. These impairments are primarily in gullies that formed on steep slopes after the fires; they are now naturally stabilizing.

Macho

The impaired and unsatisfactory soils are primarily a result of steep slopes. In lower Dalton Canyon, approximately 3 acres is severely compacted and denuded of vegetation due to heavy recreational use. Macho has one corral, around which about ¼ acre of soil is compacted. Compaction around the water troughs generally occurs in small areas (less than 1/10 acre) surrounding the drinker or trough – the springs themselves are fenced to keep cattle out.

Soldier Creek

The impaired and unsatisfactory soils are primarily a result of steep slopes.

Valle Osha

The District Natural Resources Staff Officer estimates that less than one percent of the entire allotment has impaired or unsatisfactory soils as a result of the Viveash Fire. These impairments are primarily gullies that formed on steep slopes after the fire; they are now naturally stabilizing.

Soil - Environmental Consequences

Alternative 1 (No Change)

The Pecos/Las Vegas Natural Resources Staff Officer has observed that trailing is not common along fence lines within any of the five allotments because the fences have been in place for many years and cattle have become accustomed to fence locations.

Bull Creek

Continuing grazing at current levels would not change the status of impaired or unsatisfactory soils on the Bull Creek Allotment because the soils have been designated as impaired primarily due to steep slopes, not because of grazing. No additional soil compaction as a result of grazing is expected because cattle would graze in areas they are already accustomed to. Soil compaction around the spring development, within the usable corral, and along existing fence lines where cattle trail would continue at current levels.

Compaction in the vicinity of and within the one usable corral, encompassing about ¼ acre, would be limited. Compaction here is limited in duration because cattle are only in the vicinity of the corral for a couple of days in June and a couple of days in October. Between June and October, vegetation (consisting of perennial forbs and grasses) grows back, and even thrives, in the area surrounding the corral.

Cow Creek

None of the soils in the Cow Creek Allotment have been designated as impaired or unsatisfactory as a result of grazing at current levels, so continuing grazing at current levels is not expected to change soil condition. Additionally, impaired or unsatisfactory soils on the allotment are also

rated as “incapable” range, unlikely to be grazed by cattle. Any incremental changes in soil compaction as a result of grazing would probably not be measurable. Soil compaction would continue at current levels along existing fence lines where cattle trail.

Macho

Continuing grazing at current levels would not change the status of impaired or unsatisfactory soils on the Macho Allotment because the soils have been designated as impaired primarily due to steep slopes or to recreational use, not because of grazing. Additional soil compaction as a result of grazing would be immeasurable. Soil compaction around the springs, within the corral, and along existing fence lines where cattle trail would continue at current levels.

Compaction in the vicinity of and within the corral, encompassing about ¼ acre, would be limited. Compaction here is limited in duration because cattle are only in the vicinity of the corral for a couple of days in June and a couple of days in October. Between June and October, vegetation (consisting of perennial forbs and grasses) grows back, and even thrives, in the area surrounding the corral.

Soldier Creek

Continuing grazing at current levels would not change the status of impaired or unsatisfactory soils on the Soldier Creek Allotment because the soils have been designated as impaired primarily due to steep slopes, not because of grazing. Additionally, impaired or unsatisfactory soils on the allotment are also rated as “incapable” range, unlikely to be grazed by cattle.

Valle Osha

None of the Valle Osha Allotment has been designated as impaired or unsatisfactory as a result of grazing at current levels, so continuing at current levels is not expected to change soil condition. Additionally, impaired or unsatisfactory soils on the allotment are also rated as “incapable” range, unlikely to be grazed by cattle. Any incremental increase in soil compaction as a result of grazing would be probably immeasurable. Soil compaction around existing spring developments and existing fence lines where cattle trail would continue at current levels. Compaction around water troughs generally occurs in small areas (less than 1/10 acre) surrounding the drinker or trough – the springs themselves are fenced to keep cattle out.

Alternative 2 (No Grazing)

All Allotments

This alternative would have the least effect on soil within the five allotments because eventually, as permits expire, no cattle would graze in the allotments. Overall, however, there would be little change in soil condition because water developments would be retained and used by wildlife. As such, there would continue to be limited, localized disturbance to soil in the vicinity of the water sources.

Alternative 3 (Proposed Action)

All Allotments

The construction of range facilities would not cause soil movement outside of the immediate vicinity of construction. Placing fence posts would disturb an area too small to be of any consequence. Constructing water developments would disturb less than 1/10 acre at each location.

Because soil would not move from the vicinity of the range facilities, there would be no sediment delivery into any of the streams from these activities, and no change to current listing on the 303(d) list.

Bull Creek

Continuing grazing at current levels would not change the status of impaired or unsatisfactory soils on the Bull Creek Allotment because the soils have been designated as impaired primarily due to steep slopes, not because of grazing. Additionally, impaired or unsatisfactory soils on the allotment are also rated as “incapable” range, unlikely to be grazed by cattle. Additional soil compaction as a result of grazing would be so inconsequential as to be immeasurable. Soil compaction around the spring development and along existing fence lines where cattle trail would continue at current levels. Since the new corral would replace the old corral, grass and vegetation would grow in the old corral, which would remain standing. The new fences would help prevent soil compaction by better distributing cattle across the allotment. Also, it is anticipated that cattle would quickly become accustomed to the fence locations, limiting the effects of trailing along fence lines.

New soil compaction would occur on about ¼ acre where the new corral and turn-around area would be constructed. After construction is completed, compaction here would be limited in duration because cattle would only be in the vicinity of the corral for a couple of days in June and a couple of days in October. Between June and October, vegetation (consisting of perennial forbs and grasses) would grow back, and even thrive, in the area surrounding the corral.

Cow Creek

None of the Cow Creek Allotment has been designated as impaired or unsatisfactory as a result of grazing at current levels, so continuing grazing at current levels is not expected to change soil condition. Additional soil compaction as a result of grazing would be so inconsequential as to be immeasurable. Soil compaction would continue at current levels along existing fence lines where cattle trail. The boundary fence and implementation of a rotational grazing system would help prevent any soil compaction by better distributing cattle across the allotment. Also, it is anticipated that cattle would quickly become accustomed to the fence locations, limiting the effects of trailing along fence lines.

Macho

Continuing grazing at current levels would not change the status of impaired or unsatisfactory soils on the Macho Allotment because the soils have been designated as impaired primarily due to steep slopes or to recreational use, not because of grazing. Additionally, impaired or unsatisfactory soils on the allotment are also rated as “incapable” range, unlikely to be grazed by cattle. Additional soil compaction as a result of grazing would be so inconsequential as to be immeasurable. Soil compaction around the springs, within the corral, and along existing fence lines where cattle trail would continue at current levels. It is anticipated that cattle would quickly become accustomed to the new fence locations, limiting the effects of trailing along fence lines. There would be about 1/10 acre of new soil compaction around the well development. Finally, implementation of a rotational grazing system would help prevent any soil compaction by better distributing cattle across the allotment.

The development of springs and a well would protect on-site soil condition because the design would incorporate mitigations to protect soils, such as piping water out of the riparian area to a drinker and then returning the overflow to the drainage. Also, the spring source itself would be

fenced to reduce impacts from ungulates. The installation of a cattle guard would not change soil condition because the cattle guard would be placed in an existing road, which is already comprised of compacted soils. The construction of fences would only cause soil compaction at the point where posts are installed into the ground, which affects areas too small to be accurately measured.

Soldier Creek

On Soldier Creek, there would be no additional impairment from the introduction of cattle for two reasons. First, the proposed grazing strategy is conservative, and would maintain effective ground cover for soil protection (see mitigations, Chapter 2). Second, the Soldier Creek Allotment would function as swing allotment and would not have livestock on it every year. Additionally, impaired or unsatisfactory soils on the allotment are also rated as “incapable” range, unlikely to be grazed by cattle.

Valle Osha

None of the Valle Osha Allotment has been designated as impaired or unsatisfactory as a result of grazing at current levels, so continuing at proposed levels, which are the same as existing levels, is not expected to change soil condition. Additional soil compaction as a result of grazing on the allotment would be so inconsequential as to be immeasurable. Soil compaction around existing spring developments and existing fence lines where cattle trail would continue at current levels. Compaction around water troughs generally occurs in small areas (less than 1/10 acre) surrounding the drinker or trough – the springs themselves are fenced to keep cattle out. Also, it is anticipated that cattle would quickly become accustomed to the fence locations, limiting the effects of trailing along fence lines.

Repairing the spring would improve soil condition because the design would incorporate mitigations to protect soils, such as piping water out of the riparian area to a drinker and then returning the overflow to the drainage. Also the spring source itself would be fenced to reduce trampling from ungulates. The installation of cattle guards would not change soil condition because the cattle guards would be placed on existing roads, which are already comprised of compacted soils. The construction of fences would only cause soil compaction at the point where posts are installed into the ground. This comprises an area considered too small to be accurately measured.

Soil - Cumulative Effects

Alternatives 1 and 3 would result in a minor amount soil compaction. As such there would be cumulative effects; however, the cumulative effects would not cause a change in soil condition rating. The temporal bounds are 12 years in the past to actions listed on the Santa Fe National Forest’s Schedule of Proposed Actions or otherwise in official project planning. The reason is that the Terrestrial Ecosystem Survey, which rates soil condition, was prepared in 1993. Thus, this temporal scale will address any effects caused since then. The geographical area is the boundary of the five allotments (see figure on cover page) because the effects of soil compaction are localized and would not apply off of the allotments.

Table 7. Cumulative effects of soil compaction.

Action(s) – (specific allotment in parentheses)	Date of Action	Size of area	Effect of Action	Cumulative Effect (all actions)
Dispersed recreation in Dalton Canyon (Macho)	on-going	~ 3 acres	Denuded and compacted soils	Alternative 3, all allotments – Less compaction per acre due to better distribution of cattle. Bull Creek – adding about ¼ acre compaction due to new corral. Macho – adding less than ¼ acre new compaction due to well and spring development. This alternative would add to existing estimated soil compaction by 2% (not including the private land). The percent of compacted soils on the allotments would be less than 1%.
ATV use	on-going	~ 10 acres	Compaction in treads where ATVs travel	
Mud-bogging along Rito de la Osha (Valle Osha)	August 2004	< 0.1 acre	Deep ruts formed and denuded vegetation in riparian zone	
Dispersed camping and hunter camps with stock	on-going	~ 10 acres	Compacted soils and denuded vegetation	
Replacement of power poles (Bull and Cow)	July-August 2004	< 0.1 acre (less than 3' x 3' square each)	Compacted and displaced soils	
Unspecified uses of private land (other grazing or construction)	on-going	Unable to quantify; ~10,000 acres of private land total	Compaction	

Water/Riparian – Affected Environment

The five allotments are within the Pecos watershed (HUC 4-13060001). Numerous streams run through the boundaries of the allotments as shown in the table and figure below.

Table 8. Perennial and Intermittent Streams by Allotment.

Allotment	Perennial streams	Flows to	Intermittent streams	Flows to
Bull Creek	Bull Creek	Cow Creek, then Pecos River		
Cow Creek	Cow Creek	Pecos River		
Macho	Macho Creek Dalton Creek Indian Creek Holy Ghost Creek	Pecos River		
Soldier Creek			Soldier Creek	Cow Creek, then Pecos River

Allotment	Perennial streams	Flows to	Intermittent streams	Flows to
Valle Osha	Rito de la Osha	Cow Creek, then Pecos River	Rito Torito Rito Manzanares Rito Quemazones	Cow Creek, then Pecos River

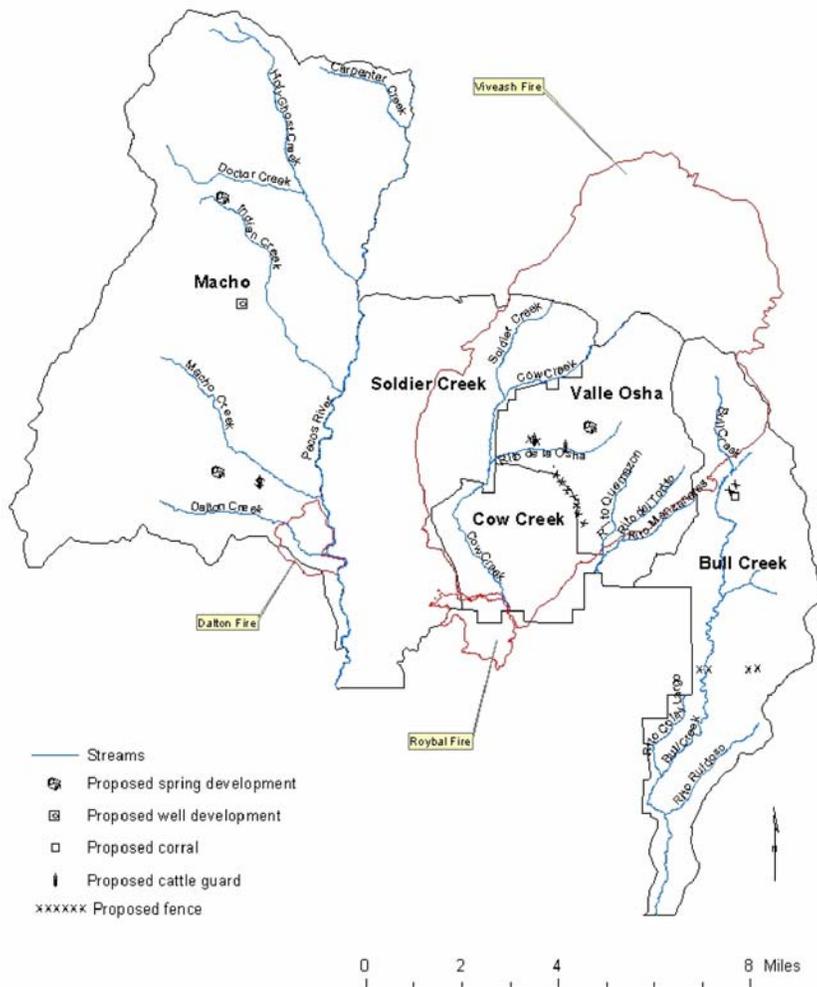


Figure 9. Major streams on the allotments.

The Pecos River is not on either the Macho or Soldier Creek Allotments. It used to bisect the Pecos River Allotment, which was de-stocked at least 20 years ago (Varela, pers. communication). No Forest Service-permitted cattle graze along the Pecos River.

The status of assessed streams on each allotment is taken from the reports titled “Water Quality and Water Pollution Control in New Mexico, Final Draft 2004” (Exhibit 1) and “Record of Decision for the 2004-2006 State of New Mexico 303(d)²/305(b) Integrated List for Assessed Surface Waters” (Exhibit 2). Figure 10 shows the streams listed on the 303(d) list.

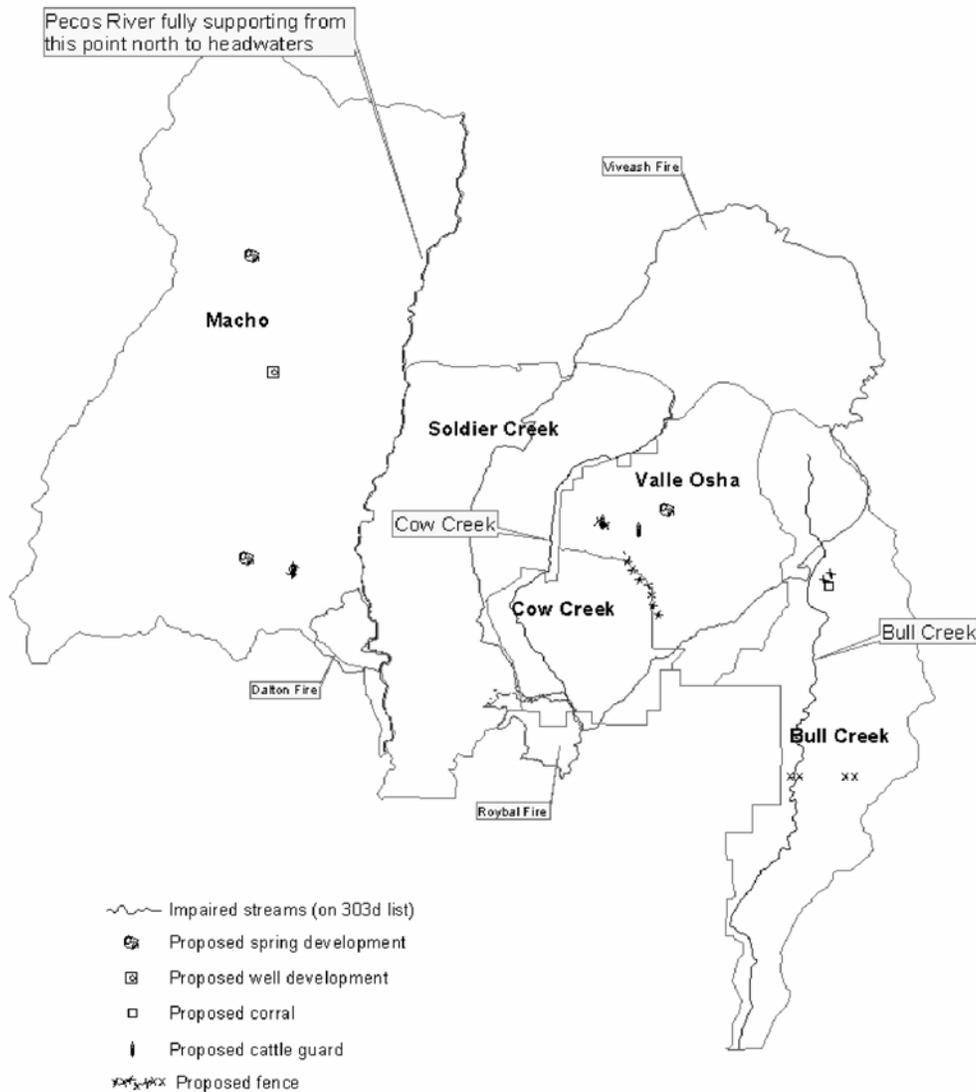


Figure 10. Streams on the 303(d) list.

² The 303(d) list fulfills a requirement under the federal Clean Water Act that mandates States to monitor streams to determine if they have been impaired by man-caused activities.

Proper Functioning Condition (PFC) Surveys were conducted on the following streams: Dalton Creek, Indian Creek, and Tijeras Creek (July 2003); Upper and Lower Bull Creek, Soldier Creek, Rito Torito, Rito Quemazon, Rito de la Osha, and Manzanares (August 2003).

Bull Creek

Stream(s) on 303(d) list: Bull Creek (Cow Creek to headwaters)

Bull Creek from its confluence with Cow Creek does not support the use of “high quality cold water fishery” due to temperature. Probable sources of this impairment are listed as loss of riparian habitat, rangeland (unmanaged pasture) grazing, and watershed runoff following forest fire.

Grazing by Forest-Service permitted cattle is not likely to have caused the exceedance in temperature for two reasons. First, the thermograph that recorded the temperature causing this listing was placed a few meters above the confluence of Cow Creek (Schiffmiller, pers. communication) (see Figure 11). At this point, the stream is 1.3 miles from the southern end of the allotment; of this, the last 1.1 miles crosses private land. Second, the data was collected in 2001, about one year after the Viveash Fire. The exceedances occur between June 18, 2001 and August 5, 2001 during the afternoon hours only (project record) and were most likely an after-effect of the fire.

According to the PFC surveys on Upper and Lower Bull Creek in August 2003, the riparian habitat is sufficient to maintain a designation of “high quality cold water fishery”. As evidenced by these surveys, grazing on floodplains and in riparian areas has not depleted vegetation enough to degrade the root structure and cause changes in the stream’s morphology.

Cow Creek

Stream(s) on 303(d) list: Cow Creek (Bull Creek to headwaters)

Cow Creek from its confluence with Bull Creek does not support the use of “high quality cold water fishery” due to sedimentation/siltation, temperature, and turbidity. Probable sources of this impairment are listed as: highway/road/bridge runoff (non-construction related), loss of riparian habitat, rangeland (unmanaged pasture) grazing, stream bank modifications / destabilization, and watershed runoff following forest fire. In the Record of Decision (Exhibit 2) reports, turbidity is attributed to wildfire (the Viveash Fire) rather than grazing.

Grazing by Forest-Service permitted cattle is not likely to have caused the exceedance in temperature or sedimentation/siltation. The thermograph that recorded the temperature causing this listing was placed a few meters above the confluence of Bull Creek (Hopkins, pers. communication) (see Figure 11). At this point, the stream is about 10 river miles from the southern end of the allotment; of this, the last 6.3 miles crosses private land. Further, on the allotment itself, no grazing of Forest Service-permitted cattle occurs directly adjacent to Cow Creek because the creek is surrounded by private land and a campground within the allotment boundaries. Thus, due to the large distance to the sampling point and the fact that Forest Service-permitted cattle are unable to access the stream banks, it is unlikely that grazing contributed to exceedances in temperature, sedimentation, or siltation.

Because Forest Service-permitted cattle do not graze along Cow Creek, no PFC surveys were conducted.

Macho

Stream(s) on 303(d) list: none

Holy Ghost Creek, Indian Creek, Macho Canyon Creek, and Dalton Canyon Creek are all listed as fully supporting assessed uses.

According to the PFC surveys on Dalton and Indian Creeks in August 2003, the riparian habitat is sufficient to maintain a designation of “high quality cold water fishery”. As evidenced by these surveys, grazing on floodplains and in riparian areas has not depleted vegetation enough to degrade the root structure and cause changes in the stream’s morphology.

Soldier Creek

Stream(s) on 303(d) list: Cow Creek (Bull Creek to headwaters)

Grazing by Forest-Service permitted cattle is not likely to have caused the exceedance in temperature or sedimentation/siltation because cattle have not grazed on this allotment for at least ten years. Further, Cow Creek is inaccessible to Forest Service-permitted cattle on the Soldier Creek Allotment because it runs through private land.

According to the PFC survey on Soldier Creek in August 2003, the riparian habitat is sufficient to maintain a designation of “high quality cold water fishery”. As evidenced by this survey, grazing on floodplains and in riparian areas has not depleted vegetation enough to degrade the root structure and cause changes in the stream’s morphology.

Valle Osha

Stream(s) on 303(d) list: none

According to the PFC surveys on Rito Torito, Rito Quemazon, Rito de la Osha, and Manzanares in August 2003, the riparian habitat is sufficient to maintain a designation of “high quality cold water fishery”. As evidenced by these surveys, grazing on floodplains and in riparian areas has not depleted vegetation enough to degrade the root structure and cause changes in the stream’s morphology.

A total of 41.75 miles of stream occur in the five allotments. The following table displays the miles of stream located within each allotment.

Table 9. Miles of Stream Segments within Allotments

	Bull Creek	Cow Creek	Macho	Soldier Creek	Valle Osha	Total
Macho Creek			5.0			5.0
Indian Creek			4.5			4.5
Dalton Creek			7.25			7.25
Soldier Creek				2.5		2.5
Rito De La Osha					3.5	3.5
Rito Manzanares					2.5	2.5
Rito Torito					2.5	2.5
Rito Quemazones					2.0	2.0
Bull Creek	10.5					10.5
Cow Creek		1.5				1.5
Total miles stream	10.5	1.5	16.75	2.5	10.5	41.75

In assessing the potential effects of grazing to streams and associated riparian areas, it is relevant to identify how much of the stream area is open to grazing and for what duration. In gathering this data, streams were categorized as follows:

- Not excluded – these stream segments are within pastures that are grazed under a rotational grazing system between the months of May and October (grazing season). Cattle can be in these pastures for more than 10 days at a time but would not exceed 45 days in a grazing season.
- Partially excluded – these stream segments are within pastures that are grazed for less than 10 days in a grazing season.
- Fully excluded – these stream segments are fenced; therefore, no grazing is permitted along these stream segments.
- Private lands – these stream segments are located on private lands and are not under the jurisdiction of the Forest Service. Forest Service permits for these allotments do not authorize grazing on private land.
- No capability – these stream segments are located in areas assigned as no capability for grazing. Because there is no capability, cattle grazing is not likely to occur due to steep terrain or lack of access.

Table 10. Miles of Stream Open to Cattle Grazing (Alternative 1)

	Not Excluded	Partially Excluded	Fully Excluded	No Capability	Private Lands
Macho Creek	.5	.5		3.5	.5
Indian Creek	1.0	1.5		2.0	
Dalton Creek			7.25		
Soldier Creek	.25	2.25			
Rito De La Osha	2.0	1.25			.25
Rito Manzanares	2.5				
Rito Torito	1.0	1.5			
Rito Quemazones	1.0	1.0			
Bull Creek	1.0	.75		5.25	3.5
Cow Creek			1.5		1.5
Total Miles	9.25	8.75	8.75	10.75	5.75
Percent	22%	21%	21%	24%	12%

Water/Riparian - Environmental Consequences

Alternative 1 (No Change)

All Allotments

Grazing is not permitted on 57 % of the streams within the allotments and occurs for less than 10 days on an additional 21 % of the streams. As such, effects from grazing to approximately 78 % of the streams are considered negligible due to the exclusion of cattle or the limited duration of their presence. On some sections of the remaining 22% of the streams where cattle have access for up to 45 days in a grazing season, stream banks would have some trampling and riparian vegetation would be eaten.

Bull Creek

There would be no change from the existing condition; Bull Creek would likely remain on the 303(d) list due to exceedances in temperature since this was likely caused by factors other than Forest Service-permitted cattle. The riparian area identified in the PFC surveys would remain in proper functioning condition. Under current allotment management plans, cattle are removed from riparian areas when utilization levels are at or below the established standard, and mitigation measures, such as salting on the uplands, are implemented to protect stream zones.

Cow Creek

There would be no change from the existing condition; Cow Creek would likely remain on the 303(d) list due to exceedances in temperature, turbidity, and sedimentation/siltation since these were caused by factors other than grazing of Forest-Service permitted cattle. Under current allotment management plans, cattle are removed from riparian areas when utilization levels are at

or below the established standard, and mitigation measures such as salting on the uplands are implemented to protect stream zones.

Macho

There would be no change from the existing condition. The streams would remain in proper functioning condition because cattle are removed from them when utilization levels are at or below the established standard. Further, no stream is on the 303(d) list or not in proper functioning condition with the current numbers and season of livestock.

Soldier Creek

There would be no change from the existing condition; Cow Creek would likely remain on the 303(d) list due to since their exceedances were caused by factors other than grazing of Forest-Service permitted cattle. Soldier Creek would remain in proper functioning condition. Under current allotment management plans, cattle are removed from riparian areas when utilization levels are at or below the established standard and mitigation measures such as salting on the uplands are implemented to protect stream zones.

Valle Osha

There would be no change from the existing condition. No streams would be listed on the 303(d) list because current grazing levels have not caused any streams to be listed. The other streams identified in the PFC surveys would remain in proper functioning condition. Under current allotment management plans, cattle are removed from riparian areas when utilization levels are at or below the established standard and mitigation measures such as salting on the uplands are implemented to protect stream zones.

Alternative 2 (No Grazing)

All Allotments

As permits expire, cattle would eventually be removed from 100% of the streams within the allotments. The risk that any new streams would be placed on the 303(d) list due to indirect effects (sedimentation, turbidity, temperature) from cattle grazing would be eliminated. Streams already on the 303(d) list, however, would not be removed since their listing is likely due to other factors as explained in above in “Existing Condition”. This alternative would remove the risk that riparian areas would be degraded by cattle.

Alternative 3 (Proposed Action)

All Allotments

Alternative 3 would provide more protection to water and riparian areas than Alternative 1.

Overall, cattle would still have access to 22% of the total stream segments for up to 45 days, but the rotational grazing system and range facilities would provide better control of where cattle graze and when. Cattle would have access to 21% of streams for 10 days or less, and grazing would not occur on the remaining 57% of streams (see Table 10). As such, effects from grazing to approximately 78 % of the streams are considered negligible due to the exclusion of cattle or the limited duration of their presence.

Because the construction of range facilities would not cause soil movement outside of the immediate vicinity of construction (see Environmental Consequences, Soil, Alternative 3), there would be no sediment delivery into any of the streams from these activities, and no change to current listing on the 303(d) list.

Bull Creek

There would be no change from the existing condition; Bull Creek would likely remain on the 303(d) list due to exceedances in temperature since this was caused by factors other than Forest Service-permitted cattle. The riparian area identified in the PFC surveys would remain in proper functioning condition. Under current allotment management plans, cattle are removed from riparian areas when utilization levels are at or below the established standard, and mitigation measures, such as salting on the uplands, are implemented to protect stream zones. Further, salting would not be permitted within 1/4-mile of streams (see mitigations, Chapter 2).

Cow Creek

There would be no change from the existing condition; Cow Creek would likely remain on the 303(d) list due to exceedances in temperature, turbidity, and sedimentation/siltation since these were caused by factors other than grazing of Forest-Service permitted cattle. No new streams would be listed on the 303(d) list because, under proposed allotment management plans, cattle would be moved when utilization levels are at or below the established standard. Further, salting would not be permitted within 1/4-mile of streams (see mitigations, Chapter 2).

Macho

There would be no change from the existing condition. The streams identified in the PFC surveys would remain in proper functioning condition because the range facilities would better distribute livestock. No new streams would be listed on the 303(d) list because, under proposed allotment management plans, cattle would be moved when utilization levels are at or below the established standard. Further, salting would not be permitted within 1/4-mile of streams (see mitigations, Chapter 2).

Soldier Creek

There would be no change from the existing condition; Cow Creek would likely remain on the 303(d) list due to since its exceedances were caused by factors other than grazing of Forest-Service permitted cattle. Soldier Creek would remain in proper functioning condition because cattle would use this allotment infrequently and be removed when utilization levels are at or below the established standard.

Valle Osha

None of the streams on the allotment are on the 303(d) list; however, Alternative 3 would help keep them off the list by protecting riparian areas over the long term. Cattle would spend more time in upland pastures and their use of riparian zones, such as Rito de la Osha, would be closely controlled. Access to the riparian pasture by cattle would be on a set rotation, thereby limiting the amount of trampling and consumption of vegetation. No new streams would be listed on the 303(d) list because, under proposed allotment management plans, cattle would be removed from riparian areas when utilization levels are at or below the established standard. Further, salting would not be permitted within 1/4-mile of streams (see mitigations, Chapter 2).

Water/Riparian - Cumulative Effects

Grazing at current numbers and seasons by Forest service-permitted cattle in riparian areas has not caused any streams to be listed on the 303(d) list; therefore, under Alternatives 1 and 3 there would be no cumulative effects. In other words, grazing has not contributed cumulatively with other actions to cause a stream to be listed. There would be no direct or indirect effects to the non-listed streams under the alternatives, so there would be no cumulative effects.

Air – Affected Environment

With the exception of a small portion of the Macho Allotment that overlaps a Class I (wilderness) air quality management area, the five allotments are within a Class II air quality management area. Both areas are in attainment of air quality requirements.

Air- Environmental Consequences

None of the alternatives would have any measurable direct or indirect effects on air quality. Because this project would have no direct or indirect effects, there would be no cumulative effects.

Vegetation – Affected Environment

Within the five allotments, elevations range between 10,500 feet above sea level along the northeastern portion of the Sangre de Cristo Mountains to 7,500 feet along the southern portion of the Cow Creek area. Vegetation is largely defined by elevation, with higher elevations exhibiting a spruce-fir forest, middle elevations having a mixed conifer forest, and lower elevations trending towards a ponderosa pine forest. Aspen stands are found along north facing slopes, in areas burned by wildfire, and in cool drainages; canyon bottoms support a variety of riparian vegetation. The table below displays the general vegetation types that occur on the four allotments (also see Figure 12).

Table 11. Cover type (percent)

	Bull Creek	Cow Creek	Macho	Soldier Creek	Valle Osha
Aspen	5	0	3	2	8
Ponderosa Pine	15	40	24	36	9
Oak Woodland	5	0	3	3	1
Grassland	11	39	1	8	36
Pinyon/Juniper	5	0	1	3	0
Mixed Conifer	21	12	23	6	15
Douglas Fir	37	8	43	41	30
Riparian	1	1	2	1	1

Within the boundaries of the fires, most of the cover type has been changed to grasslands with standing dead trees or aspen.

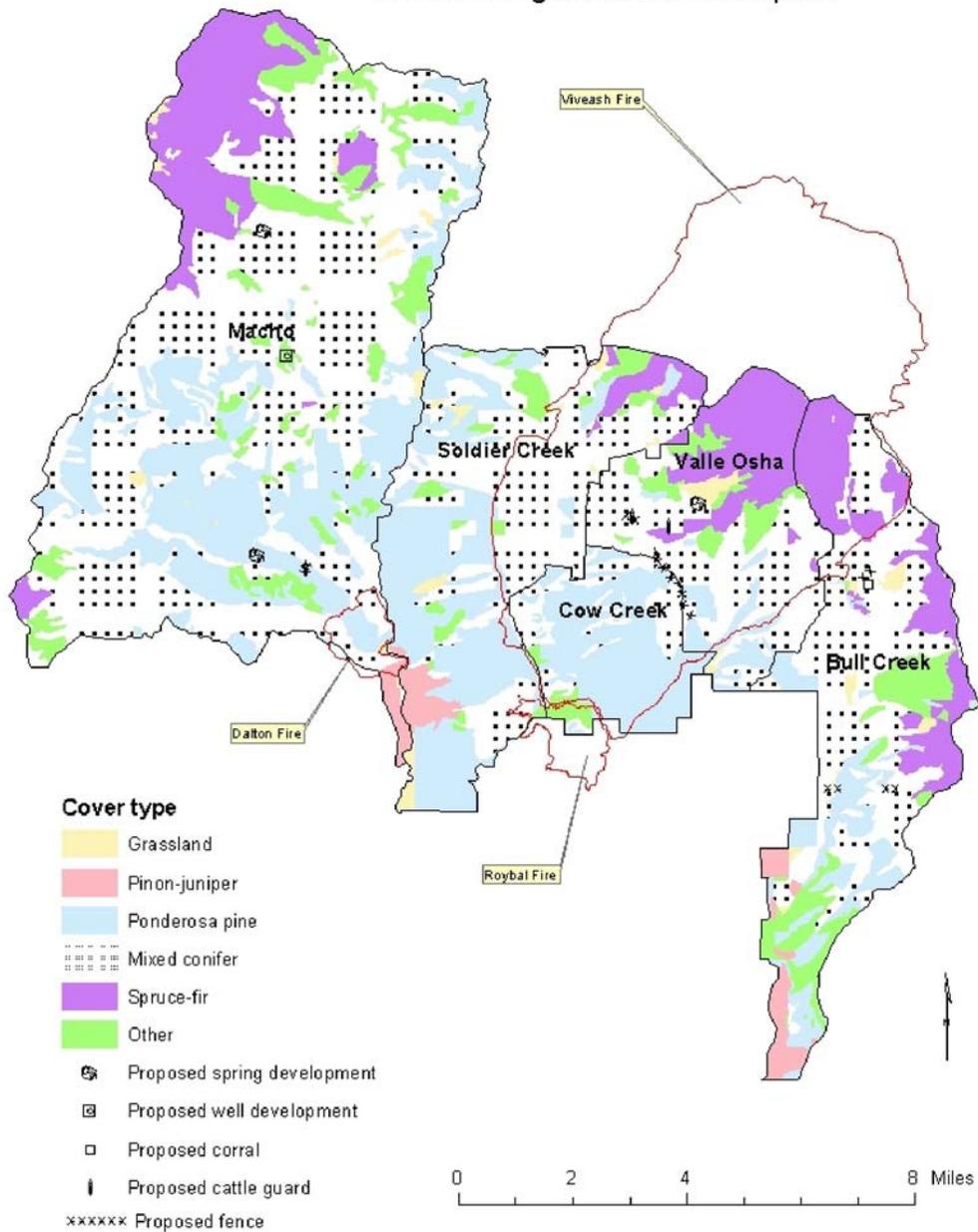


Figure 12. Vegetation types in the allotments.

The Viveash Fire (2000) burned parts of all the allotments except the Macho Allotment. The Roybal Fire (2002) covered small portions of the Soldier Creek and Cow Creek Allotments, and the Dalton Fire (2002) occurred in the Macho Allotment. The table below summarizes the percent of each allotment burned by wildfires (also see Figure 13).

Table 12. Percent of allotments burned in recent wildfires.

Wildfire	Percent Burned				
	Bull Creek	Cow Creek	Macho	Soldier Creek	Valle Osha
Dalton (2002)			2		
Roybal (2002)		3			
Viveash (2000)	20	90		31	90

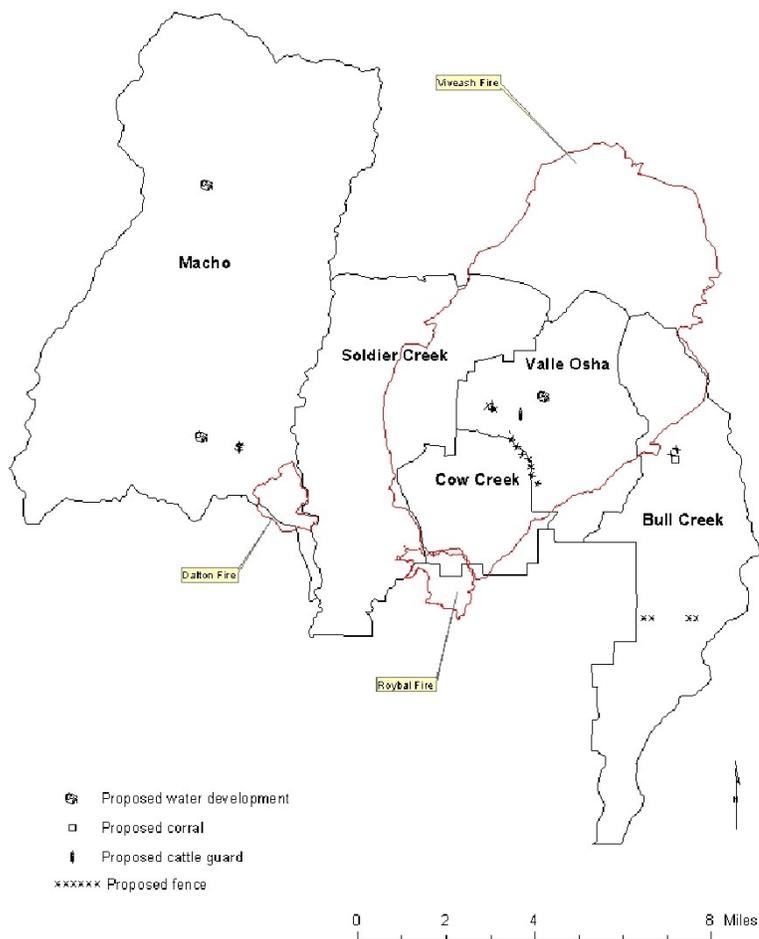


Figure 13. Recent wildfires in the allotments.

The Viveash Fire burned in all types of vegetation. In particular, this fire opened up the tree canopy or removed the overstory completely, allowing sunlight to penetrate to the forest floor, which in turn encouraged the growth of understory herbaceous vegetation. Seeding of native plants also occurred immediately after the fire to accelerate soil stabilization. The Roybal Fire also opened up the canopy, thereby allowing understory vegetation to flourish. Most of the Dalton Fire occurred on areas that are not grazed. The majority of capable range across the allotments is within the Viveash burn area and other mountain grasslands, except for the Macho Allotment. In the Macho Allotment, much of the capable range is within the understory of previously logged mixed conifer stands, open ponderosa pine stands, and grasslands. Recent monitoring data shows use in key areas falls within conservative utilization guidelines (31-40%) on all of the allotments.

Grazing capability is a qualitative expression of the inherent ability of an ecosystem to support grazing use by various classes of livestock on a sustained yield basis; that is, maintaining the stability and productivity of the site. Soil stability determinations and site productivity evaluations are used in combination to determine and assign one of three capability classes:

- Full capability - are those areas that can be used by grazing animals under proper management without long-term damage to the soil resource or plant communities. Full capability areas exhibiting fair, good, or excellent range condition, are considered stable or improving (upward trend), and are designated as satisfactory. Full capability areas exhibiting poor range condition are considered to be on a downward trend and are designated as unsatisfactory.
- Potential capability – are those areas that could be used by grazing animals under proper management but where soil stability is impaired, or range facilities are not adequate under existing conditions to obtain necessary grazing animal distribution. These areas are not included when calculating the amount of forage available for cattle.
- No capability – are those areas that cannot be used by grazing animals without long-term damage to the soil resource or plant community, or are barren or unproductive naturally. These areas are not included when calculating the amount of forage available for cattle and a designation of satisfactory or unsatisfactory is not applicable.

For the purpose of this EA, “fully capable” and “potentially capable” have been grouped together and called “capable” (see Figure 14). Capable areas comprise about 21% of the allotments. The table below displays acres of capable and incapable range on each allotment. Of the capable areas, about 15,200 acres (98%) are considered satisfactory and 350 acres (2%) unsatisfactory. Elements of the proposed action (particularly construction of new pasture fences) were developed to address the unsatisfactory range by alleviating use in these areas through providing better distribution of cattle.

Table 13. Range capability by allotment (acres). Does not include private land.

	Satisfactory	Unsatisfactory	Total
Bull Creek			
Capable	1,902	300	2,202
No Capability	N/A	N/A	11,150
Cow Creek			
Capable	1,408	0	1,408
No Capability	N/A	N/A	2,991

	Satisfactory	Unsatisfactory	Total
Macho			
Capable	6,704	50	6,754
No Capability	N/A	N/A	29,893
Soldier Creek			
Capable	3,469	0	3,469
No Capability	N/A	N/A	6,614
Valle Osha			
Capable	1,388	0	1,388
No Capability	N/A	N/A	7,255

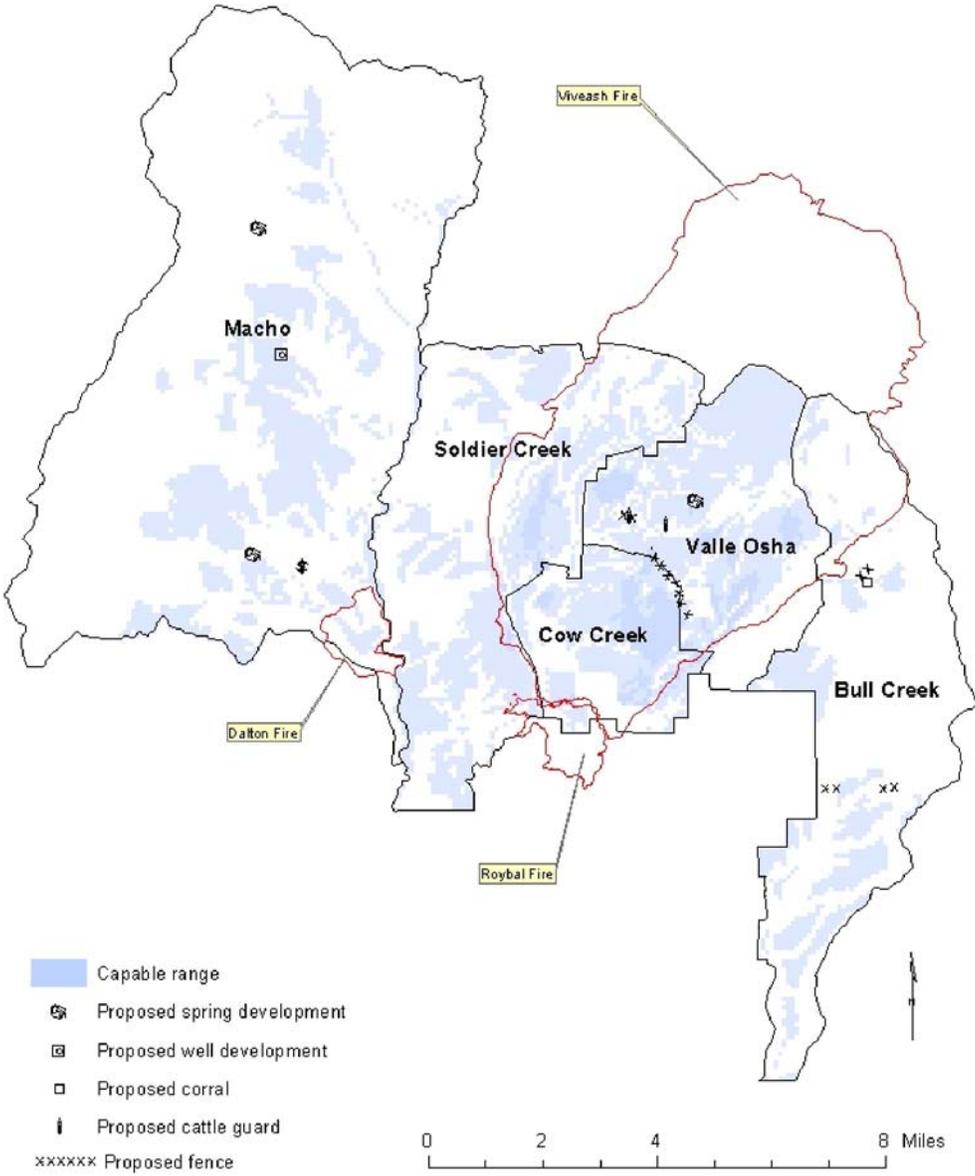


Figure 14. Capable range in the allotments.

The following invasive plants occur within the allotments and consist of the following:

Bull thistle –occurs on the Soldier Creek and Macho Allotments (Figure 15). It occurs in low density and is not out-competing native vegetation. No active treatment is occurring on this species because monitoring indicates the species is contained to its present locations.

In June 2004, the Santa Fe and Carson National Forests released the Invasive Plant Control Project Draft Environmental Assessment.

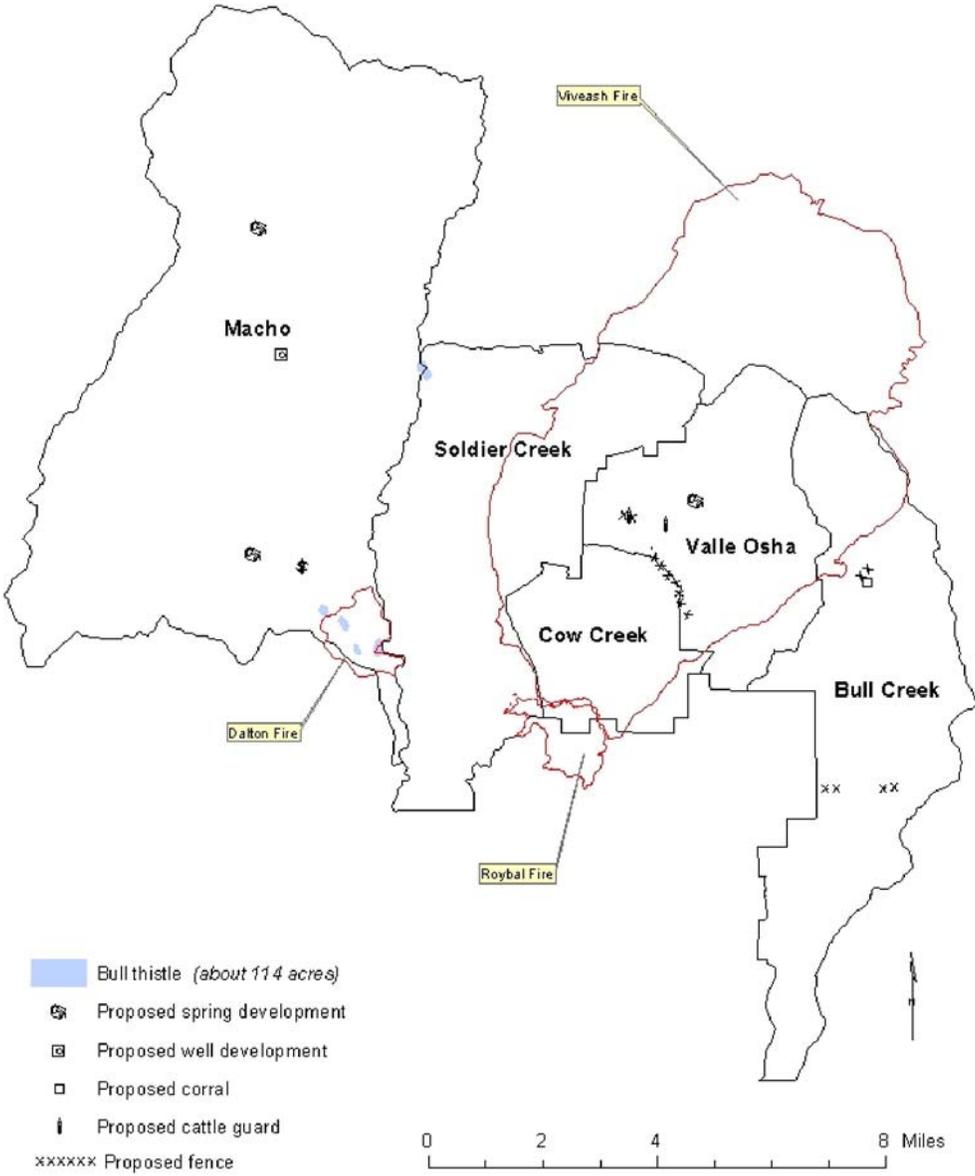


Figure 15. Noxious weeds found in the allotments.

Vegetation - Environmental Consequences

Alternative 1 (No Change)

Bull Creek

Under current management there would be no change to the vegetative structure of the allotments because no trees would be removed and grazing would continue at conservative levels (see mitigations, Chapter 2). During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard.

Cow Creek

Under current management there would be no change to the vegetative structure of the allotments because no trees would be removed and grazing would continue at conservative levels (see mitigations, Chapter 2). During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard. Capability is expected to remain the same.

Macho

Under current management there would be no change to the vegetative structure of the allotments because no trees would be removed and grazing would continue at conservative levels (see mitigations, Chapter 2). During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard. Capability is expected to remain the same. Invasive species would continue to occur until treated as proposed in the Invasive Plant Control Project.

Soldier Creek

Under current management there would be no change to the vegetative structure of the allotments because no trees would be removed and no grazing by Forest Service-permitted cattle occurs on the allotment. Thus, capability is expected to remain the same. Invasive species would continue to occur until treated as proposed in the Invasive Plant Control Project.

Valle Osha

Under current management there would be no change to the vegetative structure of the allotments because no trees would be removed and grazing would continue at conservative levels (see mitigations, Chapter 2). During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard.

Alternative 2 (No Grazing)

All Allotments

The risk that forage would be eaten by livestock would be eliminated. Eventually, understory vegetation would no longer be grazed by cattle but would continue to be grazed by deer and elk. Because much of the spread of invasive species occurs adjacent to roads and recreation sites, eliminating cattle grazing would not likely reduce the spread or rate of spread of these plants. Removing cattle as permits expire would not affect overstory vegetation. The majority of vegetation within these allotments is designated as mixed conifer and ponderosa pine. As such, removing cattle would not convert these lands to a different type of vegetation.

Alternative 3 (Proposed Action)

Bull Creek

No vegetative management activities, such as tree removal, are proposed; as such, there would be no change to the structure of the overstory. Any changes in herbaceous vegetation would result from the construction of new facilities; for example, the construction of fences would improve the distribution of cattle in capable areas. By improving distribution, vegetative conditions in capable areas currently designated as unsatisfactory would improve as use would be alleviated in these areas through construction of new pasture fences and improved pasture rotation. During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard.

Cow Creek

No vegetative management activities, such as tree removal, are proposed; as such, there would be no change to the structure of the overstory. Any changes in herbaceous vegetation would result from the construction of new facilities; for example, the construction of the boundary fence and formal rotational grazing system would improve the distribution of cattle in capable areas. During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard.

Macho

No vegetative management activities, such as tree removal, are proposed; as such, there would be no change to the structure of the overstory. Any changes in herbaceous vegetation would result from the construction of new facilities; for example, the construction of fences and water developments would improve the distribution of cattle in capable areas. By improving distribution, vegetative conditions in capable areas currently designated as unsatisfactory would improve as use would be alleviated in these areas through construction of new pasture fences and improved pasture rotation. During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard. Invasive species would continue to occur until treated as proposed in the Invasive Plant Control Project.

Soldier Creek

No vegetative management activities, such as tree removal, are proposed; as such, there would be no change to the structure of the overstory. Any changes in herbaceous vegetation would result from the introduction of cattle onto the allotment. Because the allotment would be used infrequently and because grazing would be at conservative levels (see mitigations, Chapter 2), no change in capability is expected. During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard. Invasive species would continue to occur until treated as proposed in the Invasive Plant Control Project.

Valle Osha

No vegetative management activities, such as tree removal, are proposed; as such, there would be no change to the structure of the overstory. Any changes in herbaceous vegetation would result from the construction of new facilities; for example, the construction of the boundary fence and formal rotational grazing system would improve the distribution of cattle in capable areas. During the time that cattle graze in an area, the ground cover would be depleted but not below the established standard.

Cumulative Effects – Vegetation

Because there would be no change to overstory vegetation under any of the alternatives, there would be no cumulative effects to overstory vegetation. With respect to riparian vegetation, excluding cattle from portions of streams through fencing, maintaining conservative utilization levels and implementing mitigation measures would result in fewer disturbances by cattle to these areas. Under Alternative 3, there would be an incremental improvement in understory vegetation; combined with past wildfires, there would be continued preservation of understory vegetation. During the time that cattle graze on the allotments, there would be less ground cover available for wildlife (see Cumulative Effects – Wildlife).

Wildlife/Fish – Affected Environment

This section evaluates the effects of the project to federally Threatened and Endangered species (T&E), regionally sensitive species, management indicator species (MIS) (USDA-FS, 2003), migratory birds (USFWS, 2002), other species, and their habitats in the Bull Creek, Cow Creek, Soldier Creek, Valle Osha, and Macho Allotments. The information in this section is taken from the wildlife specialist's report located in the project record. All alternatives are consistent with the Santa Fe National Forest Plan's standards and guidelines for wildlife.

Federally Listed Species

Federally listed T&E species are from a list (USDA 2004) agreed upon by the Region 3 Forest Service and the USDI Fish and Wildlife Service. Critical habitat (CH) for the Mexican spotted owl is considered because it occurs on the allotment(s); one species was excluded from further analysis for the following reason:

- Rio Grande silvery minnow (*Hybognathus amarus*), Endangered - Suitable habitat for this species does not exist in the project area. Because these allotments are not in the Rio Grande watershed, there is no connection to the habitat of the minnow.

Plant or animal species that occur on the allotments are:

Mexican Spotted Owl (MSO)-(*Strix occidentalis lucida*)- Threatened

American bald eagle (*Haliaeetus leucocephalus*)- Threatened

Holy Ghost Ipomopsis (*Ipomopsis sancti-spiritus*)- Endangered

Mexican Spotted Owl Critical Habitat (MSO CH) - On July 21, 2000 U. S. Fish and Wildlife Service (FWS) proposed a rule to designate MSO CH for the owl. Critical habitat is comprised of "primary constituent elements," which are physical and biological features that are essential for the conservation of the species and that may require special management considerations or protection. Some examples of primary constituent elements are: high basal area of large diameter trees, moderate to high canopy closure, wide range of tree sizes suggestive of uneven-age stands, and high volumes of fallen trees and other woody debris. On August 31, 2004 the FWS announced a final rule for designation of CH for MSO in the Federal Register (<http://ifw2es.fws.gov/mso/>). For a complete description of CH and primary constituent elements, see Exhibit 3.

Table 14 summarizes the species and/or their habitats found by allotment. If a species or habitat is not listed in Table 14, it is not found on that particular allotment.

Table 14. Summary of federally listed species and/or habitat found by allotment.

Allotment	Federally listed species and/or habitat found
Bull Creek	MSO CH
Cow Creek	MSO MSO CH American bald eagle (habitat only)
Macho	MSO MSO CH American bald eagle Holy Ghost Ipomopsis
Soldier Creek	MSO MSO CH American bald eagle
Valle Osha	MSO CH

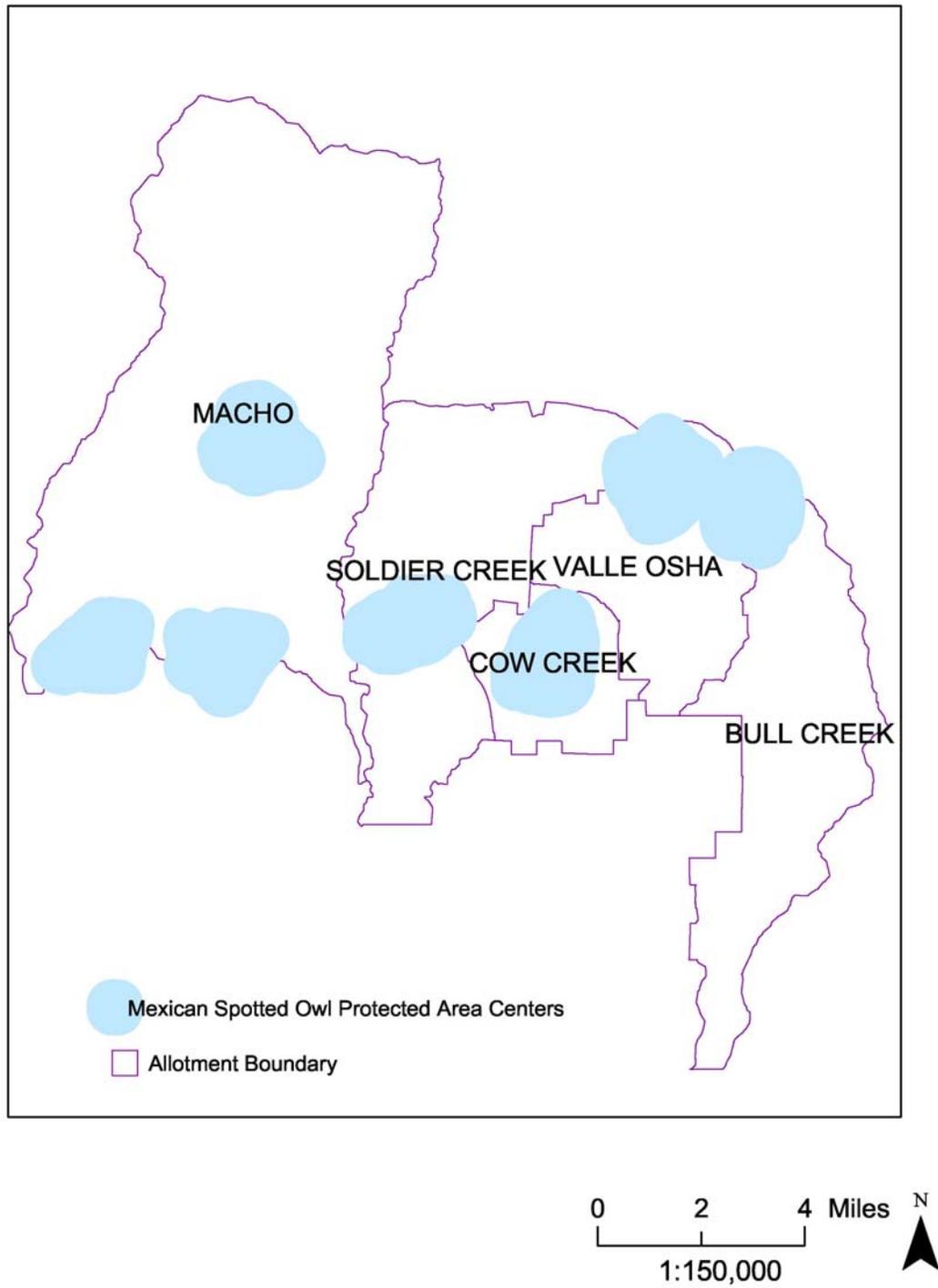


Figure 16. Approximate locations of Mexican spotted owl Protected Activity Centers.

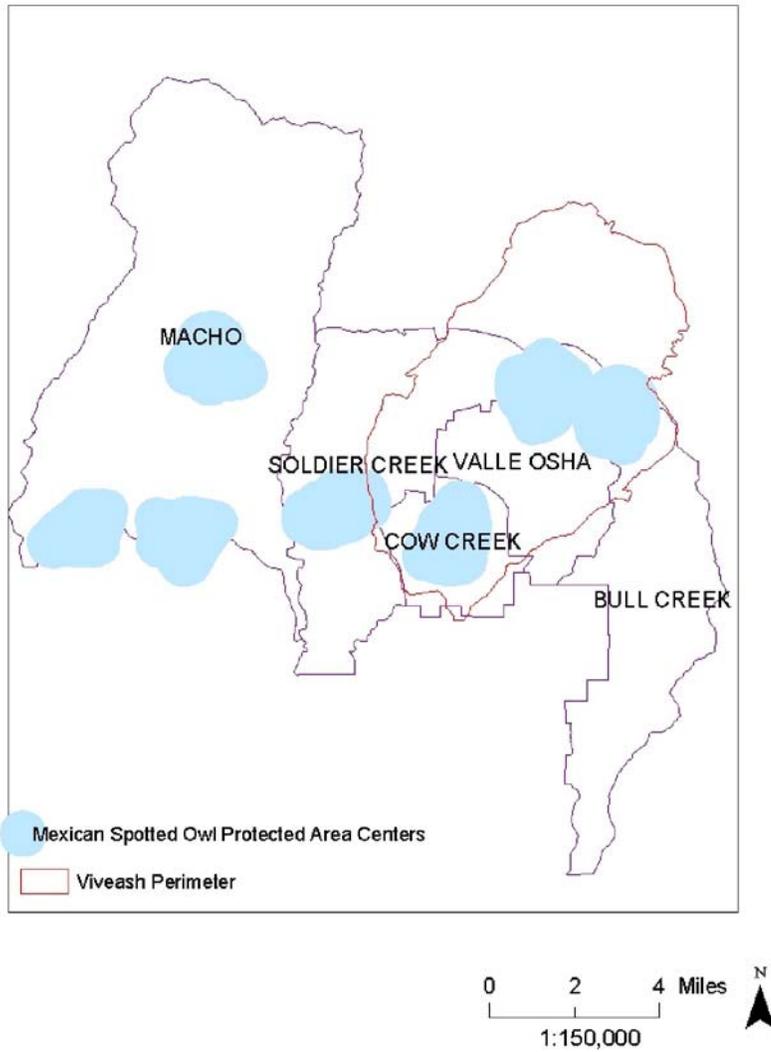


Figure 17. Mexican spotted owl Protected Activity Centers affected by the Viveash Fire.

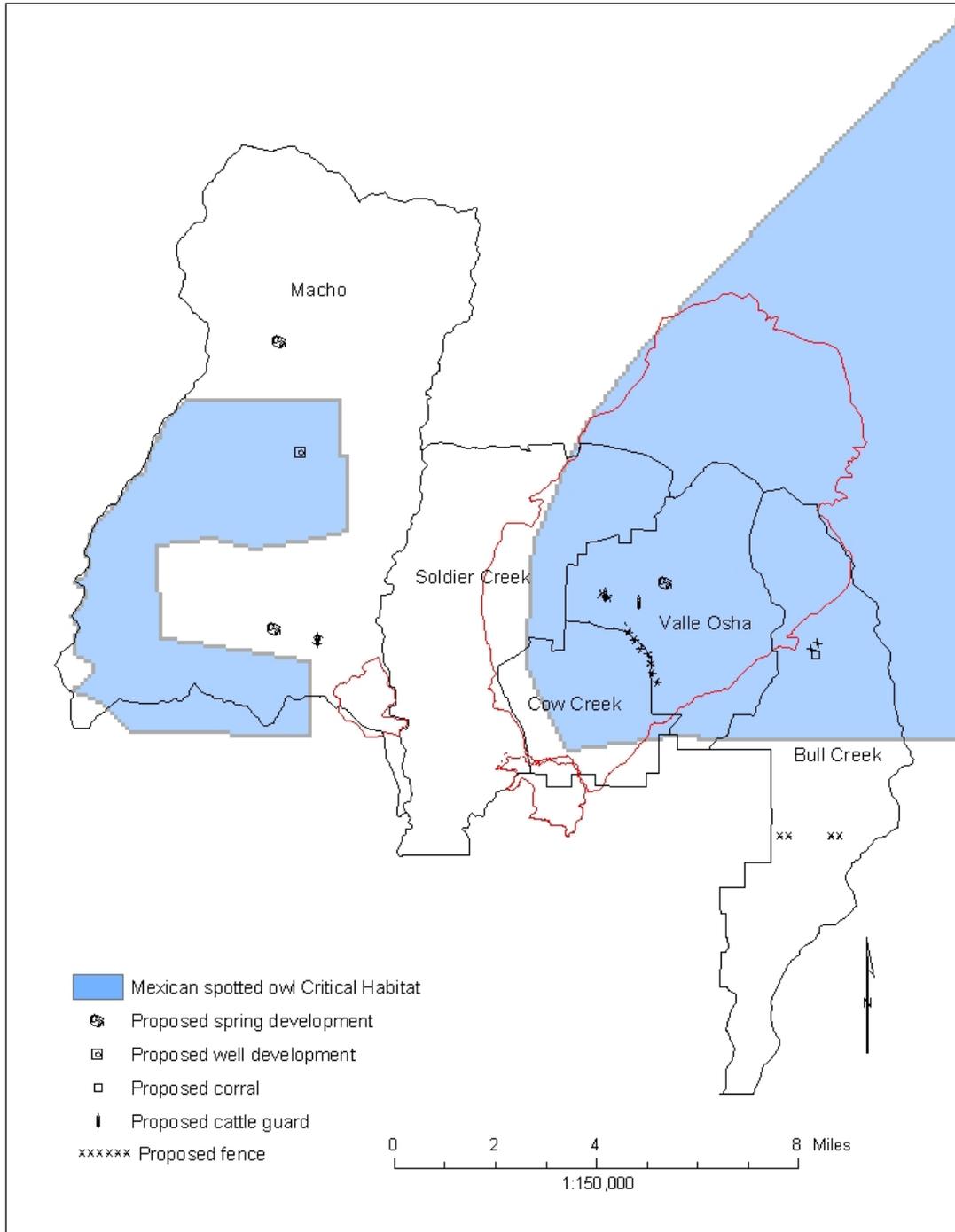


Figure 18. Mexican spotted owl critical habitat in the allotments.

Bull Creek Allotment

- MSO and MSO CH

The Upper Bull protected activity center (PAC) (668 acres) was established on the Bull Creek Allotment in 1989 (Figure 16). In 1998, this PAC was surveyed for MSO and none were found. In

2000, the Viveash Fire burned about 2,580 acres (about 18%) of the Bull Creek Allotment, including the entire Upper Bull PAC, destroying it (Figure 17). In 2001, the Upper Bull PAC and nearby suitable habitat on the Bull Creek Allotment where the fire burned was surveyed for MSO and none were located. Where the PAC used to be is now burnt mixed conifer snags and new successional stage growth such as grasses and shrubs. Approximately 44% (6,360 acres) of the Bull Creek allotment falls within MSO CH (Figure 18).

Cow Creek Allotment

- MSO and MSO CH

The Cow Creek protected activity center (PAC) was established on the Cow Creek Allotment in 1991 (Figure 16). In 2000, the Viveash Fire burned about 4,650 acres (about 90%) of the Cow Creek Allotment. That fire burned through the Cow Creek PAC (Figure 17). Surveys were conducted in 2001 to determine the condition of the Cow Creek PAC after the fire. MSO were found in the remaining habitat, consisting of a few large DBH trees and very small islands of mixed conifer. Nesting and roosting trees were found in 2002 and 2003, showing that reproduction had taken place and the MSO in this PAC had recuperated from the fire. Grazing does not occur in this PAC because the slope is too steep. Approximately 62% (3,191 acres) of the Cow Creek Allotment falls within MSO CH (Figure 18).

- American bald eagle habitat

Bald eagle habitat consists of forested areas near large bodies of water. Because Cow Creek is wide enough in some places, the forested areas along Cow Creek are considered suitable habitat for the American bald eagle. No eagles have been sighted on this allotment.

Macho Allotment

- MSO and MSO CH

Three Mexican spotted owl PACs [Dalton Canyon (635 acres), Indian Creek (676 acres), and La Cueva (930 acres)] were established on the Macho allotment in 1988, 1992, and 2002, respectively (Figure 16). In the Dalton PAC, MSO was last heard in 1991; it was surveyed in 1994 with no response. In the Indian Creek PAC, MSO was last surveyed and heard in 1999. In the La Cueva PAC, MSO was last surveyed and heard in 2002. No nests or roosts were found for any of these PACs. Habitat for the Dalton PAC consists of multi-storied mixed conifer with a moderate to closed canopy and vertical rock bluffs and steep slopes with lots of dead and down material. Habitat for the Indian Creek PAC consists of mixed conifer, ponderosa pine and aspen with approximately 30% slope. Habitat for the La Cueva PAC consists of mixed conifer, ponderosa pine and aspen with approximately 30% slope and canopy cover ranging from 50-60%. Approximately 33% (12,703 acres) of the Macho allotment falls within MSO CH (Figure 18).

- American bald eagle

Two to four individual bald eagles are known to winter in the Pecos River drainage (Figure 19). They roost in large snags and large live trees along the Pecos River. American bald eagles are winter residents and occasional nesters in New Mexico. The eagle requires fish-producing waters and large riparian trees to successfully nest and produce young. Bald eagles are usually found around streams as wide as or wider than the Pecos River. During the winter months they congregate in areas with high fish densities and waterfowl. Some areas elsewhere in New Mexico known to have wintering eagles are Navajo Lake, Heron Lake, the Chama Valley and the Rio Grande Gorge.

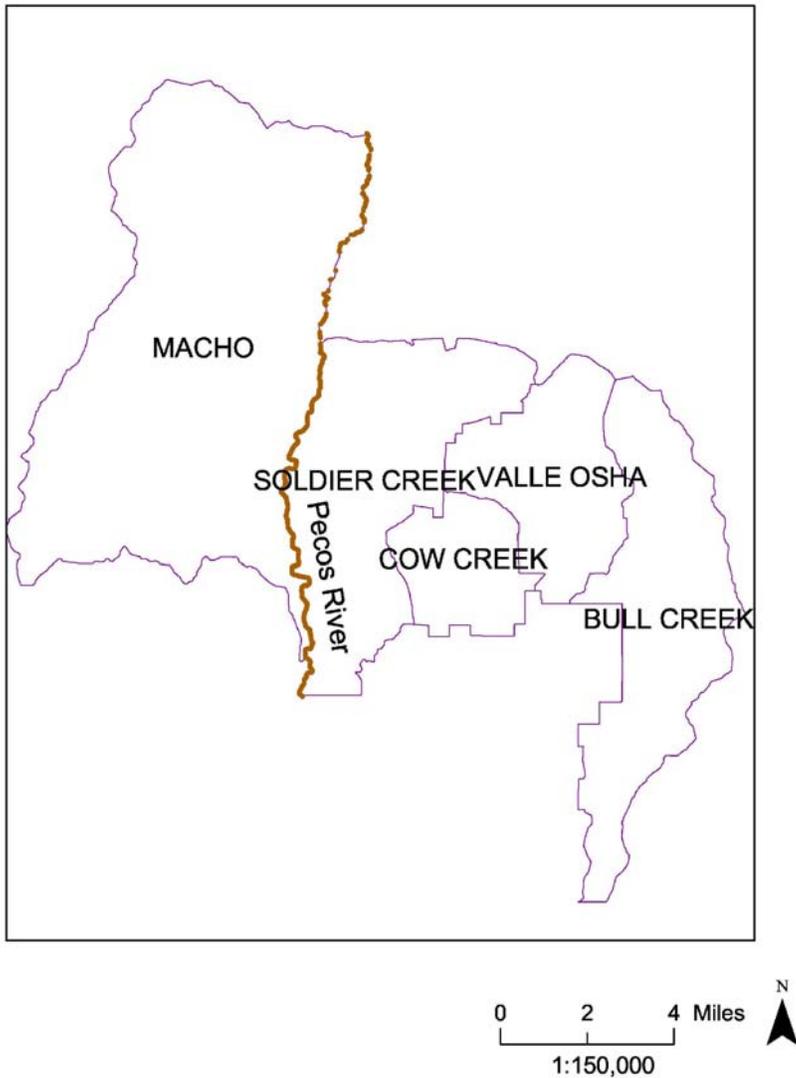


Figure 19. Bald eagle habitat along the Pecos River.

○ Holy Ghost Ipomopsis (HGI)

The HGI is located only in Holy Ghost Canyon on the Macho Allotment (Figure 20). Plants are relatively continuous in scattered patches for about 2.2 miles of Holy Ghost Canyon; this constitutes about 200 acres of occupied habitat (USFWS 2002, p. 5). The density of HGI is difficult to determine because it is indistinguishable from another plant, “skyrocket”. This population of HGI, which is the only known population, is estimated to have about 2,500 plants (US FWS 2002, p.5). The plant grows on relatively dry, steep, west to southwest-facing slopes in open ponderosa pine or mixed conifer forests at elevations of 7,730-8,220 feet. It grows best in bare mineral soil. The plant’s highest densities are on disturbed sites. Livestock grazing is not permitted where plants are located.

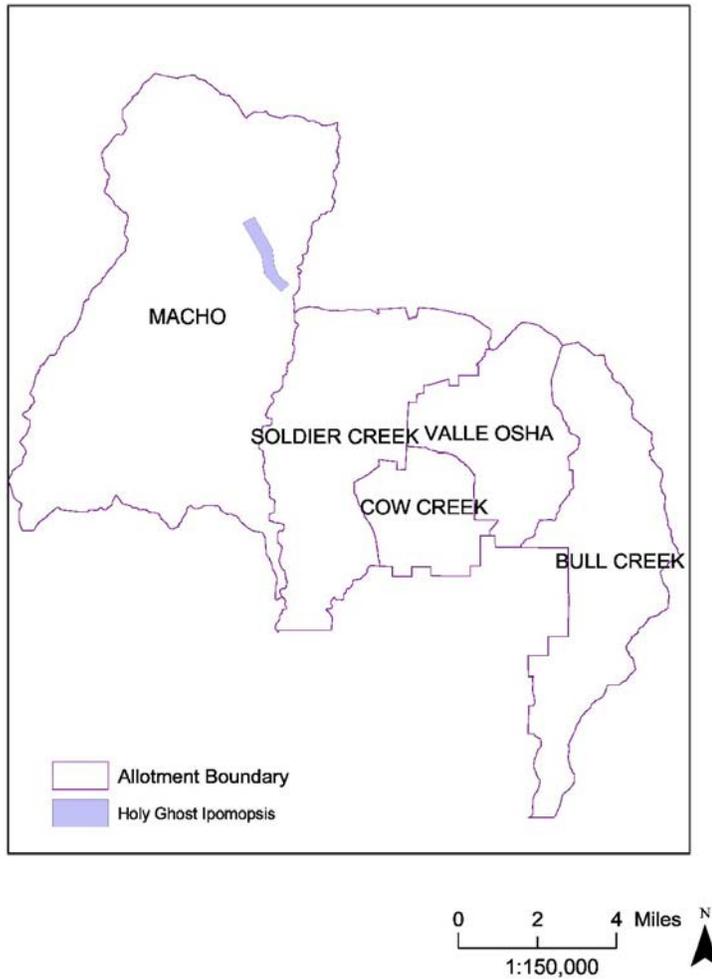


Figure 20. Habitat for the Holy Ghost Ipomopsis.

Soldier Creek Allotment

○ MSO and MSO CH

The Chaperito PAC was established on the Soldier Creek Allotment in 1998 (Figure 16). In 2000, the Viveash Fire burned about 4,900 acres (about 31%) of the Soldier Creek Allotment. That fire just touched the northeastern side of the Chaperito PAC (Figure 17). Surveys were conducted in 2001 to determine the condition of the PAC after the fire. MSO were not found; however, the PAC still exists because the habitat was not destroyed. Approximately 22% (3,548 acres) of the Soldier Creek Allotment falls within MSO CH (Figure 18).

○ American bald eagle

Two to four individual bald eagles are known to winter in the Pecos River drainage (Figure 19). They roost in large snags and large live trees along the Pecos River. American bald eagles are winter residents and occasional nesters in New Mexico. The eagle requires fish-producing waters and large riparian trees to successfully nest and produce young. Bald eagles are usually found around streams as wide as or wider than the Pecos River. During the winter months they congregate in areas with high fish densities and waterfowl. Some areas elsewhere in New

Mexico known to have wintering eagles are Navajo Lake, Heron Lake, the Chama Valley and the Rio Grande Gorge.

Livestock on the Macho Allotment are not allowed to graze along the parts of the Pecos River considered to be bald eagle habitat. Additionally, bald eagles are only present in the winter, whereas cattle graze during the summer. Thus, there is no temporal overlap between the presence of bald eagles and cattle.

Valle Osha Allotment

○ MSO and MSO CH

The Rosilla protected activity center (PAC) was established on the Valle Osha allotment in 1988 (Figure 16). In 2000, the Viveash Fire burned about 8,000 acres (about 90%) of the Valle Osha Allotment, including the Rosilla PAC, destroying it (Figure 17). Surveys of the PAC were conducted in 2001 and no MSO were found. Where the PAC used to be is now burnt mixed conifer, ponderosa pine and aspen snags and new successional stage growth such as grasses and shrubs. Approximately 98% (8,813 acres) of the Valle Osha allotment falls within MSO CH (Figure 18).

Federally Listed Species - Environmental Consequences

Alternative 1 (No Change)

Bull Creek Allotment

○ MSO and MSO CH

Since no MSO are found in the Upper Bull PAC, continued grazing at existing levels would not disturb individuals, nor would continued grazing at current levels reduce the amount of CH (Figure 18). First, no trees, which comprise the bulk of primary constituent elements, would be removed, so the habitat necessary for MSO CH would remain. Second, grazing at current levels has not resulted in a lack of ground cover for the MSO's prey (Nelson 2004). These effects determinations meet the USDA guidance criteria for a "no effect" determination (USDA-FS, 2004). Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of the MSO's prey's habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards (31-40%) were met.

Cow Creek Allotment

○ MSO and MSO CH

Due to its steep slopes and distance from water, grazing is unlikely to occur in the Cow Creek PAC, so no individual MSO would be disturbed. Outside of the PAC, continued grazing at current levels would not reduce the amount of CH (Figure 18). First, no trees, which comprise the bulk of primary constituent elements, would be removed, so the habitat necessary for MSO CH would remain. Second, grazing at current levels has not resulted in a lack of ground cover for the MSO's prey (Nelson 2004). Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of the MSO's prey's habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met.

- American bald eagle

Continued grazing at current levels would not reduce the amount of habitat for the bald eagle for two reasons, spatial and temporal. First, grazing by Forest-Service permitted cattle does not occur where the eagle might winter, along Cow Creek. This area is either private land or not open to grazing because of a camping area north of the private land. Second, the eagle would spend the winter in this area, and cattle only graze in the summer.

For both MSO and the bald eagle, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004).

Macho

- MSO and MSO CH

Due to their steep slopes and distance from water, grazing is unlikely to occur in the Dalton Canyon and La Cueva PACs, so no individual MSO would be disturbed. Grazing would occur in the Indian Creek PAC where the terrain is less than 30 percent slope and desirable forage is available. In the Indian Creek PAC and outside of the other PACs, continued grazing at current levels would not reduce CH (Figure 18). First, no trees, which comprise the bulk of primary constituent elements, would be removed, so the habitat necessary for MSO CH would remain. Second, grazing has not resulted in a lack of ground cover for the MSO’s prey (Nelson 2004). Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of prey habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met.

- American Bald Eagle

Continued grazing at current levels would not reduce the amount of habitat for the bald eagle because grazing does not occur where the eagle winters, along the Pecos River. No Forest Service-permitted cattle graze along the Pecos River. Livestock on the Macho Allotment are not allowed to graze along the parts of the Pecos River considered to be bald eagle habitat. Additionally, bald eagles are only present in the winter, whereas cattle graze during the summer. Thus, there is no temporal overlap between the presence of bald eagles and cattle.

For both MSO (La Cueva and Dalton PACs) and the bald eagle, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004). For the Indian Creek PAC, these effects determinations do not meet the guidance criteria since grazing does occur in the Indian Creek PAC; therefore, there will be a “may affect not likely to adversely affect” determination for the MSO in the Indian Creek PAC.

- Holy Ghost Ipomopsis

Continued grazing at current levels would not reduce the number of individuals nor alter the habitat of the Holy Ghost Ipomopsis because cattle are not permitted to graze where the plant is located, in Holy Ghost Canyon. Natural barriers keep them out. Thus, there would be a “no effect” determination for this plant.

Soldier Creek Allotment

- MSO and MSO CH

No grazing occurs on this allotment, so none occurs in the Chaperito PAC. Therefore, no individual MSO would be disturbed and MSO CH would be the same as the existing condition.

- American bald eagle

No grazing occurs on this allotment, so it does not occur where the eagle winters, along the Pecos River. No Forest Service-permitted cattle are allowed to graze along the Pecos River. Further, the eagle winters in the Pecos River drainage, and cattle are only present in the summer.

For both MSO and the bald eagle, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004).

Valle Osha Allotment

- MSO and MSO CH

Since no MSO are found in the Rosilla PAC, grazing at existing levels would not disturb individuals. Continued grazing at current levels would not reduce the amount of CH (Figure 18). First, no trees, which comprise the bulk of primary constituent elements, would be removed, so the habitat necessary for MSO CH would remain. Second, grazing has not resulted in a lack of ground cover for the MSO’s prey (Nelson 2004). These effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004). Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of the MSO’s prey’s habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met.

Alternative 2 (No Grazing)

Bull Creek Allotment

- MSO and MSO CH

Eliminating grazing is not likely to affect individual MSO since no owls are found in the Upper Bull PAC. The amount of CH on the allotment would not change because no primary constituent elements, like trees, would be removed. There would be an incremental increase in the amount of ground cover within CH, providing additional cover for the MSO’s prey. Since this alternative would not modify CH, there would be a “no effect” determination.

Cow Creek Allotment

- MSO and MSO CH

Eliminating grazing is not likely to affect individual MSO since no grazing occurs in the Cow Creek PAC. For the MSO, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004). Outside of the PAC, the amount of CH would not change because no primary constituent elements would be removed. There would be an incremental increase in the amount of ground cover within CH, providing additional cover for the MSO’s prey. Since this alternative would not modify CH, there would be a “no effect” determination.

- American bald eagle

Eliminating grazing would not change the amount of habitat for the bald eagle because grazing by Forest Service-permitted cattle does not occur where the eagle might winter, along Cow Creek. This effects determination meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004).

Macho

○ MSO and MSO CH

Eliminating grazing is not likely to affect individual MSO since no grazing occurs in the Dalton Canyon and La Cueva PACs. The removal of livestock from the Macho allotment would not affect the MSO in the Indian Creek PAC because grazing at existing levels has not removed enough ground cover to affect the MSO's prey base. The removal of livestock would meet USDA guidance criteria for a "no effect" determination since grazing would not occur within any of the PACs. Without grazing, the amount of CH would not change because no primary constituent elements, like large trees, would be removed. There would be an incremental increase in the amount of ground cover within CH, providing additional cover for the MSO's prey. Since this alternative would not modify CH, there would be a "no effect" determination.

○ American Bald Eagle

Eliminating grazing would not reduce the amount of habitat for the bald eagle because grazing does not occur where the eagle winters, along the Pecos River. No Forest Service-permitted cattle graze along the Pecos River.

For both MSO and the bald eagle, these effects determinations meet the USDA guidance criteria for a "no effect" determination (USDA-FS, 2004).

○ Holy Ghost Ipomopsis

Eliminating grazing would not change the number of individuals nor alter the habitat of the Holy Ghost Ipomopsis because cattle are not permitted to graze where the plant is located, in Holy Ghost Canyon. Natural barriers keep them out. Thus, there would be a "no effect" determination for this plant.

Soldier Creek Allotment

○ MSO and MSO CH

Eliminating grazing is not likely to affect individual MSO since no grazing occurs in the Chaperito PAC. For the MSO, these effects determinations meet the USDA guidance criteria for a "no effect" determination (USDA-FS, 2004). Outside of the PAC, the amount of CH would not change because no primary constituent elements would be removed. There would be an incremental increase in the amount of ground cover within CH, providing additional cover for the MSO's prey. Since this alternative would not modify CH, there would be a "no effect" determination.

○ American bald eagle

Eliminating grazing would not reduce the amount of habitat for the bald eagle because grazing by Forest Service-permitted cattle does not occur where the eagle might winter, along the Pecos River. These effects determinations meet the USDA guidance criteria for a "no effect" determination (USDA-FS, 2004).

Valle Osha Allotment

○ MSO and MSO CH

Eliminating grazing is not likely to affect individual MSO since no owls are found in the Rosilla PAC. The amount of CH on the allotment would not change because no primary constituent elements, like large trees, would be removed. There would be an incremental increase in the amount of ground cover within CH, providing additional cover for the MSO's prey. Since this alternative would not modify CH, there would be a "no effect" determination.

Alternative 3 (Proposed Action)

Bull Creek Allotment

○ MSO and MSO CH

Since no MSO are found in the Upper Bull PAC, grazing at the proposed level would not disturb individuals, nor would grazing at proposed levels reduce the amount of CH (Figure 18). First, no primary constituent elements would be removed, so the habitat necessary for MSO CH would remain. For instance, the overall canopy cover and forest structure would not change under this alternative. Second, grazing has not resulted in a lack of ground cover for the MSO's prey (Nelson 2004). Further, constructing fences to slow the movement of cattle from the southern end of the allotment would incrementally improve ground cover by forcing cattle to graze more evenly in the capable areas across the allotment. More ground cover would provide additional cover and habitat for the MSO's prey. Though the construction of fences would remove a few incidental trees, it would not be enough to modify the CH to affect its suitability for the MSO. For the MSO, these effects determinations meet the USDA guidance criteria for a "no effect" determination (USDA-FS, 2004); for CH, this would also be a "no effect" determination. Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of the MSO's prey's habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met.

Cow Creek Allotment

○ MSO and MSO CH

Due to its steep slopes and distance from water, grazing is unlikely to occur in the Cow Creek PAC, so no individual MSO would be disturbed. Outside of the PAC, grazing at proposed levels would not reduce the amount of CH (Figure 18). First, no primary constituent elements would be removed, so the habitat necessary for MSO CH would remain. For instance, the overall canopy cover and forest structure would not change under this alternative. Second, grazing at the proposed conservative would not result in a lack of ground cover for the MSO's prey (Nelson 2004). Grazing guidelines such as no more than 40% utilization by ungulates would be adhered to, which would provide adequate habitat for small mammals, birds, insects and reptiles and amphibians. Further, implementing a rotational system and constructing a boundary fence would incrementally improve ground cover by forcing cattle to graze more evenly in the capable areas across the allotment. More ground cover would provide additional cover and habitat for the MSO's prey. Though the construction of fences would remove a few incidental trees, it would not be enough to modify the CH to affect its suitability for the MSO. For the MSO, these effects determinations meet the USDA guidance criteria for a "no effect" determination (USDA-FS, 2004); for CH, this would also be a "no effect" determination. Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of the MSO's prey's habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met.

○ American bald eagle

Grazing at proposed levels would not reduce the amount of habitat for the bald eagle because grazing does not occur where the eagle might winter, along Cow Creek. No Forest Service-permitted cattle graze along Cow Creek because it is private land and is not allowed in the Cow

Creek camping area north of the private land. The construction of the boundary fence would not affect eagle habitat because it would not remove habitat elements along Cow Creek. For the bald eagle, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004).

Macho

○ Mexican Spotted Owl and CH

Due to their steep slopes and distance from water, grazing is unlikely to occur in the Dalton Canyon and La Cueva PACs, so no individual MSO would be disturbed. Grazing would occur in the Indian Creek PAC where the slope is less than 30 percent and desirable forage is available. In the Indian Creek PAC and outside of the other two PACs, grazing at proposed levels would not reduce the amount of CH (Figure 18). First, no primary constituent elements would be removed, so the habitat necessary for MSO CH would remain. For instance, the overall canopy cover and forest structure would not change under this alternative. Second, grazing has not resulted in a lack of ground cover for the MSO’s prey (Nelson 2004). Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of prey habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met. Further, implementing a rotational system and constructing a well and pasture fences would incrementally improve ground cover by increasing livestock distribution across the allotment. More ground cover would provide additional cover and habitat for the MSO’s prey. Though the construction of the pasture fences would remove a few incidental trees, it would not be enough to modify the CH to affect its suitability for the MSO. Finally, no fences would be constructed in PACs. For both MSO (La Cueva and Dalton Canyon PACs) these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004). For the Indian Creek PAC, these effects determinations do not meet the guidance criteria since grazing does occur in the Indian Creek PAC, therefore there will be a “may affect not likely to adversely affect” determination for the MSO Indian Creek PAC. (USDA-FS, 2004): for CH, this would also be a “no effect” determination.

○ American Bald Eagle

Grazing at proposed levels and proposed range facilities would not reduce the amount of habitat for the bald eagle because grazing does not occur where the eagle might winter, along the Pecos River. No Forest Service-permitted cattle graze along the Pecos River because it not allowed. Livestock on the Macho Allotment are not allowed to graze along the parts of the Pecos River considered to be bald eagle habitat. Additionally, bald eagles are only present in the winter, whereas cattle graze during the summer. Thus, there is no temporal overlap between the presence of bald eagles and cattle. The construction of pasture fences would not affect eagle habitat because it would not remove habitat elements along the Pecos River. For the bald eagle, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004).

○ Holy Ghost Ipomopsis

Grazing at proposed levels would not reduce the number of individuals nor alter the habitat of the Holy Ghost Ipomopsis because cattle are not permitted to graze where the plant is located, in Holy Ghost Canyon. Natural barriers keep them out. Further, no range facilities would be constructed where the plant occurs. Thus, there would be a “no effect” determination for this plant.

Soldier Creek Allotment

○ MSO and MSO CH

Due to its steep slopes and distance from water, grazing is unlikely to occur in the Chaperito PAC, so no individual MSO would be disturbed. Outside of the PAC, grazing at proposed levels would not reduce the amount of CH (Figure 18). First, no primary constituent elements would be removed, so the habitat necessary for MSO CH would remain. For instance, the overall canopy cover and forest structure would not change due to grazing, since cattle do not eat trees. Grazing has not occurred on the allotment for the past ten years; with the proposed conservative stocking rates, grazing would not result in a lack of ground cover for the MSO's prey. With the proposed grazing, CH would not be modified to affect its suitability for the MSO. For the MSO, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004); for CH, this would also be a “no effect” determination. Cattle would remove a portion of the grass where they graze, resulting in a very minimal decrease of the MSO's prey's habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met.

○ American Bald Eagle

Grazing at proposed levels would not reduce the amount of habitat for the bald eagle because grazing does not occur where the eagle might winter, along the Pecos River. No Forest Service-permitted cattle graze along the Pecos River because it not allowed. For the bald eagle, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004).

Valle Osha Allotment

○ MSO and MSO CH

Since no MSO are found in the Rosilla PAC, grazing at the proposed level would not disturb individuals. Grazing at the proposed level would not reduce the amount of CH (Figure 18). First, no primary constituent elements would be removed, so the habitat necessary for MSO CH would remain. For instance, the overall canopy cover and forest structure would not change due to grazing, since cattle do not eat trees. Second, grazing has not resulted in a lack of ground cover for the MSO's prey (Nelson 2004). Further, constructing pasture fences to slow the movement of cattle from the southern end of the allotment would incrementally improve ground cover by forcing cattle to graze more evenly in the capable areas across the allotment. More ground cover would provide additional cover and habitat for the MSO's prey. Though the construction of fences would remove a few incidental trees, it would not be enough to modify the CH to affect its suitability for the MSO. For the MSO, these effects determinations meet the USDA guidance criteria for a “no effect” determination (USDA-FS, 2004); for CH, this would also be a “no effect” determination. Cattle would remove a portion of grass where they graze, resulting in a very minimal decrease of the MSO's prey's habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when conservative utilization standards were met.

Sensitive Species - Affected Environment

Species were eliminated from evaluation based on: lack of potential habitat; area not included in historic or current range of the species; or extirpation of the species without current feasibility for

reintroduction. There will be no further discussion of the following species in this environmental analysis: peregrine falcon, swift fox, goat peak pika, black-tailed prairie dog, Jemez mountains salamander, hairless Pecos fleabane, and the Arizona willow. Table 15 summarizes the sensitive species and/or habitats found by allotment. If a species or habitat is not listed, it or its habitat is not found on that particular allotment.

Table 15. Summary of Sensitive Species and/or Habitat by Allotment

Allotment	Sensitive species and/or habitat
Bull Creek	Northern goshawk Blue-black silver spot butterfly (habitat) New Mexico Meadow jumping mouse (habitat)
Cow Creek	Northern goshawk Rio Grande Cutthroat Trout Blue-black silver spot butterfly (habitat) New Mexico Meadow jumping mouse (habitat)
Macho	Northern goshawk Rio Grande Cutthroat Trout Blue-black silver spot butterfly (habitat) New Mexico Meadow jumping mouse (habitat) Peregrine falcon
Soldier Creek	Northern goshawk Blue-black silver spot butterfly (habitat) New Mexico Meadow jumping mouse (habitat)
Valle Osha	Northern goshawk Rio Grande Cutthroat Trout Blue-black silver spot butterfly (habitat) New Mexico Meadow jumping mouse (habitat)

Bull Creek Allotment

○ Northern goshawk

In 1991, one fledgling and a nest were detected on the Bull Creek allotment; subsequently, the Manzanera PFA (post-family fledgling area) was established. Another juvenile was found on the same allotment in 1991, subsequently the Upper Bull PFA was established. The Brazel PFA was established on the allotment in 1992, yet information for the survey is lacking (Figure 21). No surveys have been conducted for the PFAs since 1991 and 1992. All PFAs consist of mixed conifer, aspen stands with an oak understory. Canopy closure of the areas described, vary from 60-80% and average dbh of seven inches.

The goshawk utilizes a variety of forest types, forest ages, structural conditions and successional stages (Reynolds et al. 1992, Beier et al, 1997, Andersen et al 2003). The principal forest types occupied by the goshawk are ponderosa pine, mixed-species and spruce fir. Nesting habitat consists of older age forests with variable tree species. The most consistent vegetation characteristic of goshawk nest sites is a high percent of canopy closure. Goshawk prey (forest birds and mammals) occupy ground-shrub, shrub-canopy, and canopy layers.

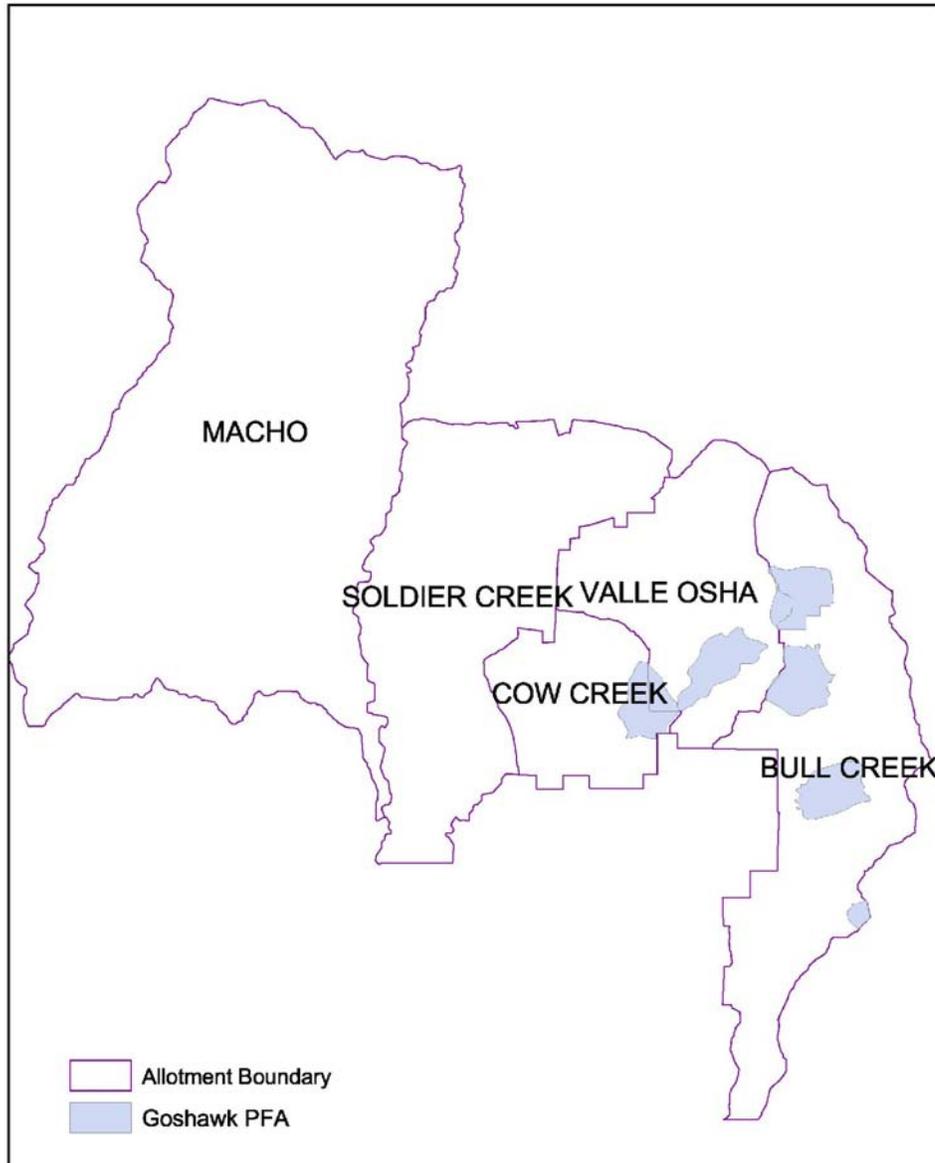


Figure 21. Goshawk post-fledgling areas (PFAs).

- Blue-black silver spot butterfly
Habitat for the butterfly exists on the Bull creek allotment in wet meadows, seeps, marshes and streamsidess. The Manzañares pasture is one of the best examples for possible occurrence for this species. During field reconnaissance of this area, no butterflies were detected.

- New Mexico Meadow Jumping Mouse

Habitat for the mouse exists on the Bull creek allotment in habitats that are in close proximity to permanent free flowing waters such as the Manzaníares drainage that has vegetation of diverse composition. The Manzaníares area listed above is a good example of suitable habitat for this species. During field reconnaissance of this area, no mice were detected.

Cow Creek Allotment

- Northern goshawk

One goshawk was found on the Cow Creek Allotment in 1988; subsequently, the Tijeras PFA was established (Figure 21). No adults or nest was found. The Tijeras PFA consists of mixed conifer and aspen. No surveys have been conducted since 1988.

The goshawk utilizes a variety of forest types, forest ages, structural conditions and successional stages (Reynolds et al. 1992, Beier et al, 1997, Andersen et al 2003). The principal forest types occupied by the goshawk are ponderosa pine, mixed-species and spruce fir. Nesting habitat consists of older age forests with variable tree species. The most consistent vegetation characteristic of goshawk nest sites is a high percent of canopy closure. Goshawk prey (forest birds and mammals) occupy ground-shrub, shrub-canopy, and canopy layers.

- Rio Grande Cutthroat Trout

During fish surveys in 2000, RGCT were found in the Rito Atascoso (Figure 22). Population size or density is unknown. Its habitat is cold-water streams with many plunge pools and riffles and lush riparian vegetation such as sedges, grasses, willows and alder.

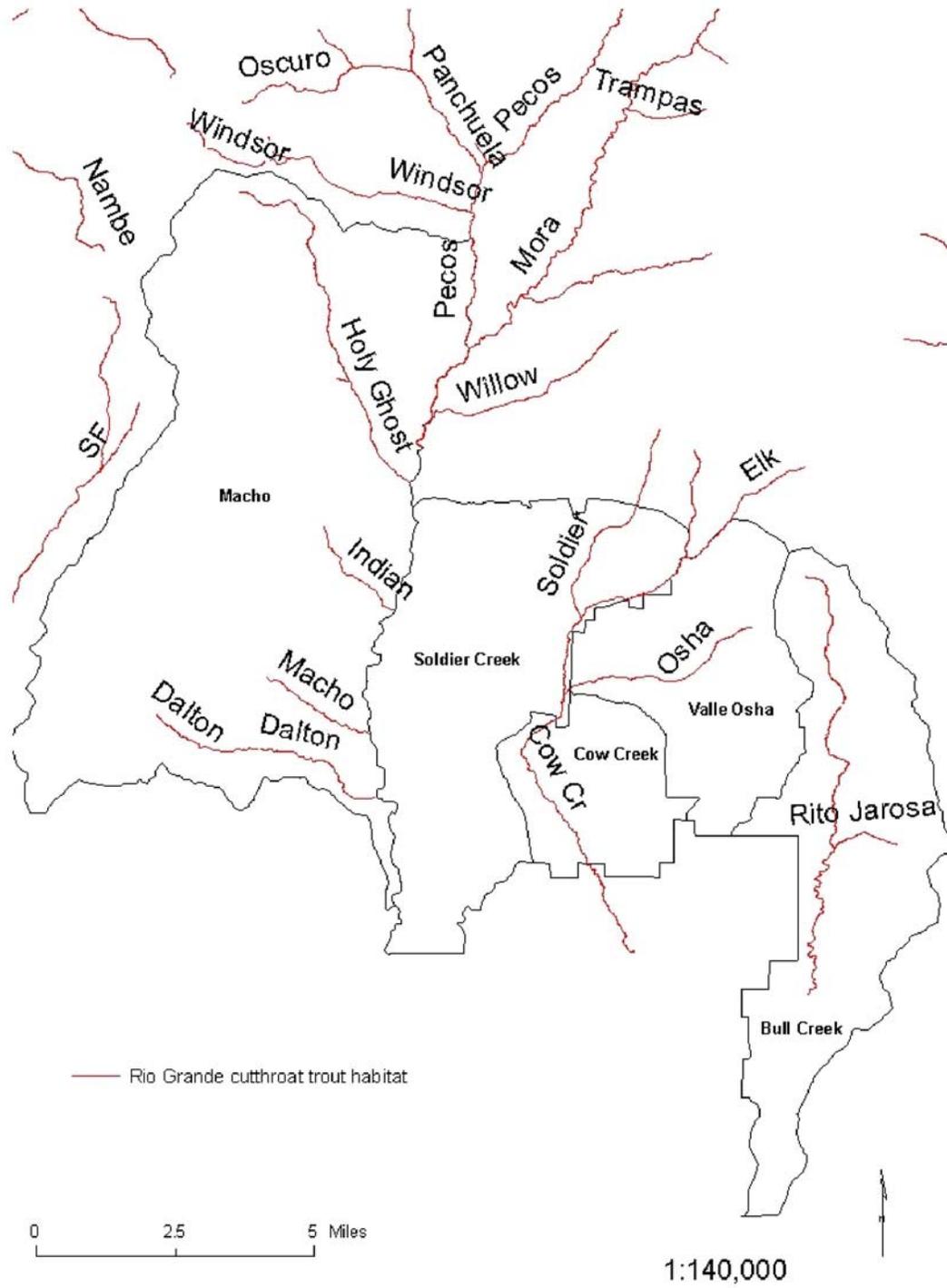


Figure 22. Rio Grande cutthroat trout habitat.

- Blue-black silver spot butterfly

Habitat for the butterfly exists on the Cow Creek allotment in wet meadows, seeps, marshes and streambanks. The riparian areas such as Rito Atascoso drainage are the best examples for possible occurrence for this species. During field reconnaissance of this area, no butterflies were detected.

- New Mexico Meadow Jumping Mouse

Habitat for the mouse exists on the Cow Creek allotment in areas that are in close proximity to permanent free flowing waters such as the Rito Atascoso drainage having vegetation of diverse composition. Riparian areas such as the Rito Atascoso is a good example for suitable habitat for this species. During field reconnaissance of this area, no mice were detected.

Macho

- Northern goshawk

Habitat for the Northern goshawk exists on the Macho Allotment within ponderosa pine, mixed-species and spruce fir habitat types. During field reconnaissance of this area, no goshawks were detected.

The goshawk utilizes a variety of forest types, forest ages, structural conditions and successional stages (Reynolds et al. 1992, Beier et al, 1997, Andersen et al 2003). The principal forest types occupied by the goshawk are ponderosa pine, mixed-species and spruce fir. Nesting habitat consists of older age forests with variable tree species. The most consistent vegetation characteristic of goshawk nest sites is a high percent of canopy closure. Goshawk prey (forest birds and mammals) occupy ground-shrub, shrub-canopy, and canopy layers.

- Rio Grande Cutthroat Trout

In 2000, the RGCT was been found in the following streams: Macho, Indian, Dalton and Doctor Creeks (Figure 22). Population size or densities are unknown for these areas. Its habitat is cold-water streams with many plunge pools and riffles and lush riparian vegetation such as sedges, grasses, willows and alder. The lower end of Dalton Creek is a heavily used camping area. As a result of excessive recreational use, the floodplain soils are bare and compacted, vegetation is depleted, and the creek has been altered. The riparian area, however, is well vegetated (PFC survey, August 2003). Grazing does not occur along the portion of Dalton Creek that has been degraded by recreation.

- Blue-black silver spot butterfly

Habitat for the butterfly exists on the Macho allotment in wet meadows, seeps, marshes and streambanks. The riparian areas along the Macho, Indian, Dalton and Doctor creeks are the best examples for possible occurrence for this species. During field reconnaissance of this area, no butterflies were detected. The lower end of Dalton Creek is a heavily used camping area. As a result of excessive recreational use, the riparian soils are bare and compacted, vegetation is depleted, and the creek has been altered. Grazing does not occur along the portion of Dalton Creek that has been degraded by recreation.

- New Mexico Meadow Jumping Mouse

Habitat for the mouse exists on the Macho allotment in close proximity to permanent free flowing waters such as the Macho, Indian creek, Dalton and Doctor creek drainages that have vegetation of diverse composition. Riparian areas listed above are good examples for suitable habitat for this species. During field reconnaissance of this area, no mice were detected. The lower end of Dalton Creek is a heavily used camping area.

- Peregrine falcon

Habitat for the falcon exists on the Macho allotment within steep canyons and ridges. The elevation drops gradually from high ridges and deep canyons to low ridges and valleys. Vegetation in the foraging area consists of spruce-fir, mixed conifer, ponderosa pine, oak woodland, and piñon and juniper woodland. During field reconnaissance of this area, no falcons were detected. The lower end of Dalton Creek is a heavily used camping area.

Soldier Creek

- Northern goshawk

Habitat for the Northern goshawk exists on the Soldier creek allotment within ponderosa pine, mixed-species and spruce fir habitat types. During field reconnaissance of this area, no goshawks were detected.

The goshawk utilizes a variety of forest types, forest ages, structural conditions and successional stages (Reynolds et al. 1992, Beier et al, 1997, Andersen et al 2003). The principal forest types occupied by the goshawk are ponderosa pine, mixed-species and spruce fir. Nesting habitat consists of older age forests with variable tree species. The most consistent vegetation characteristic of goshawk nest sites is a high percent of canopy closure. Goshawk prey (forest birds and mammals) occupy ground-shrub, shrub-canopy, and canopy layers.

- Blue-black silver spot butterfly

Habitat for the butterfly exists on the Soldier creek allotment in wet meadows, seeps, marshes and streamsides. The Pecos River and Rito Chaperito is some of the best examples for possible occurrence for this species. During field reconnaissance of this area, no butterflies were detected.

- New Mexico Meadow Jumping Mouse

Habitat for the mouse exists on the Bull creek allotment in habitats that are in close proximity to permanent free flowing waters such as the Pecos River and Rito Chaperito that have vegetation of diverse composition. The riparian areas listed above are good examples of suitable habitat for this species. During field reconnaissance of this area, no mice were detected.

Valle Osha Allotment

- Northern goshawk

Two juvenile goshawks were found on the Valle Osha Allotment in 1990; subsequently, the Torito PFA (post-fledgling area) was established (Figure 21). No adults or nest was found. The Torito PFA consists of ponderosa pine, mixed conifer, aspen, and gambel oak. No surveys have been conducted since 1991.

The goshawk utilizes a variety of forest types, forest ages, structural conditions and successional stages (Reynolds et al. 1992, Beier et al, 1997, Andersen et al 2003). The principal forest types occupied by the goshawk are ponderosa pine, mixed-species and spruce fir. Nesting habitat consists of older age forests with variable tree species. The most consistent vegetation characteristic of goshawk nest sites is a high percent of canopy closure. Goshawk prey (forest birds and mammals) occupy ground-shrub, shrub-canopy, and canopy layers.

- Rio Grande Cutthroat Trout

During fish surveys in 2000, RGCT were found in the Rito Atascoco and Rito Torito watersheds. Population size or density is unknown. Its habitat is cold-water streams with many plunge pools and riffles and lush riparian vegetation such as sedges, grasses, willows and alder.

- Blue-black silver spot butterfly

Habitat for the butterfly exists on the Valle Osha allotment in wet meadows, seeps, marshes and streambanks. The riparian areas along Rito Atascoco and Rito Torito are the best examples for the possible occurrence for this species. During field reconnaissance of this area, no butterflies were detected.

- New Mexico Meadow Jumping Mouse

Habitat for the mouse exists on the Valle Osha allotment in habitats that are in close proximity to permanent free flowing waters such as the Rito Atascoco and Rito Torito drainages having vegetation of diverse composition. Riparian areas such as the Rito Atascoco and Rito Torito are a good example for suitable habitat for this species. During field reconnaissance of this area, no mice were detected.

Sensitive Species - Environmental Consequences

Alternative 1 (No Change)

Bull Creek Allotment

- Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Alternative 1 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. Because cattle would not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. These effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

- Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the butterfly’s habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function (see PFC surveys for Bull Creek, project record). These effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

- New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the mouse’s habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function (see PFC surveys for Bull Creek, project record). These effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete

lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Cow Creek Allotment

○ Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Alternative 1 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. Because cattle would not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. These effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

○ Rio Grande Cutthroat Trout

Continued grazing at current levels would not modify the riparian areas of the Rito Atascoso so as to alter flow regimes and natural stream morphology. Thus, productive riffle areas and suitable spawning sites would not be impaired. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for essential primary production would all remain (Sublette et al 1990). These effects would result in a “no effect” determination.

○ Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the butterfly’s habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function. These effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of the habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

○ New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the mouse’s habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function. These effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Macho

○ Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Alternative 1 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. Because cattle would not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. These effects would result in a “no effect” determination.

○ Rio Grande Cutthroat Trout

Continued grazing at current levels would not modify riparian areas so as to alter flow regimes and natural stream morphology. Thus, productive riffle areas and suitable spawning sites would not be impaired. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for essential primary production would all remain (PFC surveys (project record), Sublette et al 1990). These effects would result in a “no effect” determination.

○ Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the butterfly’s habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function (see PFC surveys, project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. These effects would result in a “no effect” determination.

○ New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the mouse’s habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function (see PFC surveys, project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. These effects would result in a “no effect” determination.

○ Peregrine falcon

Continued grazing at current levels would not modify peregrine falcon habitat such as cliffs and steep slopes. Livestock do not occupy areas where falcons nest because of inaccessible areas such as cliffs and ledges. Foraging areas such as mixed conifer and ponderosa pine habitats may receive minimal grazing where desirable forage is available. Current livestock grazing is very

conservative and has not removed large quantities of forage that are necessary for the falcon's prey. Thus, these effects would result in a "no effect" determination.

Soldier Creek

- Northern goshawk

Under Alternative 1, no grazing is proposed on this allotment; therefore, there would be no effect to the goshawk or its habitat from grazing. These effects would result in a "no effect" determination.

- Blue-black silver spot butterfly

Under Alternative 1, no grazing is proposed on this allotment; therefore, there would be no effect to the butterfly or its habitat from grazing. These effects would result in a "no effect" determination.

- New Mexico Meadow Jumping Mouse

Under Alternative 1, no grazing is proposed on this allotment; therefore, there would be no effect to the mouse or its habitat from grazing. These effects would result in a "no effect" determination. These effects would result in a "no effect" determination.

Valle Osha Allotment

- Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Alternative 1 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. Because cattle would not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

- Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the butterfly's habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function (see PFC surveys, project record). These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

- Rio Grande Cutthroat Trout

Continued grazing at current levels would not modify riparian areas so as to alter flow regimes and natural stream morphology. Thus, productive riffle areas and suitable spawning sites would not be impaired. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for

essential primary production would all remain (PFC surveys (project record), Sublette et al 1990). These effects would result in a “no effect” determination.

- New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Continued grazing at current levels would not reduce the amount of or alter the mouse’s habitat; surveys show that the amount of current grazing is not depleting riparian vegetation or causing a decline in riparian function (see PFC surveys, project record). These effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Alternative 2 (No Grazing)

Bull Creek Allotment

- Northern goshawk

Eliminating grazing would not affect individual goshawks because the absence of cattle does not disturb them. Alternative 2 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. There would be an incremental increase in the amount of ground cover for prey because there would be no cattle. These effects would result in a “no effect” determination.

- Blue-black silver spot butterfly

The absence of cattle would not affect individual butterflies because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

- New Mexico Meadow Jumping Mouse

The absence of cattle would not affect individual mice because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

Cow Creek Allotment

- Northern goshawk

Eliminating grazing would not affect individual goshawks because the absence of cattle does not disturb them. Alternative 2 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. There would be an incremental increase in the amount of ground cover for prey because there would be no cattle. These effects would result in a “no effect” determination.

- Rio Grande Cutthroat Trout

The risk that riparian areas, natural flow regimes, and stream morphology would be altered enough to ruin habitat would be eliminated. The risk that productive riffle areas and suitable spawning sites would be impaired would be eliminated. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool

water temperatures and allows for essential primary production would all remain (Sublette et al 1990).

- Blue-black silver spot butterfly

The absence of cattle would not affect individual butterflies because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

- New Mexico Meadow Jumping Mouse

The absence of cattle would not affect individual mice because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

Macho

- Northern goshawk

Eliminating grazing would not affect individual goshawks because the absence of cattle does not disturb them. Alternative 2 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. There would be an incremental increase in the amount of ground cover for prey because there would be no cattle. These effects would result in a “no effect” determination.

- Rio Grande Cutthroat Trout

The risk that riparian areas, natural flow regimes, and stream morphology would be altered enough to ruin habitat would be eliminated. The risk that productive riffle areas and suitable spawning sites would be impaired would be eliminated. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for essential primary production would all remain (PFC surveys (project record), Sublette et al 1990). Because recreation-caused impairments would continue in the lower end of Dalton Canyon, eliminating grazing would not improve this particular riparian area. These effects would result in a “no effect” determination.

- Blue-black silver spot butterfly

The absence of cattle would not affect individual butterflies because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

- New Mexico Meadow Jumping Mouse

The absence of cattle would not affect individual mice because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

- Peregrine falcon

The absence of livestock would not modify peregrine falcon habitat such as cliffs and steep slopes. Livestock would not occupy areas where falcons nest because of inaccessible areas such as cliffs and ledges. Foraging areas such as mixed conifer and ponderosa pine habitats would not be grazed would not remove large quantities of forage that are necessary for the falcon’s prey. Thus, these effects would result in a “no effect” determination.

Soldier Creek

○ Northern goshawk

Eliminating grazing would not affect individual goshawks because the absence of cattle does not disturb them. Alternative 2 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. There would be an incremental increase in the amount of ground cover for prey because there would be no cattle. These effects would result in a “no effect” determination.

○ Blue-black silver spot butterfly

The absence of cattle would not affect individual butterflies because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

○ New Mexico Meadow Jumping Mouse

The absence of cattle would not affect individual mice because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

Valle Osha Allotment

○ Northern goshawk

Eliminating grazing would not affect individual goshawks because the absence of cattle does not disturb them. Alternative 2 would not reduce the amount of goshawk habitat because no reduction in tree density or canopy closure would occur. There would be an incremental increase in the amount of ground cover for prey because there would be no cattle. These effects would result in a “no effect” determination.

○ Blue-black silver spot butterfly

The absence of cattle would not affect individual butterflies because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

○ Rio Grande Cutthroat Trout

The risk that riparian areas, natural flow regimes, and stream morphology would be altered enough to ruin habitat would be eliminated. The risk that productive riffle areas and suitable spawning sites would be impaired would be eliminated. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for essential primary production would all remain (PFC surveys (project record), Sublette et al 1990). These effects would result in a “no effect” determination.

○ New Mexico Meadow Jumping Mouse

The absence of cattle would not affect individual mice because none have been found. The risk that riparian vegetation and habitat would be eaten or trampled by cattle enough to ruin habitat would be eliminated under this alternative. These effects would result in a “no effect” determination.

Alternative 3 (Proposed Action)

Bull Creek Allotment

○ Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Grazing at proposed levels would maintain forage used by goshawk prey. Alternative 3 would not reduce the amount of goshawk habitat because no overall reduction in tree density or canopy closure would occur, though a few incidental trees would be removed during fence construction. Because cattle would be not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. Further, constructing fences to slow the movement of cattle from the southern end of the allotment would incrementally improve ground cover by forcing cattle to graze more evenly across the allotment. An increase in ground cover would provide additional habitat and cover for the goshawk's prey. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey base habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

○ Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the butterfly's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Constructing pasture fences to limit movement of cattle from the southern end of the allotment would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

○ New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the mouse's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Constructing pasture fences to limit movement of cattle from the southern end of the allotment would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Cow Creek Allotment

○ Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Grazing at proposed levels would maintain forage used by goshawk prey. Alternative 3 would not reduce the amount of goshawk habitat because no overall reduction in tree density or canopy closure would occur, though a few incidental trees would be removed during fence construction. Because cattle would not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. Further, constructing fences to slow the movement of cattle from the southern end of the allotment would incrementally improve ground cover by forcing cattle to graze more evenly across the allotment. An increase in ground cover would provide additional habitat and cover for the goshawk's prey. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey base habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

○ Rio Grande Cutthroat Trout

Grazing at proposed levels would not modify the riparian areas of the Rito Atascoso so as to alter flow regimes and natural stream morphology. Proposed grazing levels are the same as existing, and there has been no habitat damage from existing levels. Thus, productive riffle areas and suitable spawning sites would not be impaired. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for essential primary production would all remain (Sublette et al 1990). Constructing pasture fences to limit movement of cattle would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. Alternative 3 would not reduce the amount of fish habitat on the allotment. These effects would result in a "no effect" determination.

○ Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the butterfly's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Constructing pasture fences to limit movement of livestock would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. Alternative 3 would not reduce the amount of butterfly habitat on the allotment. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

○ New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the mouse's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Constructing pasture fences to limit movement of cattle would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. Alternative 3 would not reduce the amount of mouse habitat on the allotment. These

effects would result in a “no effect” determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Macho

○ Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Grazing at proposed levels would maintain forage used by goshawk prey. Alternative 3 would not reduce the amount of goshawk habitat because no overall reduction in tree density or canopy closure would occur, though a few incidental trees would be removed during fence construction. Because cattle would be not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover for the prey base, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Further, constructing fences to slow the movement of cattle from the southern end of the allotment would incrementally improve ground cover by forcing cattle to graze more evenly across the allotment. An increase in ground cover would provide additional habitat and cover for the goshawk’s prey. These effects would result in a “no effect” determination.

○ Rio Grande Cutthroat Trout

Grazing at proposed levels would not modify riparian areas so as to alter flow regimes and natural stream morphology. Implementing a rotational grazing system and constructing a well and pasture fences would incrementally improve wetland/riparian habitat by increasing livestock distribution across the allotment. Thus, productive riffle areas and suitable spawning sites would not be impaired. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for essential primary production would all remain (PFC surveys, Sublette et al 1990). These effects would result in a “no effect” determination.

○ Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Implementing a rotational grazing system and constructing a well and pasture fences would incrementally improve wetland/riparian habitat by increasing livestock distribution across the allotment. Grazing at proposed levels would not reduce the amount of or alter the butterfly’s habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. These effects would result in a “no effect” determination.

○ New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Implementing a rotational grazing system and constructing a well and pasture fences would incrementally improve wetland/riparian habitat by increasing livestock distribution

across the allotment. Grazing at proposed levels would not reduce the amount of or alter the mouse's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. These effects would result in a "no effect" determination. These effects would result in a "no effect" determination.

- Peregrine falcon

Grazing at proposed levels would not modify peregrine falcon habitat such as cliffs and steep slopes. Livestock do not occupy areas where falcons nest because of inaccessible areas such as cliffs and ledges. Foraging areas, such as mixed conifer and ponderosa pine habitats, would not be grazed where desirable forage is available. Implementing a rotational grazing system and constructing a well and pasture fences would incrementally improve wetland/riparian habitat by increasing livestock distribution across the allotment. Proposed livestock grazing would be at a conservative level (see mitigations, Chapter 2) and would not remove large quantities of forage that are necessary for the falcon's prey. Thus, these effects would result in a "no effect" determination.

Soldier Creek

- Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Grazing at proposed levels would maintain forage used by goshawk prey. Alternative 3 would not reduce the amount of goshawk habitat because no overall reduction in tree density or canopy closure would occur, though a few incidental trees would be removed during fence construction. Because cattle would be not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. Further, constructing fences to slow the movement of cattle from the southern end of the allotment would incrementally improve ground cover by forcing cattle to graze more evenly across the allotment. An increase in ground cover would provide additional habitat and cover for the goshawk's prey. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey base habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

- Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the butterfly's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

- New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the mouse's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Valle Osha Allotment

- Northern goshawk

Grazing at current conservative levels would not have direct effects to individual goshawks because livestock do not utilize the main habitat components such as large trees. Grazing at proposed levels would maintain forage used by goshawk prey. Alternative 3 would not reduce the amount of goshawk habitat because no overall reduction in tree density or canopy closure would occur, though a few incidental trees would be removed during fence construction. Because cattle would be not be allowed more than 40% utilization (see mitigations, Chapter 2), consumption of forage would be light to moderate and would not greatly reduce the habitat of prey species. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of prey base habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

- Rio Grande Cutthroat Trout

Grazing at proposed levels would not modify the riparian areas of the Rito Quemazon and Rito Torito so as to alter flow regimes and natural stream morphology. Proposed grazing levels are the same as existing, and there has been no habitat damage from existing levels (PFC surveys, project record). Thus, productive riffle areas and suitable spawning sites would not be impaired. Further, undercut banks (where fish go to avoid predation), pools for resting, feeding and overwintering, and shade which preserves cool water temperatures and allows for essential primary production would all remain (PFC surveys, Sublette et al 1990). Constructing pasture fences to control use of the riparian area by cattle would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. Alternative 3 would not reduce the amount of fish habitat on the allotment. These effects would result in a "no effect" determination.

- Blue-black silver spot butterfly

No butterflies have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the butterfly's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Constructing pasture fences to control the use of riparian areas by livestock would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

○ New Mexico Meadow Jumping Mouse

No mice have been found on this allotment, so it is unlikely that the presence of cattle would disturb individuals. Grazing at proposed levels would not reduce the amount of or alter the mouse's habitat because it would adhere to conservative forage utilization standards (see mitigations, Chapter 2). Constructing pasture fences to control use of the riparian area by cattle would incrementally improve wetland/riparian habitat by forcing cattle to graze more evenly across the allotment. These effects would result in a "no effect" determination. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Management Indicator Species - Affected Environment

The Santa Fe National Forest Plan identified eight Management Indicator Species (MIS): bighorn sheep, Rocky Mountain elk, Mexican spotted owl, Merriam's turkey, hairy woodpecker, Rio Grande cutthroat trout, piñon jay, and mourning dove (USDA-FS, 1987). Table 16 displays what habitat each species represents.

Table 16. Habitat Represented by MIS.

Species	Habitat Species is an Indicator of
Bighorn sheep	Alpine or other non-timber areas
Mexican spotted owl	Mature mixed conifer
Rocky Mountain elk	Early to mid-seral, all forest types
Hairy woodpecker	Snags, > 11 inch dbh trees, downed logs
Merriam's turkey	Oak, shrub, piñon-juniper woodlands, all forest types
Rio Grande cutthroat trout	Water quality
Piñon jay	Piñon-juniper woodland
Mourning dove	Grassland, ponderosa pine, cottonwood forest, mixed conifer

MIS designated in the Santa Fe National Forest Plan EIS that have the probability of occurring on the allotments are shown in Table 17 and discussed in detail below. Mexican spotted owl and Rio Grande cutthroat trout have been discussed previously in this document. The bighorn sheep was eliminated from evaluation because of its lack of potential habitat within the analysis area. If a species is not listed next to an allotment, it means that it or its habitat does not occur on that allotment.

Table 17. Summary of Management Indicator Species and/or their habitat by allotment.

Allotment	Management Indicator Species and/or habitat
Bull Creek	Merriam's Turkey Hairy Woodpecker Rocky Mountain Elk Mourning Dove Piñon Jay
Cow Creek	Merriam's Turkey Hairy Woodpecker Rocky Mountain Elk

Allotment	Management Indicator Species and/or habitat
	Mourning Dove
Macho	Merriam's Turkey Hairy Woodpecker Rocky Mountain Elk Mourning Dove Piñon Jay
Soldier Creek	Merriam's Turkey Hairy Woodpecker Rocky Mountain Elk Mourning Dove Piñon Jay
Valle Osha	Merriam's Turkey Hairy Woodpecker Rocky Mountain Elk Mourning Dove

The discussion below is taken from the Santa Fe National Forest Management Indicator Species Assessment (2003) and survey notes from the District Staff Wildlife Biologist. The habitat maps were created by using the forest-wide MIS layers in GIS, then adding in specifics such as recent wildfires.

For those species present on the allotments, the table below lists the percent of total forest MIS habitat contained by each allotment.

Table 18. MIS habitat contained by each allotment

Species	Bull Creek	Cow Creek	Macho	Soldier Creek	Valle Osha	TOTAL
Merriam's turkey	0.8	0.3	2.6	1.1	0.5	5.3
Hairy woodpecker	0.3	0.4	0.1	0.5	0.8	2.1
Rocky Mountain elk	0.8	0.3	2.3	0.6	0.5	4.5
Mourning dove	1.3	0.4	3.4	1.5	0.5	7.1
Pinon jay	0.2	0	0.1	0.1	0	0.4

Bull Creek Allotment

○ Merriam's Turkey

Approximately 11,120 acres (private land excluded), or 83%, of habitat such as ponderosa pine, oak, piñon-juniper, sumac, grass and meadows are available for the turkey on the Bull Creek Allotment (Figure 23). Reconnaissance survey of the Bull Creek Allotment indicates that suitable habitat is present for the turkey (project record). Although no turkeys were detected at the time of survey, the habitat is in good condition and provides adequate foraging, hiding, roosting, and nesting areas for the turkey.

In the MIS assessment for the Santa Fe Forest (USDA-FS, 2003), the Santa Fe National Forest Plan modeling determined that feeding habitat was the primary limiting factor for turkey; harvest patterns that promoted early seral stages or provided an open canopy allowing grass, forbs and mast providing vegetation were the most beneficial for turkey.

The Forest Service has done many habitat improvement projects with the turkey in mind, including many water developments, underburning in ponderosa pine, and creating slash piles for nesting structure. The abundance of nesting and cover opportunities on the Santa Fe contribute to maintaining viable populations of turkey. In general, natural disturbance opens the canopy, allowing for the growth of more understory vegetation, improving turkey habitat. Acres that were unaffected by disturbance are gradually declining in quality because of encroachment of forest on meadows and other open areas occurring over time. On balance, the estimated habitat trend for turkey is relatively stable based on disturbed acres providing additional feeding habitat and undisturbed areas declining in quality due to forest encroachment issues (USDA 2003).

The Merriam's turkey population is ranked as common for the Santa Fe NF and the population trend for the Merriam's turkey is rated as stable to slightly increasing at the Forest level (USDA 2003). This means that the estimated number of breeding female birds ranges between 1,000 and 10,000 individuals. The population may fluctuate from year to year based on a variety of environmental factors. This estimate is based on the amount of habitat available, hunter success information, breeding bird surveys and the professional judgment of Forest biologists.

Merriam's turkey is one of the bird species for which data is conducted and compiled on a large-scale breeding bird survey of North American birds. This breeding bird survey (BBS) is maintained by the Patuxent Research Center (US Geological Survey) and is found on a website (<http://www.mbr-pwrc.usgs.gov/bbs.html>). It is a roadside survey, primarily covering the continental United States. The BBS was started in 1966, and over 3,500 routes are surveyed in June by experienced birders. The primary objective of the BBS has been the estimation of population change for songbirds. Since 1966, the population trend of the Merriam's turkey in the western part of the United States has increased by over 33 percent.

Surveys conducted by the USGS between 1968 and 1998 indicate an increasing population of Wild turkey within the region that includes New Mexico (www.mbr-pwrc.usgs.gov). The Wild turkey is listed as globally, nationally, and State of New Mexico secure and common, widespread and abundant based on the Nature Conservancy's 2001 database. It is secure in New Mexico and 22 other states and apparently secure in 10 other states (NatureServe, 2001).

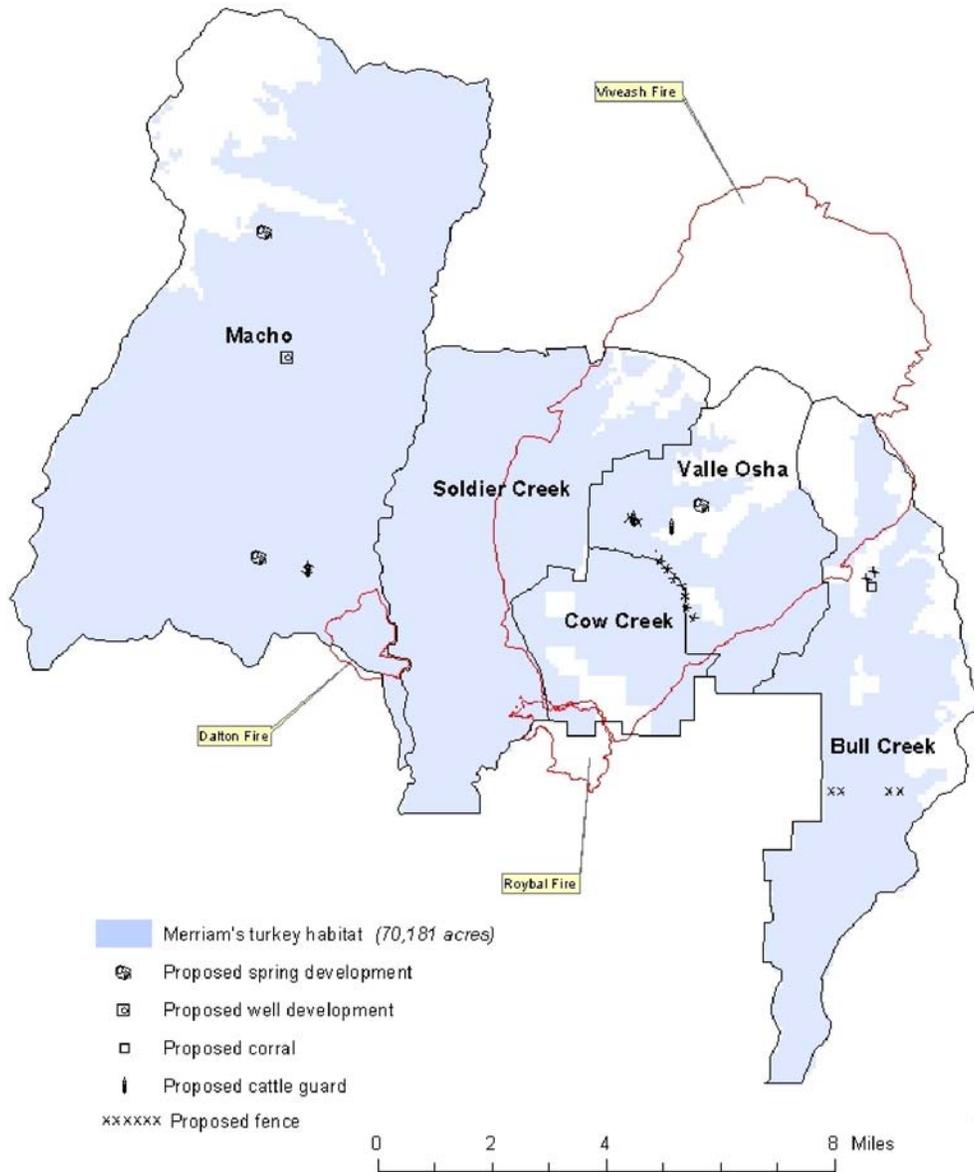


Figure 23. Merriam's turkey habitat.

○ Hairy Woodpecker
 Approximately 2,970 acres (private land excluded), or 22%, of habitat are available for the hairy woodpecker on the Bull Creek Allotment (Figure 24). Reconnaissance surveys of the allotment indicate that suitable habitat is present for the hairy woodpecker. At the time of the survey no

woodpeckers were detected (project record). Where the Viveash Fire burned on the allotment, habitat has increased for the woodpecker by providing large quantities of snags.

In the MIS assessment for the Santa Fe Forest (USDA 2003), the Santa Fe Forest plan modeling predicted that hairy woodpecker habitat quality would improve over time as young stands mature into diameter classes acceptable as cover. Nesting habitat was more limiting than feeding habitat.

Large trees, which are future down logs and snags, are maintained across the Santa Fe National Forest in accordance with the Forest Plan and the background matrix of current snags and down logs. Snags and down woody debris comprise an important element to the background matrix of the forested landscape. Road accessibility and increasing demand for firewood make snags and down woody debris susceptible to removal. Areas with high road density have a higher rate of snag removal than areas with low road densities. In areas inaccessible to the public, snags are maintained under normal conditions at far greater numbers than the Forest Plan guidelines of 2-3 snags per acre, thus the National Forest supports adequate numbers of snags and down logs for hairy woodpecker habitat (USDA 2003). Prescribed burning and recent wildfires have created large snags in inaccessible areas (steep slopes) or areas with limited road access. In general, habitat affected by fire, disease and bug kill will have many more snags than the minimum levels required by the Forest Plan. The habitat trend for hairy woodpecker is considered stable for the Forest (USDA 2003).

This species is one of the most common woodpeckers in the Southwest, particularly in riparian habitats and in ponderosa pine, mixed species and spruce-fir forests. Overall, the US population is stable. This species is widespread across the Santa Fe National Forest and can be found in any of the suitable habitat types (USDA 2003).

The hairy woodpecker population is ranked as abundant for the Santa Fe NF (USDA 2003). This means that the estimated number of breeding pairs ranges between 10,000 and 100,000. The population may fluctuate from year to year based on a variety of environmental factors. This estimate is based on the amount of habitat available, breeding bird surveys, local studies and the professional opinion of local biologists.

Surveys conducted by the USGS between 1968 and 1998 indicate a stable or increasing trend for hairy woodpecker within the state of New Mexico (www.mbr-pwrc.usgs.gov). The hairy woodpecker is listed as being globally, nationally, and State of New Mexico secure and common, widespread and abundant based on the Nature Conservancy's 2001 database. It is secure in New Mexico and 31 other states (Natureserve, 2001). The population of hairy woodpeckers is considered stable to increasing on the Santa Fe National Forest based on the trends seen within the State of New Mexico, observations on breeding bird surveys in or adjacent to the Forest, and habitat conditions within the Forest (USDA 2003).

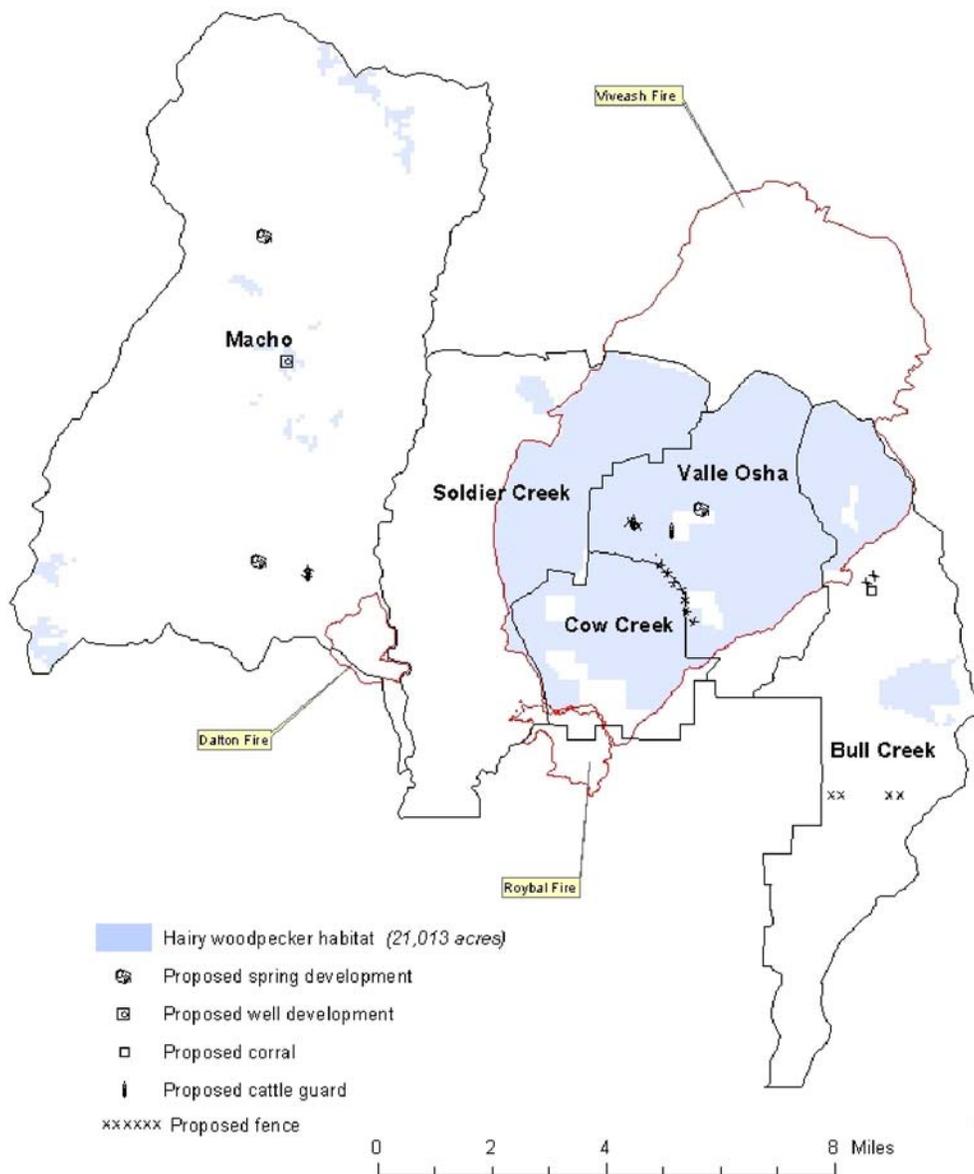


Figure 24. Hairy woodpecker habitat.

○ Rocky Mountain Elk
 Approximately 13,350 acres (private land excluded), or 100%, of habitat are available for the Rocky Mountain elk on the Bull Creek Allotment. A reconnaissance survey of the Bull Creek Allotment indicates that suitable habitat is present for elk (project record). Although no elk were detected at the time of survey, habitat is in good condition and provides adequate forage and

water for the elk. The Viveash Fire of 2000 burned about 2,580 acres in the northern portion of the allotment, changing the forest from live trees to standing dead trees with abundant grass and forbs. This shifted the ratio of cover to forage towards mostly forage on these acres. Many trees that provided thermal and hiding cover were burned, but forage and browse quantity has increased due to new growth of early successional stage vegetation such as grasses, oak and aspen.

In the MIS assessment for the Santa Fe Forest (USDA 2003), the Forest Plan modeling predicted that elk were limited primarily by low forage availability. In general, there is more than enough habitat to support the current population of elk on the forest. In the long term, however, good habitat for elk is dependent on projects specifically designed to provide understory forage recovery, away from streams and riparian vegetation, and to improve small parks and openings through meadow maintenance and thinning near these sites. Wintering areas should have a schedule established to conduct prescribed burning and maintenance in the spring.

The elk utilize and frequent almost every habitat type found on the forest. Recent habitat improvement projects such as water developments, prescribed burns, timber harvest, and the thinning of piñon-juniper woodlands have greatly contributed to the expansion of existing herds into previously unoccupied habitats. In general, habitat affected by disturbance will have the canopy opened up allowing for the growth of more understory vegetation, improving elk habitat. The trend for elk habitat on the Forest is rated as stable (USDA 2003). This is based on recent large fires creating large amounts of early seral stage habitat. These changes caused by fire are being offset by the forest habitat encroaching on historic meadow habitat in unburned areas.

Elk populations in the Sangre de Cristo and Jemez Mountains are primarily migratory herds. There are numerous small herds that come together and use the high elevation areas of the Pecos Wilderness, Jemez Mountains, San Pedro Parks and the Valles Caldera National Preserve as summer range. These small herds migrate to lower elevation winter ranges when the snows come. The population is healthy and is generally considered to be growing (USDA 2003). There are many areas where use now occurs that is reported not to have occurred 20 to 30 years ago. There is no concern with population viability of elk on the forest. Elk numbers have steadily increased over the past two decades.

The Rocky Mountain elk population is ranked as common for the Santa Fe NF (USDA 2003). This means that the estimated number of breeding females ranges between 1,000 and 10,000 individuals. The population may fluctuate up and down from year to year based on hunting pressure, and a variety of environmental factors. This estimate is based on actual counts and surveys conducted periodically by the New Mexico Department of Game and Fish. The New Mexico Department of Game and Fish manages the elk herd by unit. The existing units that are present on the District are units 44 and 45. Population numbers of elk are based on estimates derived from aerial surveys conducted by the NMDGF. A 1999 pre-hunt estimated population of 1,200+ elk is estimated for units 44 and 45. The total number of elk for the Santa Fe NF is estimated to be between 6,000 and 10,000 elk.

The population trend for the Rocky Mountain elk is ranked as increasing on the Forest (USDA 2003). The objective is to maintain the herd at about its current level. The number of cow elk permits for hunters has been increasing over the past decade to keep the elk population at the desired number.

- Mourning Dove

Approximately 12,730 acres (private land excluded), or 95%, of habitat such as oak woodland, piñon juniper, and ponderosa pine are available for the mourning dove on the Bull Creek Allotment (Figure 25). Although no doves were detected at the time of the survey, reconnaissance of the allotment indicates that habitat suitable for the dove is present (project record). About 2,580 acres in the northern end of the allotment burned in the Viveash Fire, converting the area from live forest to standing dead trees with abundant grasses. The grasses provide seeds on which the dove forages. Further, the allotment has many water sources available to the dove.

The Santa Fe Forest plan predicted that mourning dove habitat would improve by improving the ecological condition of low elevation grassland and by harvesting in woodland and ponderosa pine areas.

Throughout the Santa Fe National Forest, mourning dove habitat is abundant (USDA 2003). They are found in ponderosa pine, spruce-fir, aspen, and piñon-juniper forest types. Coniferous trees and ground sites are preferred in the year before deciduous trees have developed leaves. In all situations, however, abundant food and water must be available within 12 to 19 miles (20 to 30 km). These habitats and grassland habitats found on the Forest meet the feeding requirements for the mourning dove. Building water developments and underburning in ponderosa create favorable feeding areas. Most nesting occurs in lower elevation habitats. The abundance of nesting and cover opportunities on the Santa Fe contribute to maintaining viable populations of mourning dove. In general, habitat affected by disturbance will have the canopy opened up allowing for the growth of more understory vegetation, improving mourning dove habitat. The habitat trend for the mourning dove is considered stable to increasing across the Forest (USDA 2003).

This species occupies New Mexico as breeding resident; and can be found year-round in the southern counties of the state. This species is widespread across the Santa Fe NF; and can be found in most habitat types. Most use, however, occurs in the lower elevation grassland and piñon-juniper forest types.

The mourning dove population is ranked as common for the Santa Fe NF (USDA 2003). This means that the estimated number of breeding pairs, ranges between 1,000 to 10,000 individuals. The population may fluctuate from year to year based on a variety of environmental factors. This estimate is based on the amount of habitat available, hunter success statistics, breeding bird surveys and the professional opinion of local biologists.

No threats to the mourning dove are known except for human encroachment or over-hunting. The New Mexico Natural Heritage Program ranked populations of mourning dove in New Mexico as “Demonstrably Secure” in October 1997. It is a multiple brooder and the most abundant dove in North America and the most widely hunted and harvested game bird. Natural mortality factors include predation of adults and free-flying young by avian and mammalian predators and destruction of eggs and nestlings.

While the number of mourning dove seen cannot be directly attributed to the Forest habitat, dove numbers appear to have increased. Fluctuation can be attributable to many factors such as weather, food supply and observer ability.

Surveys conducted by the USGS between 1968 and 1998 indicate a stable or slightly downward trend for Mourning dove within the state of New Mexico (www.mbr-pwrc.usgs.gov). Although the USGS data indicate a downward trend in New Mexico for this species, the Mourning dove is

listed as globally, Nationally, and State of New Mexico secure and common, widespread and abundant. It is secure in New Mexico and 42 other states (Natureserve, 2001). The population trend for the mourning dove on the Santa Fe Forest is ranked as stable based on the statewide trend and breeding bird surveys in and adjacent to the Forest.

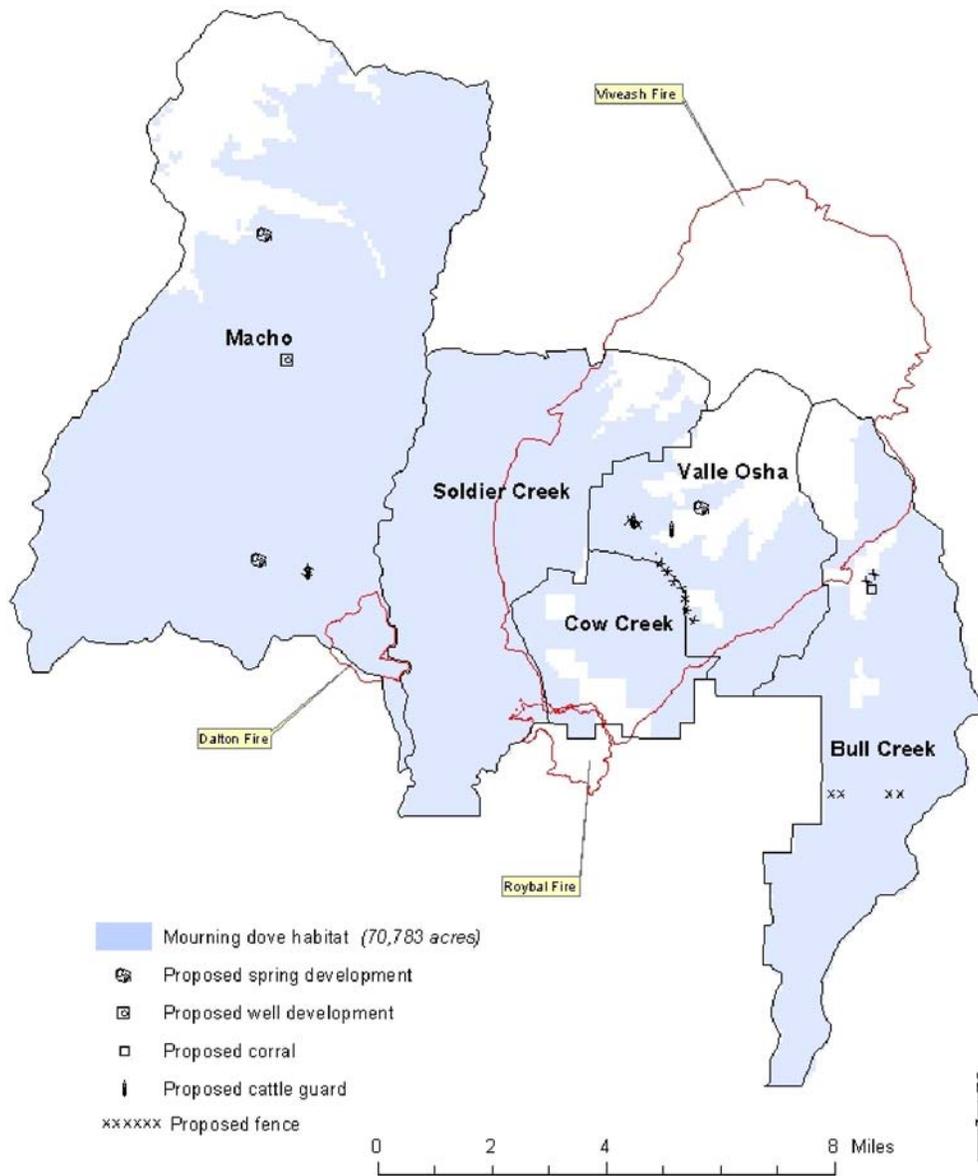


Figure 25. Mourning dove habitat.

- Piñon Jay

Approximately 730 acres of piñon juniper habitat (private land excluded), or 5%, is available for the piñon jay across the Bull Creek Allotment (Figure 26). Reconnaissance surveys of the Bull Creek Allotment indicate that habitat suitable for piñon jay is present (project record). No piñon jays were detected at the time of survey. Due to recent drought conditions, piñon and juniper berry production may be not as abundant in past years. With increasing precipitation, berry production would increase to help support jay populations by providing their main food source. The Forest Plan modeling predicted that piñon jay habitat would improve by increasing foraging areas.

Stands of piñon-juniper provide the habitat for the piñon jay on the Santa Fe National Forest. Stand improvements to grow nut producing, large piñon trees and reduce the risk of crown fires in the piñon-juniper type continues through managed fuel wood programs to thin dense stands. Prescribed fire is used to reduce woody debris after thinning. No threats to the piñon jay are known except for human encroachment in their habitat or wildfires that destroy extensive acreage of piñon-juniper stands. The habitat trend for piñon jay is ranked as stable on the Forest (USDA 2003). Very little change has occurred in the habitat for this species since implementation of the Forest Plan until recently when widespread piñon mortality has occurred.

The species occupies New Mexico as a breeding and winter resident. They are variably residents in mainly middle elevation areas containing piñon-juniper woodlands almost statewide, and are considered uncommon to locally abundant (USDA 2003). Even within these habitats, however, their occurrence maybe very unpredictable and seasonally sporadic. In mass movements during years of poor seed crop especially piñon nuts, flocks may move hundreds of miles.

The Santa Fe NF contains over 450,000 acres of piñon-juniper woodlands distributed across all Ranger Districts. Piñon jay use would be widespread across this area with actual use varying by season and year.

The piñon jay population is ranked as common for the Santa Fe NF (USDA 2003). This means that the estimated number of breeding pairs, ranges between 1,000 and 10,000. The population may fluctuate from year to year based on a variety of environmental factors. This estimate is based on the amount of habitat available, breeding bird surveys and the professional opinion of local biologists.

While the number of seen piñon jay cannot be directly attributed to the Forest habitat, jay numbers fluctuate with no discernible trend. This can be attributed to many factors such as weather, food supply and observer ability.

Surveys conducted by the USGS between 1968 and 1998 indicate a stable or downward trend for piñon jay within the state of New Mexico (www.mbr-pwrc.usgs.gov). The trend for the Santa Fe National Forest is ranked as stable to downward based on the State trend and the breeding survey routes located near the Forest. Although the USGS data indicate a downward trend in New Mexico for this species, the piñon jay is listed as globally, nationally, and State of New Mexico secure and common, widespread and abundant, based on the Nature Conservancy's 2001 database.

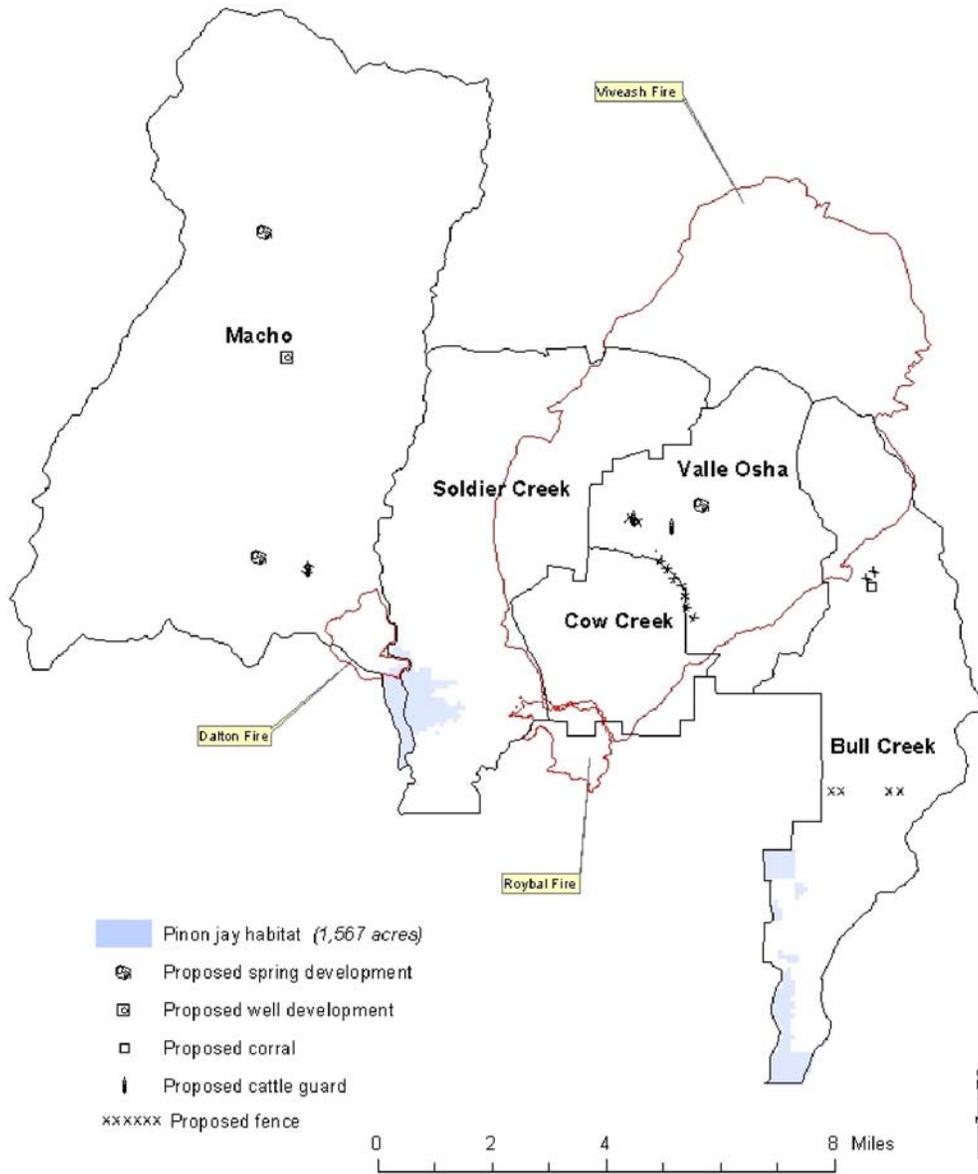


Figure 26. Pinon jay habitat.

Cow Creek Allotment

○ Merriam's Turkey

Approximately 4,380 acres (excluding private land), or 100%, of habitat such as ponderosa pine, oak, grass and aspen are available for the turkey on the Cow Creek Allotment (Figure 23). Reconnaissance survey of the Cow Creek Allotment indicates that suitable habitat is present for the turkey (project record). About 93% of the allotment was burned in the Viveash and Roybal Fires, converting most of the roosting areas, such as ponderosa pine trees, to foraging areas such as grasses and shrubs. Although no turkeys were detected at the time of survey, habitat is in good condition and provides adequate foraging, hiding, roosting, and nesting areas for the turkey.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Hairy Woodpecker

Approximately 3,730 acres (private land excluded), or 85%, of habitat is available for the hairy woodpecker on the Cow Creek Allotment (Figure 24). Reconnaissance surveys of the allotment indicate that suitable habitat is present for the hairy woodpecker. At the time of the survey no woodpeckers were detected (project record). On about 93% of the allotment, the Viveash and Roybal Fires increased habitat for the woodpecker by providing large quantities of snags within the area.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Rocky Mountain Elk

Approximately 4,400 acres (private land excluded), or 100%, of habitat are available for the Rocky Mountain elk on the Cow Creek Allotment. Reconnaissance survey of the Cow Creek Allotment indicates that suitable habitat is present for elk (project record). Although no elk were detected at the time of survey, habitat is in good condition and provides adequate cover, forage and water for the elk. Due to the Viveash and Roybal Fires, about 93% of the live trees on the allotment were burned, converting thermal and hiding cover to forage. Forage and browse quantity has increased due to new growth of early successional stage vegetation such as grasses, oak and aspen.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Mourning Dove

Approximately 4,390 acres (excluding private land), or 100%, of habitat is available for the mourning dove on the Cow Creek Allotment (Figure 25). Although no doves were detected at the time of the survey, reconnaissance of the allotment indicates that habitat suitable for the dove is present (project record). The Viveash and Roybal Fires converted about 93% of the allotment from live forest to standing dead trees with abundant grasses. The dove forages on the ground for grass seeds. Further, the allotment has many water sources available to the dove.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

Macho

○ Merriam's Turkey

Approximately 33,580 acres (private land excluded), or 92%, of habitat such as ponderosa pine, Douglas and white fir, piñon juniper, oak woodland, grass and meadows are available for the turkey on the Macho Allotment (Figure 23). Reconnaissance survey of the Macho Allotment indicates that suitable habitat is present for the turkey (project record). Although no turkeys were detected at the time of survey, habitat is in good condition and provides adequate foraging, hiding, roosting, and nesting areas for the turkey.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Hairy Woodpecker

Approximately 1,610 acres (private land excluded), or 6%, of habitat is available for the hairy woodpecker on the Macho Allotment (Figure 24). The Dalton Fire created about 600 acres of habitat by burning live trees and creating snags. Reconnaissance surveys of the allotment indicate that suitable habitat is present for the hairy woodpecker. At the time of the survey no woodpeckers were detected (project record).

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Rocky Mountain Elk

Approximately 36,650 acres (private land excluded), or 100%, of habitat are available for the Rocky Mountain elk on the Macho Allotment. Reconnaissance survey of the Macho Allotment indicates that suitable habitat is present for elk (project record). Although no elk were detected at the time of survey, habitat is in good fair to condition and provides adequate cover, forage and water for the elk.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Mourning Dove

Approximately 33,370 acres (private land excluded), or 91%, of habitat such as oak woodland, piñon juniper, and ponderosa pine are available for the mourning dove on the Macho Allotment (Figure 25). Although no doves were detected at the time of the survey, reconnaissance of the allotment indicates that habitat suitable for the dove is present (project record). Throughout the allotment there are many water sources available for the dove as well as many areas available to forage for seeds.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Piñon Jay

Approximately 320 acres, or less than 1%, of piñon juniper habitat is on the Macho Allotment (Figure 26). Reconnaissance surveys indicate that habitat suitable for piñon jay is present (project record). No piñon jays were detected at the time of survey. With increasing precipitation, berry production would increase to help support jay populations by providing their main food source. The Forest Plan modeling predicted that piñon jay habitat would improve by increasing foraging areas.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

Soldier Creek Allotment

○ Merriam's Turkey

Approximately 15,020 acres (private land included), or 95%, of habitat such as ponderosa pine, oak, piñon juniper, Douglas-fir and grass are available for the turkey on the Soldier Creek Allotment. Reconnaissance survey of the Soldier Creek Allotment indicates that suitable habitat is present for the turkey (project record). About 4,900 acres of the eastern side of the allotment burned in the Viveash Fire, converting most live trees to snags and younger vegetation, such as grass, aspen and scrub oak. Although no turkeys were detected at the time of survey, habitat is in good condition and provides adequate foraging, hiding, roosting, and nesting areas for the turkey.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Hairy Woodpecker

Approximately 5,280 acres (private land included), or 33%, of habitat is available for the hairy woodpecker on the Soldier Creek Allotment (Figure 24). Reconnaissance surveys of the allotment indicate that suitable habitat is present for the hairy woodpecker. At the time of the survey no woodpeckers were detected (project record). On about 4,900 acres (31%) of the eastern side of the allotment, the Viveash Fire increased habitat for the woodpecker by providing large quantities of snags within the area.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Rocky Mountain Elk

Approximately 15,590 acres (private land included), or 100%, of habitat are available for the Rocky Mountain elk on the Soldier Creek Allotment. Reconnaissance survey of the Soldier Creek Allotment indicates that suitable habitat is present for elk (project record). Although no elk were detected at the time of survey, habitat is in good condition and provides adequate cover, forage and water for the elk. Due to the Viveash Fire, about 4,900 acres (or 31%) of the live trees on the eastern side of the allotment were burned, converting thermal and hiding cover to forage. Forage and browse quantity has increased due to new growth of early successional stage vegetation such as grasses, oak and aspen.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

○ Mourning Dove

Approximately 14,866 acres (private land included), or 94%, of habitat such as oak woodland, piñon juniper, and ponderosa pine are available for the mourning dove on the Soldier Creek Allotment (Figure 25). Although no doves were detected at the time of the survey, reconnaissance of the allotment indicates that habitat suitable for the dove is present (project record). The Viveash Fire converted about 31% of the allotment from live forest to standing dead trees with abundant grasses. The dove forages on the ground for grass seeds. Further, the allotment has many water sources available to the dove.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

- Piñon Jay

Approximately 520 acres of piñon juniper habitat is available for the piñon jay across the Soldier Creek Allotment (see Figure 26). Reconnaissance surveys of the Soldier Creek Allotment indicate that habitat suitable for piñon jay is present (project record). The Viveash Fire did not burn any of the piñon juniper habitat, which is located in the southwestern portion of the allotment. No piñon jays were detected at the time of survey. Due to recent drought conditions piñon and juniper berry production may be not as abundant in past years. With increasing precipitation berry production may be increasing to help support jay populations by providing their main food source. The Forest Plan modeling predicted that piñon jay habitat would improve by increasing foraging areas.

Valle Osha Allotment

- Merriam's Turkey

Approximately 6,080 acres (private land excluded), or 70%, of habitat such as ponderosa pine, oak, and grasses are available for the turkey on the Valle Osha Allotment (Figure 23). Reconnaissance survey of the Valle Osha allotment indicates that suitable habitat is present for the turkey (project record). About 93% of the allotment was burned in the Viveash Fire, converting many roosting areas, such as ponderosa pine trees, to foraging areas such as grasses and shrubs. Although no turkeys were detected at the time of survey, habitat is in good condition and provides adequate foraging, hiding, roosting, and nesting areas for the turkey.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

- Hairy Woodpecker

Almost all of the Valle Osha Allotment contains habitat for the hairy woodpecker (Figure 24). The Viveash Fire burned 93% of the allotment, providing large quantities of snags. Reconnaissance surveys of the allotment indicate that suitable habitat is present for the hairy woodpecker. At the time of the survey no woodpeckers were detected (project record).

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

- Rocky Mountain Elk

Approximately 8,640 acres (private land excluded), or 100%, of habitat are available for the Rocky Mountain elk on the Valle Osha Allotment. Reconnaissance survey of the Valle Osha Allotment indicates that suitable habitat is present for elk (project record). Although no elk were detected at the time of survey, habitat is in good condition and provides adequate cover, forage and water for the elk. Due to the Viveash Fire, about 90% of the live trees on the allotment were burned, converting thermal and hiding cover to forage. Forage and browse quantity has increased due to new growth of early successional stage vegetation such as grasses, oak and aspen.

- Mourning Dove

Almost all of the Valle Osha Allotment (about 8,640 acres) (private land excluded) is available for the mourning dove. Although no doves were detected at the time of the survey, reconnaissance of the allotment indicates that habitat suitable for the dove is present (project record). The Viveash Fire converted about 93% of the allotment from live forest to standing dead trees with abundant grasses. The dove forages on the ground for grass seeds. Further, the allotment has many water sources available to the dove.

The rest of the discussion, taken from the Santa Fe National Forest MIS assessment, is the same as is under Bull Creek.

Management Indicator Species - Environmental Consequences

Alternative 1 (No Change)

Bull Creek Allotment

○ Merriam's Turkey

Alternative 1 would not change the quantity or quality of turkey habitat on this allotment. First, no reduction in nesting or roosting areas would occur because no trees would be cut or otherwise removed. Second, current forage consumption by livestock is light to moderate and has not reduced foraging habitat for turkey (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Alternative 1 would not disturb or displace any turkeys because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for turkey populations or habitat.

○ Hairy Woodpecker

Alternative 1 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs or snags, its main habitat elements, would be removed. Alternative 1 would not disturb or displace any woodpeckers because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for woodpecker populations or habitat.

○ Rocky Mountain Elk

Alternative 1 would not change the quantity or quality of elk habitat on this allotment from the existing condition where adequate cover, forage, and water exist. No reduction in cover would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for elk (project record); in fact, the Viveash Fire increased the amount of grass on about 20% of the allotment. Alternative 1 would not disturb or displace any elk because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for elk populations or habitat.

○ Mourning Dove

Alternative 1 would not change the quantity or quality of dove habitat on this allotment from the existing condition where adequate nesting trees, forage, and water exist. No reduction nesting habitat would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for dove (project record); in fact, the Viveash Fire increased the amount of grass on about 20% of the allotment. Alternative 1 would not disturb or displace any doves because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for dove populations or habitat.

- Piñon Jay

Alternative 1 would not change the quantity or quality of jay habitat on this allotment because no piñon or juniper trees would be removed. Alternative 1 would not disturb or displace any jays because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for jay populations or habitat.

Cow Creek

- Merriam's Turkey

Alternative 1 would not change the quantity or quality of turkey habitat on this allotment. First, no reduction in nesting or roosting areas would occur because no trees would be cut or otherwise removed. Second, current forage consumption by livestock is light to moderate and has not reduced foraging habitat for turkey (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Further, the Viveash and Roybal Fires have increased the amount of grasses and forbs on about 93% of the allotment. Alternative 1 would not disturb or displace any turkeys because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for turkey populations or habitat.

- Hairy Woodpecker

Alternative 1 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs or snags, its main habitat elements, would be removed. Alternative 1 would not disturb or displace any woodpeckers because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for woodpecker populations or habitat.

- Rocky Mountain Elk

Alternative 1 would not change the quantity or quality of elk habitat on this allotment from the existing condition where adequate cover, forage, and water exist. No reduction in cover would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for elk (project record); in fact, the Viveash and Roybal Fires increased the amount of grass on about 93% of the allotment. Alternative 1 would not disturb or displace any elk because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for elk populations or habitat.

- Mourning Dove

Alternative 1 would not change the quantity or quality of dove habitat on this allotment from the existing condition where adequate nesting trees, forage, and water exist. No reduction nesting habitat would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for dove (project record); in fact, the Viveash and Roybal Fires increased the amount of grass on about 93% of the allotment. Alternative 1 would not disturb or displace any doves because there would be no change in grazing numbers or management or construction

of range facilities. This alternative would not change the current forest trends for dove populations or habitat.

Macho

○ Merriam's Turkey

Alternative 1 would not change the quantity or quality of turkey habitat on this allotment. First, no reduction in nesting or roosting areas would occur because no trees would be cut or otherwise removed. Second, current forage consumption by livestock is light to moderate and has not reduced foraging habitat for turkey (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Alternative 1 would not disturb or displace any turkeys because there would be no change in grazing numbers or management or construction of range facilities. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends for the turkey.

○ Hairy Woodpecker

Alternative 1 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs or snags, its main habitat elements, would be removed. Alternative 1 would not disturb or displace any woodpeckers because there would be no change in grazing numbers or management or construction of range facilities. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends for the woodpecker.

○ Rocky Mountain Elk

Alternative 1 would not change the quantity or quality of elk habitat on this allotment from the existing condition where adequate cover, forage, and water exist. No reduction in cover would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for elk (project record). Alternative 1 would not disturb or displace any elk because there would be no change in grazing numbers or management or construction of range facilities. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends for the elk.

○ Mourning Dove

Alternative 1 would not change the quantity or quality of dove habitat on this allotment from the existing condition where adequate nesting trees, forage, and water exist. No reduction nesting habitat would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for dove (project record). Alternative 1 would not disturb or displace any doves because there would be no change in grazing numbers or management or construction of range facilities. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends for the dove.

○ Piñon Jay

Alternative 1 would not change the quantity or quality of jay habitat on this allotment because no piñon or juniper trees would be removed. Alternative 1 would not disturb or displace any jays because there would be no change in grazing numbers or management or construction of range

facilities. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Soldier Creek

- Merriam's Turkey

Alternative 1 would not change the quantity or quality of turkey habitat on this allotment because no grazing is proposed. Therefore, Alternative 1 would not disturb or displace any turkeys because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for turkey populations or habitat.

- Hairy Woodpecker

Alternative 1 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs or snags, its main habitat elements, would be removed. Alternative 1 would not disturb or displace any woodpeckers because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for woodpecker populations or habitat.

- Rocky Mountain Elk

Alternative 1 would not change the quantity or quality of elk habitat because no grazing is proposed on this allotment. Therefore, Alternative 1 would not disturb or displace any elk because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for elk populations or habitat.

- Mourning Dove

Alternative 1 would not change the quantity or quality of dove habitat because no grazing is proposed on this allotment. Therefore, Alternative 1 would not disturb or displace any doves because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for dove populations or habitat.

- Piñon Jay

Alternative 1 would not change the quantity or quality of jay habitat on this allotment because no piñon or juniper trees would be removed. Alternative 1 would not disturb or displace any jays because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for jay populations or habitat.

Valle Osha

- Merriam's Turkey

Alternative 1 would not change the quantity or quality of turkey habitat on this allotment. First, no reduction in nesting or roosting areas would occur because no trees would be cut or otherwise removed. Second, current forage consumption by livestock is light to moderate and has not reduced foraging habitat for turkey (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Further, the Viveash Fire has increased the amount of grasses and forbs on about 90% of the allotment. Alternative 1 would not disturb or displace any turkeys because there would be no change in grazing numbers or management or

construction of range facilities. This alternative would not change the current forest trends for turkey populations or habitat.

- Hairy Woodpecker

Alternative 1 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs or snags, its main habitat elements, would be removed. Alternative 1 would not disturb or displace any woodpeckers because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for woodpecker populations or habitat.

- Rocky Mountain Elk

Alternative 1 would not change the quantity or quality of elk habitat on this allotment from the existing condition where adequate cover, forage, and water exist. No reduction in cover would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for elk (project record); in fact, the Viveash Fire increased the amount of grass on about 90% of the allotment. Alternative 1 would not disturb or displace any elk because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for elk populations or habitat.

- Mourning Dove

Alternative 1 would not change the quantity or quality of dove habitat on this allotment from the existing condition where adequate nesting trees, forage, and water exist. No reduction nesting habitat would occur because no trees would be cut or otherwise removed. There would be no change in forage from the existing condition since there would be no change in grazing numbers or management. Current forage consumption by livestock is light to moderate and has not reduced foraging habitat for dove (project record); in fact, the Viveash Fire increased the amount of grass on about 93% of the allotment. Alternative 1 would not disturb or displace any doves because there would be no change in grazing numbers or management or construction of range facilities. This alternative would not change the current forest trends for dove populations or habitat.

Alternative 2 (No Grazing)

Bull Creek

- Merriam's Turkey

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the turkey population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees. The amount of forage would likely increase, maintaining the current forest wide trends for increasing turkey populations or habitat.

- Hairy Woodpecker

Under Alternative 2, there would be no change to woodpecker populations and habitat because this species relies primarily on dead and down logs, snags, and trees greater than 11 inches in diameter. Neither the quantity nor quality of these features would change by removing livestock. Thus, this alternative would maintain forest trends for the woodpecker and its habitat.

- Rocky Mountain Elk

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the elk population and habitat would be eliminated. There would be no change in the amount of cover

since no trees would be removed. The amount of forage would likely increase over time, maintaining the current forest wide trends for elk populations or habitat.

- Mourning Dove

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the dove population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees since none would be removed. This would increase habitat and would change the current forest wide trends for dove populations or habitat by increasing habitat.

- Piñon Jay

Under Alternative 2, there would be no change to jay populations and habitat because no piñon or juniper trees would be removed or added. This would not increase habitat for the jay and would not change the current forest wide trends for piñon jay populations or habitat.

Cow Creek

- Merriam's Turkey

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the turkey population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees. The amount of forage would likely increase, maintaining the current forest wide trends for increasing turkey populations or habitat.

- Hairy Woodpecker

Under Alternative 2, there would be no change to woodpecker populations and habitat because this species relies primarily on dead and down logs, snags, and trees greater than 11 inches in diameter. Neither the quantity nor quality of these features would change by removing livestock. Thus, this alternative would maintain forest trends for the woodpecker and its habitat.

- Rocky Mountain Elk

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the elk population and habitat would be eliminated. There would be no change in the amount of cover since no trees would be removed. The amount of forage would likely increase over time, maintaining the current forest wide trends for elk populations or habitat.

- Mourning Dove

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the dove population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees since none would be removed. The amount of forage would likely increase over time, changing the current forest wide trends for dove populations or habitat to increasing.

Macho

- Merriam's Turkey

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the turkey population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees. The amount of forage would likely increase, maintaining the current forest wide trends for increasing turkey populations or habitat.

- Hairy Woodpecker

Under Alternative 2, there would be no change to woodpecker populations and habitat because this species relies primarily on dead and down logs, snags, and trees greater than 11 inches in diameter. Neither the quantity nor quality of habitat for the woodpecker would change by

removing livestock. Thus, this alternative would maintain forest trends for the woodpecker and its habitat.

- Rocky Mountain Elk

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the elk population and habitat would be eliminated. There would be no change in the amount of cover since no trees would be removed. The amount of forage would likely increase over time, maintaining the current forest wide trends for elk populations or habitat.

- Mourning Dove

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the dove population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees since none would be removed. The amount of forage would likely increase over time, changing the current forest wide trends for dove populations or habitat to increasing.

- Piñon Jay

Under Alternative 2, there would be no change to jay populations and habitat because no piñon or juniper trees would be removed or added. Thus, this alternative would maintain forest trends for the jay and its habitat.

Soldier Creek

- Merriam's Turkey

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the turkey population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees. The amount of forage would likely increase, maintaining the current forest wide trends for increasing turkey populations or habitat.

- Hairy Woodpecker

Under Alternative 2, there would be no change to woodpecker populations and habitat because this species relies primarily on dead and down logs, snags, and trees greater than 11 inches in diameter. Neither the quantity nor quality of these features would change by removing livestock. This would not increase habitat for the woodpecker and would sustain the current forest trends of maintaining habitat for the woodpecker and its habitat.

- Rocky Mountain Elk

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the elk population and habitat would be eliminated. There would be no change in the amount of cover since no trees would be removed. The amount of forage would likely increase over time, maintaining the current forest wide trends for elk populations or habitat.

- Mourning Dove

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the dove population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees since none would be removed. The amount of forage would likely increase over time, changing the current forest wide trends for dove populations or habitat to increasing.

- Piñon Jay

Under Alternative 2, there would be no change to jay populations and habitat because no piñon or juniper trees would be removed or added. This would not increase habitat for the jay and would not change the current forest wide trends for piñon jay populations or habitat.

Valle Osha

○ Merriam's Turkey

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the turkey population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees. This would increase habitat for the turkey and would be consistent with the current forest wide trends for turkey populations and habitat.

○ Hairy Woodpecker

Under Alternative 2, there would be no change to woodpecker populations and habitat because this species relies primarily on dead and down logs, snags, and trees greater than 11 inches in diameter. This alternative would maintain numbers of snags within the analysis area. This would not increase habitat for the woodpecker and would sustain the current forest trends of maintaining habitat for the woodpecker and its habitat.

○ Rocky Mountain Elk

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the elk population and habitat would be eliminated. If livestock were not allowed to graze on the allotment there would be an increase in diversity of vegetative species such as grasses and forbs. Over time this could increase forage for elk and improve year round habitat. Based on the probability of increasing habitat this would maintain the forest trends for elk and its habitat.

○ Mourning Dove

Under Alternative 2, the risk that livestock would deplete forage enough to reduce the dove population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees since none would be removed. This would increase dove habitat and would change the current forest wide trends for dove populations or habitat by increasing habitat.

Alternative 3 (Proposed Action)*Bull Creek*

○ Merriam's Turkey

Alternative 3 would improve the quality of turkey habitat on this allotment by constructing pasture fences to improve distribution of livestock throughout the allotment. This would improve ground cover and turkey foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat, which are important components for the turkey. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Further, the Viveash Fire has increased the amount of grasses and forbs on about 20% of the allotment. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would disturb or displace turkeys during the construction of fences and the corral, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Hairy Woodpecker

Alternative 3 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs, trees greater than 11 inches in diameter, or snags, its main habitat elements, would be removed or added. Though the construction of fences would remove a few incidental trees or snags, there would be more than enough remaining to serve as nesting, roosting, and foraging habitat. Thus, this alternative would not change the current forest trends for woodpecker populations or habitat.

Alternative 3 would disturb or displace woodpeckers during the construction of fences and the corral, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Rocky Mountain Elk

Alternative 3 would improve the quality of elk foraging habitat on this allotment by constructing pasture fences to improve distribution of livestock throughout the allotment. This would improve ground cover by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash Fire has increased the amount of grasses and forbs on about 20% of the allotment. Alternative 3 would not change the quality or quantity of elk cover habitat. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining trees to serve as thermal and hiding cover and calving and resting areas. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Elk would avoid areas where and when construction of fences and water developments were taking place. Alternative 3 may disturb elk during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Mourning Dove

Alternative 3 would improve the quality of dove habitat on this allotment by constructing pasture fences to improve distribution of livestock throughout the allotment. This would improve ground cover and dove foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash Fire has increased the amount of grasses and forbs, important since doves forage on the ground, on about 20% of the allotment. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would disturb or displace doves during the construction of fences and the corral, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Piñon Jay

Alternative 3 would improve the quality of jay habitat on this allotment by constructing pasture fences to improve distribution of livestock throughout the allotment. Neither the fences nor the corral would be constructed in piñon-juniper habitat. Important features such as nesting, roosting

and foraging areas would not be removed. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would not disturb or displace jays during the construction of fences and the corral, because neither would be constructed in jay habitat.

Cow Creek

○ Merriam's Turkey

Alternative 3 would improve the quality of turkey habitat on this allotment by implementing a rotational grazing system to improve distribution of livestock throughout the allotment. This would improve ground cover and turkey foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of the boundary fence would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat, which are important components for the turkey. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Further, the Viveash and Roybal Fires have increased the amount of grasses and forbs on about 93% of the allotment. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would disturb or displace turkeys during the construction of the boundary fence, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

○ Hairy Woodpecker

Alternative 3 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs, trees greater than 11 inches in diameter, or snags, its main habitat elements, would be removed or added. Though the construction of the boundary fence would remove a few incidental trees or snags, there would be more than enough remaining to serve as nesting, roosting, and foraging habitat since most of the allotment (about 93%) is comprised of snags as a result of the Viveash and Roybal Fires. Thus, this alternative would not change the current forest trends for woodpecker populations or habitat.

Alternative 3 would disturb or displace woodpeckers during the construction of the boundary fence, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

○ Rocky Mountain Elk

Alternative 3 would improve the quality of elk foraging habitat on this allotment by implementing a rotational grazing system to improve distribution of livestock throughout the allotment. This would improve ground cover by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash and Roybal Fires have increased the amount of grasses and forbs on about 93% of the allotment. Alternative 3 would not change the quality or quantity of elk cover habitat. Though the construction of the boundary fence would remove a few incidental trees, there would be more than enough remaining

trees to serve as thermal and hiding cover and calving and resting areas. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Elk would avoid areas where and when construction of fences and water developments were taking place. Alternative 3 may disturb elk during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

○ Mourning Dove

Alternative 3 would improve the quality of dove habitat on this allotment by implementing a rotational grazing system to improve distribution of livestock throughout the allotment. This would improve ground cover and dove foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of the boundary fence would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash and Roybal Fires have increased the amount of grasses and forbs, important since doves forage on the ground, on about 93% of the allotment. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would disturb or displace doves during the construction of the boundary fence, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

Macho

○ Merriam's Turkey

Alternative 3 would improve the quality of turkey habitat on this allotment by constructing pasture fences and providing water in the uplands to improve distribution of livestock throughout the allotment. This would improve ground cover and turkey foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat, which are important components for the turkey. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends for the turkey.

Alternative 3 may disturb or displace turkeys during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

○ Hairy Woodpecker

Alternative 3 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs, trees greater than 11 inches in diameter, or snags, its main habitat elements, would be removed or added. Though the construction of fences would remove a few incidental trees or snags, there would be more than enough remaining to serve as nesting,

roosting, and foraging habitat. The Dalton Fire created snags on about 800 acres of the allotment. Thus, this alternative would not change the current forest trends for woodpecker populations or habitat.

Alternative 3 may disturb or displace woodpeckers during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Rocky Mountain Elk

Alternative 3 would improve the quality of elk foraging habitat on this allotment by constructing pasture fences and providing water in the uplands to improve distribution of livestock throughout the allotment. This would improve ground cover by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Alternative 3 would not change the quality or quantity of elk cover habitat. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining trees to serve as thermal and hiding cover and calving and resting areas. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Elk would avoid areas where and when construction of fences and water developments were taking place. Alternative 3 may disturb elk during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Mourning Dove

Alternative 3 would improve the quality of dove habitat on this allotment by constructing pasture fences and providing water in the uplands to improve distribution of livestock throughout the allotment. This would improve ground cover and dove foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat. Because cattle would not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 may disturb or displace doves during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Piñon Jay

Alternative 3 would not change the quality or quantity of jay habitat because cattle would not graze in jay habitat. The jay habitat on the Macho Allotment is located outside of where cattle graze. Neither the fences nor the corral would be constructed in jay habitat, piñon-juniper stands, so there would be no effect on nesting, roosting, or foraging. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would not disturb or displace jays during the construction of fences and the water developments, because neither would be constructed in jay habitat.

Soldier Creek

○ Merriam's Turkey

Alternative 3 would not change the quantity or quality of turkey habitat on this allotment because no nesting or roosting trees would be removed, and cattle would not deplete forage. First, cattle would graze here infrequently and for no more than four months in a year. Second, because cattle would be not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Further, the Viveash Fire has increased the amount of grasses and forbs on about 31% of the allotment. Monitoring would be implemented to determine if stocking rate is effective. Since livestock grazing varies from 11 animals to 77 animals on the other allotments and no effects have been determined, implementing grazing would also render no effect to turkey populations or their habitat. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would not disturb or displace turkeys because no construction of range facilities would take place.

○ Hairy Woodpecker

Alternative 3 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs, trees greater than 11 inches in diameter, or snags, its main habitat elements, would be removed or added. Further, the Viveash Fire has increased the amount of snags on about 31% of the allotment. Monitoring would be implemented to determine if stocking rate is effective. Since livestock grazing varies from 11 animals to 77 animals on the other allotments and no effects have been determined, implementing grazing would also render no effect to woodpecker populations or their habitat. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would not disturb or displace turkeys because no construction of range facilities would take place.

○ Rocky Mountain Elk

Alternative 3 would not change the quantity or quality of elk habitat on this allotment because no nesting or roosting trees would be removed, and cattle would not deplete forage. First, cattle would graze here infrequently. Second, because cattle would be not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash Fire has increased the amount of grasses and forbs on about 31% of the allotment. Monitoring would be implemented to determine if stocking rate is effective. Since livestock grazing varies from 11 animals to 77 animals on the other allotments and no effects have been determined, implementing grazing would also render no effect to elk populations or their habitat. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Elk would avoid areas where and when construction of fences and water developments were taking place. Alternative 3 may disturb elk during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Mourning Dove

Alternative 3 would not change the quantity or quality of dove habitat on this allotment because no nesting or roosting trees would be removed, and cattle would not deplete forage. First, cattle would graze here infrequently. Second, because cattle would be not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash Fire has increased the amount of grasses and forbs on about 31% of the allotment. Monitoring would be implemented to determine if stocking rate is effective. Since livestock grazing varies from 11 animals to 77 animals on the other allotments and no effects have been determined, implementing grazing would also render no effect to elk populations or their habitat. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would not disturb or displace doves because no construction of range facilities would take place.

- Piñon Jay

Alternative 3 would not change the quality or quantity of jay habitat because no nesting or roosting trees would be removed, and cattle would not deplete forage. First, cattle would graze here infrequently. Second, because cattle would be not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash Fire has increased the amount of grasses and forbs on about 31% of the allotment. Monitoring would be implemented to determine if stocking rate is effective. Since livestock grazing varies from 11 animals to 77 animals on the other allotments and no effects have been determined, implementing grazing would also render no effect to jay populations or their habitat. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would not disturb or displace jays because no construction of range facilities is proposed.

Valle Osha

- Merriam's Turkey

Alternative 3 would improve the quality of turkey habitat on this allotment by constructing pasture fences and providing water upland to improve distribution of livestock throughout the allotment. This would improve ground cover and turkey foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of the boundary fence would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat, which are important components for the turkey. Because cattle would be not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Further, the Viveash Fire has increased the amount of grasses and forbs on about 90% of the allotment. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would disturb or displace turkeys during the construction of the fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Hairy Woodpecker

Alternative 3 would not change the quantity or quality of woodpecker habitat on this allotment because no dead or down logs, trees greater than 11 inches in diameter, or snags, its main habitat elements, would be removed or added. Though the construction of the fences would remove a few incidental trees or snags, there would be more than enough remaining to serve as nesting, roosting, and foraging habitat since most of the allotment (about 90%) is comprised of snags as a result of the Viveash Fire. Thus, this alternative would not change the current forest trends for woodpecker populations or habitat.

Alternative 3 would disturb or displace woodpeckers during the construction of the fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Rocky Mountain Elk

Alternative 3 would improve the quality of elk foraging habitat on this allotment by constructing pasture fences and providing water upland to improve distribution of livestock throughout the allotment. This would improve ground cover by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Because cattle would be not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash Fire has increased the amount of grasses and forbs on about 90% of the allotment. Alternative 3 would not change the quality or quantity of elk cover habitat. Though the construction of the fences would remove a few incidental trees, there would be more than enough remaining trees to serve as thermal and hiding cover and calving and resting areas. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Elk would avoid areas where and when construction of fences and water developments were taking place. Alternative 3 may disturb elk during the construction of fences and water developments, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

- Mourning Dove

Alternative 3 would improve the quality of dove habitat on this allotment by constructing pasture fences and providing water upland to improve distribution of livestock throughout the allotment. This would improve ground cover and dove foraging areas by forcing cattle to graze more evenly across the allotment and reducing grazing pressure. Though the construction of the fences would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat. Because cattle would be not be allowed to use more than 40% of the forage, grazing would be light to moderate and would not greatly reduce the amount foraging habitat, as is true with the existing condition (project record). Further, the Viveash Fire has increased the amount of grasses and forbs, important since doves forage on the ground, on about 90% of the allotment. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 3 would disturb or displace doves during the construction of the fences, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

Migratory Birds – Affected Environment

Habitat used by migratory birds ranges widely from early to late successional stages, from prairie to forest. The Bull Creek, Cow Creek, Soldier Creek and Valle Osha allotments provide essential habitat components used by some of these species. Migratory birds use these areas for feeding, roosting, and nesting.

On January 10, 2001 President Clinton signed Executive Order 13186 placing emphasis on conservation of migratory birds. To meet this requirement the Santa Fe National Forest used a species list from Santa Fe Migratory Bird Assessment (USDA 2001) and the Fish & Wildlife Service (FWS) Birds of Conservation Concern 2002 (USFWS 2002). The Santa Fe Migratory Bird Assessment is based on the New Mexico Partners in Flight priority list of species of concern by vegetation type and includes highest priority species. The Forest used the species list for Bird Conservation Region (BCR) #16 (Southern Rockies/Colorado Plateau). BCR list have been determined to be the most useful in meeting Executive Order 13186 (USFWS 2002).

The information derived for this EA is an assessment in progress. As the assessment stands now, it is largely information from Partners in Flight and the Fish and Wildlife Service. This will serve as a guide in project and landscape assessments on the Santa Fe National Forest. The focus of the assessment is on habitat and ecosystem processes, not species management. The following describes habitats found on the Bull Creek, Cow Creek, Soldier Creek and Valle Osha Allotments and the migratory birds that are typically found in these habitats. All species described have not been detected on the Bull Creek, Cow Creek, Soldier Creek and Valle Osha Allotments, but have the potential of occurring within the analysis area.

Important Habitat Features within Project area & Life History Considerations

Spruce/Fir Forest

Blue Grouse	PIF Highest priority	<ul style="list-style-type: none"> -Nests in virtually all montane forest communities with relatively open tree canopies out to 1.2+mi (2+km) from forest edge; prefer forests dominated by ponderosa pine or Douglas-fir. -Nests almost always on ground with some overhead cover usually under shrubs, rock overhangs, logs or stumps; may nest at base of large trees with no immediate cover in older mature forests. -Nest site may change from barren at time of laying to lush and well-concealed at hatch -Suggestion of a positive correlation between density of birds and age of dominant trees up to ~10yr post-logging and a negative correlation after that. -Density of birds decreases as tree canopy increases.
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Mixed Conifer

Williamson's Sapsucker	PIF Highest priority	<ul style="list-style-type: none"> -Specializes in sap and phloem; breeders switch to a diet of ants during the nestling season, especially carpenter and wood ants -Mid- to high-elevation coniferous forests and mixed deciduous/conifer forests -Wounded or scarred live conifers most frequently used for feeding (and generally smaller than expected, based on size availability); live conifers preferred over snags and aspen; ponderosa pine and Douglas-fir preferred over other conifers -Availability of suitable nesting sites critical component, preferring snags or cavities in live aspen, aspen snags preferred over conifer snags -Nests in conifers infected with the fungus <i>Fomes ignarius</i>, or aspens with heart rot
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Olive-sided Flycatcher	PIF Highest priority	-Subalpine forest with Englemann spruce, ponderosa pine, Douglas-fir and aspen -Need forest edges for foraging and increases in density with a decrease in canopy cover -Needs snags or tree tops near open areas or above canopy as diet consists mainly of larger flying insects, primarily bees -Nests in coniferous trees generally far out from the trunk
Dusky Flycatcher	PIF Highest priority	-Uses mixed conifer or ponderosa pine forest with a shrubby understory -Occupies scrub and brushy areas and open areas with scattered trees -Shrub component appears to be critical in NM (B. Howe pers.comm.) -Uses early succession habitat following a disturbance, such as fire (H. Schwartz pers. comm.) -Tends to choose shrubs with denser foliage for nesting -Openings near shrubs needed for foraging

Ponderosa Pine

Grace's Warbler	PIF Highest priority FWS BCR #16	-Ponderosa pine forest sometimes with a scrub oak component -Considered a mature pine obligate; preference given to robust, mature or old-growth forest -Feeds in the upper portions of robust pines on branches, occasionally aerially
Virginia's Warbler	PIF Highest priority FWS BCR #16	-Ponderosa pine forest, piñon-juniper woodlands, or riparian thickets, occasionally Douglas-fir forests: always open with well-developed herbaceous or woody understory -Dense understory is critical and scrubby hillsides considered a special requirement; high litter cover and high shrub species richness are also associated with nesting areas -Uses a variety of understory species for nesting but especially Gambel oak
Flammulated Owl	PIF Highest priority FWS BCR #16	-Most closely associated with open ponderosa pine forest, but may use Douglas- or white fir and blue spruce -Often also associated with aspen or larger shrub oaks, and clearings in NM, nest holes used are made by acorn woodpeckers, northern flicker or sapsuckers -Almost exclusively insectivorous; U.S. populations are highly migratory

Piñon Juniper Habitat Type

Gray Flycatcher	PIF Highest priority	-Prefers open piñon-juniper forest, often with interspersed ponderosa shrub cover cannot be too dense; prefers approximately 60% -Logging and fire may create new habitat after several years -Appears to cluster in some areas
Gray Vireo	PIF Highest priority FWS BCR #16	-Prefers open piñon-juniper woodland or juniper savanna with a shrub component (35-45% cover) -Antelope brittlebrush, mountain mahogany, Utah serviceberry and big sagebrush are shrubs found in northwest areas, with large amounts of bare ground between herbaceous plants forming ground cover (Reeves 1998)

Migratory Birds - Environmental Consequences

Alternative 1 (No Change)

All Allotments

○ Important Bird Areas

There is no designated Important Bird Area (IBA) affected by the project. The IBAs on the Santa Fe National Forest are the Chama River Gorge and the Caja del Rio including the Santa Fe River

Canyon below the Caja del Rio on both BLM and FS lands. There is no association or important link between the bird communities within the five grazing allotments and these IBAs. Therefore, no IBA is affected by the project.

○ Overwintering Areas

Many important overwintering areas are large wetlands. Important overwintering areas recognized on the Forest include the Pecos River, the Rio Chama, and Rio Grande corridor. The analysis area provides wintering habitat for the Bald eagle. As discussed under Federally Listed Species, there would be no change to bald eagle habitat on any of the allotments from Alternative 1.

Bull Creek Allotment

The Bull Creek Allotment contains the following habitat types: spruce-fir, mixed conifer, ponderosa pine and piñon juniper. The bird species that occur respectively within these habitat types are the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo.

Implementation of Alternative 1 would maintain the current grazing management. There would be no changes in the number of livestock in the allotment. Livestock would continue to graze the existing areas within the allowed grazing season. No improvements would be made to increase forage allocation on the allotment. This alternative would not remove any live trees or snags in the area. The Viveash Fire burned about 20% of the allotment and created important habitat features, such as snags, for many bird species. Livestock grazing would not alter the piñon-juniper, spruce-fir, mixed conifer, or ponderosa pine canopies in the analysis area. Over time these habitats may slowly increase in size thus providing for the conservation of these species of migratory birds found within the habitat types listed above. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Cow Creek Allotment

The Cow Creek Allotment contains the following habitat types: mixed conifer and ponderosa pine. The bird species that occur respectively within these habitat types are the Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler and the flammulated owl. Implementation of Alternative 1 would maintain the current grazing management. There would be no changes in the number of livestock in the allotment. Livestock would continue to graze the existing areas within the allowed grazing season. No improvements would be made to increase forage allocation on the allotment. This alternative would not remove any live trees or snags in the area. The Viveash and Roybal Fires burned about 93% of the allotment and created important habitat features such as snags and tall grasses for many bird species. Livestock grazing would not alter the mixed conifer or ponderosa pine canopies in the analysis area. Over time these habitats may slowly increase in size thus providing for the conservation of these species of migratory birds found within the habitat types listed above. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Macho

The Macho Allotment contains the following habitat types: spruce-fir, mixed conifer, ponderosa pine and piñon juniper. The bird species that occur respectively within these habitat types are the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo.

Implementation of Alternative 1 would maintain the current grazing management. There would be no changes in the number of livestock in the allotment. Livestock would continue to graze the existing areas within the allowed grazing season. No improvements would be made to increase forage allocation on the allotment. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. This alternative would not remove any live trees or snags in the area. Livestock grazing would not alter the piñon-juniper, spruce-fir, mixed conifer, or ponderosa pine canopies in the analysis area. Over time these habitats may slowly increase in size thus providing for the conservation of these species of migratory birds found within the habitat types listed above.

Soldier Creek Allotment

The Soldier Creek Allotment contains the following habitat types: spruce-fir, mixed conifer, ponderosa pine and piñon juniper. The bird species that occur respectively within these habitat types are the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo.

Implementation of Alternative 1 would maintain the current grazing management, where no cattle graze; therefore, there would be no effect to migratory birds or their habitat as a result of grazing.

Valle Osha Allotment

The Valle Osha Allotment contains the following habitat types: spruce-fir, mixed conifer and ponderosa pine. The bird species that occur respectively within these habitat types are the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler and the flammulated owl.

Implementation of Alternative 1 would maintain the current grazing management. There would be no changes in the number of livestock in the allotment. Livestock would continue to graze the existing areas within the allowed grazing season. No improvements would be made to increase forage allocation on the allotment. This alternative would not remove any live trees or snags in the area. The Viveash Fire burned about 90% of the allotment and created important habitat features such as snags for many bird species. Livestock grazing would not alter the spruce-fir, mixed conifer, or ponderosa pine canopies in the analysis area. Over time these habitats may slowly increase in size thus providing for the conservation of these species of migratory birds found within the habitat types listed above. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Alternative 2 (No Grazing)

Bull Creek Allotment

Implementation of Alternative 2 would not allow for domestic livestock grazing on the Bull Creek allotment. If livestock were not allowed to graze on the allotment there would be an increase in diversity of vegetative species such as grasses and forbs and would improve habitat for migratory birds. This alternative would maintain numbers of live trees and snags within the analysis area. Improving habitat for migratory birds by eliminating livestock grazing would help to follow the recommended conservation strategies for the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo within the spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats.

Cow Creek Allotment

If livestock were not allowed to graze on the allotment, the risk that grasses and forbs would be depleted enough to affect migratory birds would be eliminated. This alternative would maintain numbers of live trees and snags within the analysis area. Improving habitat for migratory birds by eliminating livestock grazing would help to follow the recommended conservation strategies for the Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler and the flammulated owl within the mixed conifer and ponderosa pine habitats.

Macho

If livestock were not allowed to graze on the allotment, the risk that grasses and forbs would be depleted enough to affect migratory birds would be eliminated. This alternative would maintain numbers of live trees and snags within the analysis area. Based on the probability of maintaining the current habitat this would follow the recommended conservation strategies for the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo within the spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats.

Soldier Creek Allotment

If livestock were not allowed to graze on the allotment, the risk that grasses and forbs would be depleted enough to affect migratory birds would be eliminated. This alternative would maintain numbers of live trees and snags within the analysis area. Improving habitat for migratory birds by eliminating livestock grazing would help to follow the recommended conservation strategies for the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo within the spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats.

Valle Osha Allotment

If livestock were not allowed to graze on the allotment, the risk that grasses and forbs would be depleted enough to affect migratory birds would be eliminated. This alternative would maintain numbers of live trees and snags within the analysis area. Improving habitat for migratory birds by eliminating livestock grazing would help to follow the recommended conservation strategies for the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler and the flammulated owl within the spruce-fir, mixed conifer and ponderosa pine habitats.

Alternative 3 (Proposed Action)

Bull Creek Allotment

Implementation of Alternative 3 would improve range conditions by constructing pasture fences to improve distribution of livestock through out the allotment. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining to serve as habitat for the blue grouse, Williamson’s sapsucker, olive-sided flycatcher, dusky flycatcher, Grace’s warbler, Virginia’s warbler, flammulated owl, gray flycatcher and the gray vireo. Constructing pasture fences would promote livestock distribution and reduce grazing pressure throughout the allotment. Important habitat features such as downed logs and large snags would remain. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Implementation of Alternative 3 would allow the construction of pasture fences to be built through a variety of habitats. The current spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats would not be reduced. Since there would be very little activity in the previously described habitat type this would follow the recommended conservation strategies such as improving or maintaining good habitat for migratory birds within the spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats.

Cow Creek Allotment

Implementation of Alternative 3 would improve range conditions by constructing pasture fences and implementing deferred rotational grazing to improve distribution of livestock through out the allotment. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining to serve as habitat for the Williamson’s sapsucker, olive-sided flycatcher, dusky flycatcher, Grace’s warbler, Virginia’s warbler and the flammulated owl. Constructing pasture fences would promote livestock distribution and reduce grazing pressure through out the allotment. Important habitat features such as live trees and large snags would remain. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Implementation of Alternative 3 would allow the construction of pasture fences to be built. The current mixed conifer and ponderosa pine habitats would not be reduced. Since there would be very little activity in the previously described habitat type this would follow the recommended conservation strategies such as improving or maintaining good habitat for migratory birds within the mixed conifer and ponderosa pine habitats.

Macho

Alternative 3 would improve range conditions by implementing a rotational grazing system, constructing a well, installing pasture fences, which would increase livestock distribution across the allotment. Though the construction of fences would remove a few incidental trees, it would not be enough to modify spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats for the blue grouse, Williamson’s sapsucker, olive-sided flycatcher, dusky flycatcher, Grace’s

warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo. Constructing pasture fences would promote livestock distribution and reduce grazing pressure through out the allotment.

Implementation of Alternative 3 would allow the construction of pasture fences, implementing a rotational grazing system and constructing a well. The current spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats would not be reduced. Since there would be very little activity in the previously described habitat type this would follow the recommended conservation strategies for the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo.

Soldier Creek Allotment

This allotment has not been grazed for at least five years and this alternative would propose to allow 50 head of cattle to graze on the allotment for a period of four months out of the year. Monitoring would be implemented to determine if stocking rate is sufficient. Livestock grazing varies from 11 animals to 77 animals on the other allotments and no effects to migratory birds have been determined for those areas. The proposed grazing on the Soldier Creek would be done at a conservative level. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met. Snags and live trees, which are important components for the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler, flammulated owl, gray flycatcher and the gray vireo would not be removed. Since spruce-fir, mixed conifer, ponderosa pine and piñon juniper habitats would not be removed by implementing the proposed action and possibly over time these habitats may slowly increase in size, thus providing for the conservation of the migratory birds listed above.

Valle Osha Allotment

Alternative 3 would improve range conditions by implementing a rotational grazing system and installing pasture fences, which would increase livestock distribution across the allotment. Though the construction of fences would remove a few incidental trees, there would be more than enough remaining trees in spruce-fir, mixed conifer and ponderosa pine habitats for the blue grouse, Williamson's sapsucker, olive-sided flycatcher, dusky flycatcher, Grace's warbler, Virginia's warbler and the flammulated owl. Constructing pasture fences would promote livestock distribution and reduce grazing pressure through out the allotment. Since habitat would not be removed by implementing the proposed action and possibly over time these habitats may slowly increase in size, thus providing for the conservation of the migratory birds listed above. Cattle would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the allotment until the following spring when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be removed when utilization standards were met.

Wildlife – Cumulative Effects

Alternatives 1 and 3 would cause a depletion of riparian vegetation and trampling of riparian areas while cattle are grazing in these areas, and also for a month or two afterwards until the vegetation has time to grow back. As such, there would be cumulative effects; however, the cumulative effects would not exceed the utilization standards set forth. The cumulative effects

would apply to the following species' habitats because they have nesting, foraging, or prey base habitat in grasses or riparian areas: Mexican spotted owl, northern goshawk, blue-black silver spot butterfly, New Mexico meadow jumping mouse, Merriam's turkey, and migratory birds.

The temporal boundary of this analysis is from 15 years ago to the projects listed on the Santa Fe National Forest's Schedule of Proposed Actions or other projects in official planning status. The reason for the temporal boundary is that riparian areas in the allotments tend to recover on an annual basis, so cumulative effects are relatively short-lived and going back 15 years would capture changes. The geographical area is the boundary of the five allotments (see figure on cover page) because the effects of riparian areas are localized and would not apply off of the allotments.

Table 19. Cumulative effects from removal of riparian vegetation and trampling of riparian areas.

Action(s) – (specific allotment in parentheses)	Date of Action	Size of area	Effect of Action	Cumulative Effect (all actions)
Dispersed recreation in Dalton Canyon (Macho)	on-going	~ 3 acres	Denuded vegetation and compacted soils	Alternative 1- Risk exists that cattle could contribute to loss of riparian vegetation because of lack of formal grazing strategy.
Dispersed recreation along Cow Creek (Cow)	on-going	~ 3 acres	Denuded vegetation and compacted soils	
Mud-bogging along Rito de la Osha (Valle Osha)	August 2004	< 0.1 acre	Deep ruts formed and denuded vegetation in riparian zone	Alternative 3 – All allotments – risk of riparian degradation on all allotments is lower because of formal grazing strategy and upland water. This alternative would add 5% to the existing affected riparian areas during and slightly after the time cattle are present. They eat grass and it needs time to grow. The percent of affected riparian areas from this alternative and the cumulative actions on the allotments would be less than 1%. Valle Osha – Stream bank vegetation would be depleted during the time that cattle graze in
Other dispersed camping and hunter camps with stock	on-going	~ 10 acres	Compacted soils and denuded vegetation	
Fishing – creates trails along banks	on-going	< 1 acre	Compacted soils and denuded vegetation	
Unspecified uses of private land (other grazing or construction)	on-going	Unable to quantify; ~10,000 acres of private land total	Loss of riparian vegetation, undercut stream banks	
Viveash Wildfire (Bull, Cow, Soldier, Valle Osha)	May 2000	Fire was 28,000 acres, some of which contribute to riparian effects	Loss of riparian vegetation, undercut banks, sedimentation	

Action(s) – (specific allotment in parentheses)	Date of Action	Size of area	Effect of Action	Cumulative Effect (all actions)
				the riparian pasture (about 8 acres), about 10 days each in spring and fall.

The geographical area for the cumulative effects to nesting, foraging, and prey base habitat is the boundary of the five allotments, which encompass over 83,000 acres, because this is a sufficient contiguous area in which birds and animals can roam to other habitat.

Table 20. Cumulative effects from decrease in foraging, nesting, or prey base habitat.

Action(s) – (specific allotment in parentheses)	Date of Action	Size of area	Effect of Action	Cumulative Effect (all actions)
Dispersed recreation in Dalton Canyon (Macho)	on-going	~ 3 acres	Denuded vegetation and compacted soils	Alternative 1- Risk exists that cattle could contribute to loss of habitat due to lack of formal grazing strategy.
Dispersed recreation along Cow Creek (Cow)	on-going	~ 3 acres	Denuded vegetation and compacted soils	
Mud-bogging along Rito de la Osha (Valle Osha)	August 2004	< 0.1 acre	Deep ruts formed and denuded vegetation in riparian zone. Would likely return to original condition after two seasons.	Alternative 3 – All allotments – risk of habitat degradation on all allotments is lower because of formal grazing strategy and upland water, resulting in better distribution of cattle. For all actions except drought, the effects are very localized and occur on about 1% of the area encompassed by the 5 allotments. The lack of vegetation caused by the prescribed burns would be temporary, since grasses would be reinvigorated afterwards and add to habitat.
Other dispersed camping and hunter camps with stock	on-going	~ 10 acres	Compacted soils and denuded vegetation	
Fishing – creates trails along banks	on-going	< 1 acre	Compacted soils and denuded vegetation	
Unspecified uses of private land (other grazing or construction)	on-going	Unable to quantify; ~10,000 acres of private land total	Loss of riparian vegetation, undercut stream banks	
Dalton prescribed burn (Macho)	Spring or Fall 2005	~ 835 acres	Loss of grass immediately after burn; reinvigorated grasses in the next season	

Action(s) – (specific allotment in parentheses)	Date of Action	Size of area	Effect of Action	Cumulative Effect (all actions)
Sebadilla prescribed burn (Bull)	Fall 2004 or Spring 2005	~ 50 acres on the southern tip of the allotment	Loss of grass immediately after burn; reinvigorated grasses in the next season	
Drought	2000 - present	Statewide	Stunted growth of grass	

Heritage Resources - Affected Environment

Approximately 13,100 acres, or 20%, of the total area encompassed by the five allotments have been surveyed. Of the acres considered to be capable range, approximately 8,150 acres, or 32%, have been surveyed. Very little survey has been conducted on steep slopes where cattle generally do not graze. Some of the surveys conducted prior to 1987 document heritage resource sites and provide information on the types and density of sites that would be expected in the allotments, though the surveys themselves do not meet current forest standards.

A total of 76 heritage resource sites have been formally recorded in the five allotments. The sites include Native American artifact (lithic and/or sherd) scatters and Hispanic and/or Anglo/Euro-American historic sites (cabins, recreation residences, homesteads, sawmills, aspen carvings, trash scatters, mines, prospecting pits, telephone lines, acequias, Civilian Conservation Corps (CCC) era campgrounds, house foundations, bridges, culverts, retaining walls, remnants of an aerial tramway, cemeteries, corrals, a flume, and wooden rail logging systems) associated with Hispanic and/or Anglo/Euro-American use of the area. One other Hispanic and/or Anglo/Euro-American historic site in the Bull Creek allotment and 19 Hispanic and/or Anglo/Euro-American historic recreation residences along Holy Ghost Creek in the Macho allotment have been identified but not formally recorded.

Heritage Resources - Environmental Consequences

Alternative 1 (No Change)

All Allotments

Cattle can damage heritage resource sites in a couple of ways. First, they may congregate on sites and trample artifacts. Second, they may rub up against sites with standing features, causing surface scars or knocking them down. Grazing cattle would not likely damage artifact scatters neither enough to affect their National Register eligibility status nor enough to cause a loss of unique scientific information. Cattle rubbing up against sites with standing features could change National Register eligibility. Neither situation has a high probability of occurring on any of the allotments. Because site density is low, there are not many sites that could be damaged. Further, there is no evidence that grazing has damaged existing sites.

Review of Laboratory of Anthropology (LA) Site Records for all recorded sites in the allotments revealed only two cases documenting possible impacts from grazing. The first, located in the Cow Creek allotment, mentions evidence of grazing within an historic site located in a meadow, but

did not identify any specific impacts to the site from the grazing. This site did not have any standing structures. The other LA Site Record from the Soldier Creek allotment also did not identify any specific impacts to the site from grazing.

There have been no reports that grazing at current levels has resulted in situations where cattle were congregating on a heritage resource site or trampling artifacts. The possibility of cattle trampling and damaging unrecorded sites in unsurveyed areas exists, but is considered low due to the low occurrence of sites, the types of sites, and the lack of evidence that grazing damages sites. If some unrecorded Native American, Hispanic, and/or Anglo/Euro-American historic surface artifacts were broken by trampling, there would be a loss of site-specific knowledge on how stone tools, ceramics (both Native American and Hispanic and/or Anglo/Euro-American historic), and other Hispanic and/or Anglo/Euro-American historic artifacts (mostly made from glass and metal) would have been manufactured. The loss of information would be site-specific only because there are many similar sites on the forest.

For all allotments, there are no known Native American ruins or Hispanic or Anglo/Euro-American sites with standing features that are at risk of damage by cattle rubbing against them. Fourteen known Native American sites in the five allotments consist of artifact (lithic and/or sherd) scatters only; therefore, it is reasonable to predict that unrecorded Native American sites would also be artifact scatters without standing walls. Further, if a Native American site with standing walls was present in the allotments where cattle congregate, it is highly likely that it already would have been reported because of its uniqueness. The density of Hispanic and/or Anglo/Euro-American historic sites is also low. Most of these are artifact scatters, though some have standing structures (e.g. log or stone walls, telephone poles, etc.).

Finally, the mitigation measures for this project would protect heritage resource sites (see Chapter 2). Since no salting or spring developments would occur within or immediately adjacent to known site boundaries, cattle would not congregate on them. Also, if it is determined at a later date that cattle are rubbing against and knocking down standing features or trampling artifact scatters, measures such as fencing would be taken to protect them.

No new range facilities are proposed under this alternative, so there would be no effect from construction to heritage resource sites.

Alternative 2 (No Grazing)

The risk of cattle trampling or rubbing against heritage resource sites would be eliminated. No new range facilities are proposed under this alternative, so there would be no effect from construction to heritage resource sites.

Alternative 3 (Proposed Action)

All Allotments

Cattle can damage heritage resource sites in a couple of ways. First, they may congregate on sites and trample artifacts. Second, they may rub up against sites with standing features, causing surface scars or knocking them down. Grazing cattle would not likely damage artifact scatter neither enough to affect their National Register eligibility status nor enough to cause a loss of unique scientific information. Cattle rubbing up against sites with standing features could change National Register eligibility. Neither situation has a high probability of occurring on any of the allotments. Because site density is low, there are not many sites that could be damaged. Further, there is no evidence that grazing has damaged existing sites.

Review of Laboratory of Anthropology (LA) Site Records for all recorded sites in the allotments revealed only two cases documenting possible impacts from grazing. The first, located in the Cow Creek allotment, mentions evidence of grazing within an historic site located in a meadow, but did not identify any specific impacts to the site from the grazing. This site did not have any standing structures. The other LA Site Record from the Soldier Creek allotment also did not identify any specific impacts to the site from grazing.

There have been no reports that grazing at current levels has resulted in situations where cattle were congregating on a heritage resource site or trampling artifacts. The possibility of cattle trampling and damaging unrecorded sites in unsurveyed areas exists, but is considered low due to the low occurrence of sites, the types of sites, and the lack of evidence that grazing damages sites. If some unrecorded Native American, Hispanic, and/or Anglo/Euro-American historic surface artifacts were broken by trampling, there would be a loss of site-specific knowledge on how stone tools, ceramics (both Native American and Hispanic and/or Anglo/Euro-American historic), and other Hispanic and/or Anglo/Euro-American historic artifacts (mostly made from glass and metal) would have been manufactured. The loss of information would be site-specific only because there are many similar sites on the forest.

For all allotments, there are no known Native American ruins or Hispanic or Anglo/Euro-American sites with standing features that are at risk of damage by cattle rubbing against them. Fourteen known Native American sites in the five allotments consist of artifact (lithic and/or sherd) scatters only; therefore, it is reasonable to predict that unrecorded Native American sites would also be artifact scatters without standing walls. Further, if a Native American site with standing walls was present in the allotments where cattle congregate, it is highly likely that it already would have been reported because of its uniqueness. The density of Hispanic and/or Anglo/Euro-American historic sites is also low. Most of these are artifact scatters, though some have standing structures (e.g. log or stone walls, telephone poles, etc.).

Finally, the mitigation measures for this project would protect heritage resource sites (see Chapter 2). Since no salting or spring developments would occur within or immediately adjacent to known site boundaries, cattle would not congregate on them. Also, if it is determined at a later date that cattle are rubbing against and knocking down standing features or trampling artifact scatters, measures such as fencing would be taken to protect them.

The proposed range facilities would not damage any heritage resource sites because they would be located so as to avoid the sites or be otherwise mitigated (see mitigations, Chapter 2). Ground-disturbing activities can damage heritage resources by breaking them, scraping them, and/or moving them from their original location. Since all proposed facilities or maintenance that might damage heritage resource sites have been or would be surveyed prior to implementation, sites would be avoided or otherwise mitigated (Abel and Kulisheck 2004).

Bull Creek

No heritage resource sites are located where the fences and corral are proposed; as such, these would not damage heritage resource sites (Abel and Kulisheck 2004).

Cow Creek

No range facilities are proposed; therefore, there would be no effects to heritage resource sites.

Soldier Creek

Under Alternative 3, the number of cattle on the Soldier Creek allotment would increase from zero to 50. Nonetheless, damage from trampling or from cattle rubbing against standing features is not expected to occur because there is no evidence that this has occurred on any of the 11 previously recorded sites within the allotment. No range facilities are proposed; therefore, there would be no effects to heritage resource sites.

Macho Allotment

No heritage resource sites are located where the cattle guards, fences, well, and spring are proposed; as such, these would not damage heritage resource sites (Abel and Kulisheck 2004).

Valle Osha

No heritage resource sites are located where the cattle guards, associated fence lines, and spring repair are proposed; as such, these would not damage heritage resource sites (Abel and Kulisheck 2004). One site, a mica mine, is located where 1.5 miles of fence reconstruction is proposed. Construction of this fence would not adversely affect the site because an archeologist would be on-site to monitor the installation of wooden fence posts (see mitigations, Chapter 2 and Gentry 2003).

Heritage Resources - Cumulative Effects

Since no direct or indirect effects to heritage resource sites are anticipated from any of the alternatives, there would be no cumulative effects.

Recreation and Scenery - Affected Environment

Recreational use on the five allotments occurs primarily along roads and riparian corridors and generally consists of fishing, hunting, car camping, camping in recreational vehicles, off-road vehicle use, driving for pleasure, horseback riding, mountain biking, and viewing fall foliage. The northern portion of the Macho Allotment (about 8,400 acres, or 22% of it) is in the Pecos Wilderness (see Figure 27). The primary recreational uses in the wilderness are day hiking, fishing, backpacking, and horseback riding.

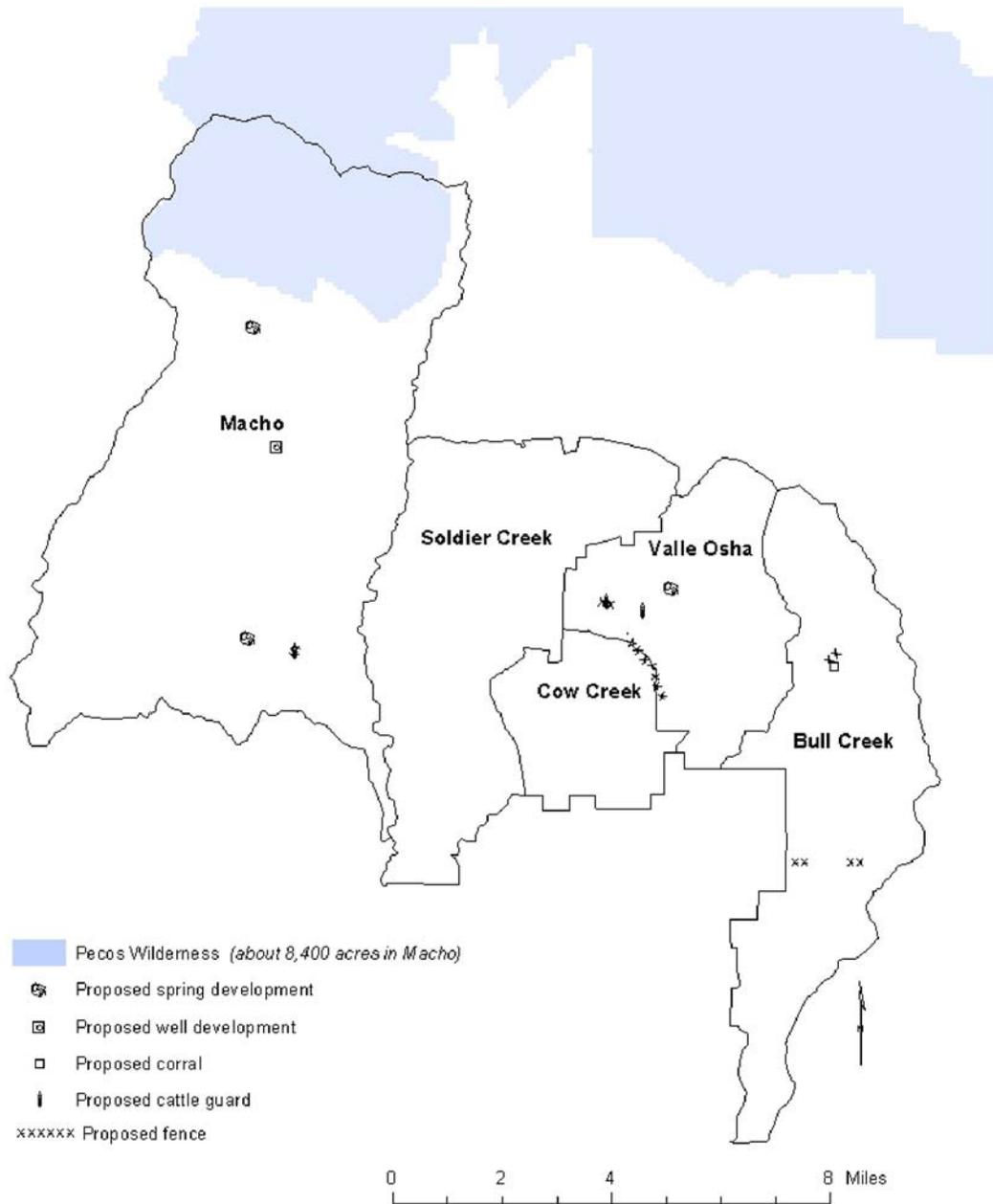


Figure 27. Location of Pecos Wilderness relative to the allotments.

Bull Creek

This allotment's designated Recreation Opportunity Spectrum (ROS) falls within Roaded Natural, Semi-Primitive Motorized, and Semi-Primitive Non-Motorized³ (USDA-FS 1987 p. 213). The Bull Creek Allotment currently meets its designated ROS.

The Bull Creek Allotment is within Forest Plan Management Area D, which directs us to manage for a Visual Quality Objective (VQO) of Partial Retention. This is where the landscape appears slightly altered, and noticeable deviations must remain visually subordinate to the landscape character being viewed. The Bull Creek Allotment currently meets the VQO of Partial Retention.

During hunting season, people use dispersed camping areas, where 5 to 15 people may camp for up to five days at a time on average during fall and spring hunts. Spots along Rito Jarosa and Bull Creek are also popular for hunting camps; the creeks themselves are used for day use fishing. Spring hunts fall outside of the grazing period and fall hunts overlap the grazing period.

Cow Creek

This allotment's designated ROS falls within Roaded Natural and Semi-Primitive Motorized (USDA-FS 1987 p. 213). The Cow Creek Allotment currently meets its designated ROS.

The Cow Creek Allotment is within Forest Plan Management Area E, which directs us to manage for a VQO of Partial Retention. This is where the landscape appears slightly altered and noticeable deviations must remain visually subordinate to the landscape character being viewed. The Cow Creek Allotment currently meets the VQO of Partial Retention.

A dispersed-use campground is located on FR (Forest Road) 86 along Cow Creek. This is a popular fishing spot and receives use every weekend between Memorial Day and Labor Day. Other dispersed hunting camps are also located along FR 86. These hunting camps are generally used in the spring and fall, receiving between 5 and 10 people who camp for up to five days at a time. Spring hunts fall outside of the grazing period; fall hunts overlap the grazing period.

Macho Allotment

This allotment's designated ROS falls within Roaded Natural, Semi-Primitive Motorized, and Semi-Primitive Non-Motorized (USDA-FS 1987 p. 213). For the portion (about 8,400 acres) of the allotment in the Pecos Wilderness, the Forest Plan specifies that management will emphasize primitive ROS opportunities for the entire wilderness, regardless of the current inventory status (USDA-FS 1987, p. 125). This allotment currently meets its designated ROS.

The VQO in the corridor along State Highway 63, the eastern boundary of the allotment, and in the western third of the allotment is Retention, where landscape character appears intact and deviations may be present but must repeat form, line, color, texture and pattern common to the landscape character so completely and at such a scale that they are not evident. The middle third of the allotment has a VQO of Partial Retention, where the landscape appears slightly altered and noticeable deviations must remain visually subordinate to the landscape character being viewed.

³ Roaded Natural – is characterized by a predominantly natural environment with evidence of moderate permanent resource use. Semi-primitive Motorized – is characterized by moderately dominant alterations by people, with strong evidence of primitive roads or trails. Semi-primitive non-motorized is characterized by natural settings in unroaded areas. Primitive is characterized by unmodified, natural environment; minimal evidence of others.

The VQO of the northern portion of the allotment is Preservation, where in general management activities are not detectable to the visitor.

The allotment currently meets its VQOs except in Dalton Canyon, which does not meet the VQOs of Retention or Partial Retention. Dalton Canyon, from State Highway 63 to the boundary of private land, is a highly popular dispersed camping area, where unmanaged camping and use of ATVs has caused soil compaction and denuded about three acres of vegetation. This dispersed camping area is not subordinate to the landscape.

Of the five allotments, Macho receives the most recreational use, especially in Holy Ghost and Dalton Canyons (described in the paragraph above). On the weekends, the Holy Ghost Campground is usually full and many anglers fish in Holy Ghost Creek. The Winsor (Trail 254) and Holy Ghost (Trail 283) Trails are popular for getting to the Pecos Wilderness and are used by backpackers, day hikers, anglers, horseback riders, hunters, and outfitter guides.

Soldier Creek

This allotment's designated ROS falls within Roded Natural, Semi-Primitive Motorized, and Semi-Primitive Non-Motorized (USDA-FS 1987 p. 213). The main travel corridor is State Highway 63, which forms the western border of the allotment. State Highway 63 is the main road used by visitors traveling up the Pecos Canyon. The allotment currently meets its designated ROS.

The VQO for the Soldier Creek Allotment is Retention in the corridor along State Highway 63, and Partial Retention for the rest of the allotment. The Soldier Creek Allotment currently meets these VQOs.

The Pecos River forms the western boundary of the allotment and is popular for fishing, swimming, camping, and picnicking. The main recreational use of the rest of the allotment is for hunting in the spring and fall.

Valle Osha

This allotment's designated ROS is Roded Natural and Semi-Primitive Motorized (USDA-FS 1987 p. 213). The allotment currently meets its designated ROS.

The Valle Osha Allotment has a VQO of Partial Retention, where the landscape appears slightly altered and noticeable deviations must remain visually subordinate to the landscape character being viewed. The Valle Osha Allotment currently meets the VQO of Partial Retention.

There are several dispersed recreation sites off FR 92 along Osha Creek; they are heavily used between Memorial Day and Labor Day. The area is popular with campers and anglers. In the fall and spring, hunters camp in the area.

Recreation and Scenery - Environmental Consequences

Alternative 1 (No Change)

Alternative 1 would not change the VQOs of any allotment because no new range facilities are proposed. None of the ROS designations would change because the presence of cattle would not change the "probably recreation experiences and activities" currently afforded (USDA-FS 1987,

p. 213). Though the public might encounter cattle, they are users who expect to see cattle in non-wilderness settings where grazing is permitted.

Bull Creek

This alternative would not have any direct or indirect effects on the ROS and the VQOs of this allotment because the existing condition is consistent with the Forest Plan's management direction. The continuation of grazing at current levels would cause minimal conflicts with recreationists because recreational use in this allotment is primarily associated with hunting. Based on experience, hunters generally are not as concerned with grazing on forestlands as are other recreational users.

Cow Creek

This alternative would not have any direct or indirect effects on the ROS and the VQOs of this allotment because the existing condition is consistent with the Forest Plan's management direction. There are no quantifiable, existing conflicts between recreationists and cattle on this allotment; as such, no direct or indirect effects from the presence of cattle are anticipated. Cattle are not permitted in the dispersed campground along FR 92, so there are no encounters between people and cattle.

Macho

Under this alternative, the ROS and VQOs would remain the same as the existing condition. The VQOs are not being met in Dalton Canyon, and this alternative would not address impacts associated with recreation use because this is a range proposal, not a recreation one.

There are no quantifiable, existing conflicts between recreationists and cattle on this allotment; as such, no direct or indirect effects from the presence of cattle are anticipated. Much of the popular developed and dispersed recreation areas and private lands are not areas where cattle congregate; therefore, there are few occasions when cattle and/or evidence of cattle are present during peak use. Under current management, grazing could occur in the Carpenter Ridge portion of the Pecos Wilderness, but the area has not been used in the past 15 years or so. This means that people using the Winsor Trail are unlikely to encounter cattle.

Solider Creek

This alternative would not have any direct or indirect effects on the ROS and the VQOs of this allotment because the existing condition is consistent with the Forest Plan's management direction. There would be no grazing on this allotment under current management and as such, there are no anticipated conflicts with recreationists.

Valle Osha

This alternative would not have any direct or indirect effects on the ROS and the VQOs of this allotment because the existing condition is consistent with the Forest Plan's management direction. The continuation of grazing at current levels would cause minimal conflicts with recreationists because recreational use in this allotment is primarily associated with hunting. Based on experience, hunters generally are not as concerned with grazing on forestlands as are other recreational users.

Alternative 2 (No Grazing)

All Allotments

This alternative would not have any direct or indirect effects on the ROS and the VQOs because the existing condition is consistent with the Forest Plan, except for the Dalton Canyon part of the Macho Allotment. The ROS and the VQOs are not being met in the Macho Canyon area because of recreational impacts. Allowing the permits to expire would not address impacts associated with recreation use. For all five allotments, there would be no conflicts between recreationists and cattle once the grazing permits expired because there would be no cattle. Since the fences likely would be left in place, some travel could be impeded.

Alternative 3 (Proposed Action)

Bull Creek

This alternative would not have any direct or indirect effects on the ROS or VQOs for the Bull Creek Allotment. Effects associated with the construction of range facilities proposed under this alternative are as follows:

- Relocating the corral would not affect the ROS and the VQOs of the area because the corral is located in an area designated as Partial Retention, and the corral would blend in with the surrounding area. The improved turn-around next to the corral would also allow more parking for recreational users.
- Construction of drift or wing fences would not block the movement of recreational users because they are short enough to go around, not located on a main travel route, or would have gates (see mitigations, Chapter 2). The fences would not result in a change to the ROS and the VQOs of the area because they would be in the middle ground and background from the road and would not be visible.

The continuation of grazing at current levels would cause minimal conflicts between recreationists and cattle because recreational use in this allotment is primarily associated with hunting. Based on experience, hunters generally are not as concerned with grazing on forestlands as are other recreational users.

Cow Creek

There would be no change to the ROS and VQOs because no range facilities are proposed in this allotment and the existing condition is consistent with the Forest Plan's management direction. There are no quantifiable, existing conflicts between recreationists and cattle with the current number of cattle. Since the proposed number of cattle would be the same, no direct or indirect effects are anticipated. Cattle are not permitted in the dispersed campground along FR 92, so there are no encounters between people and cattle.

Macho

This alternative would not have any direct or indirect effects on the ROS or VQOs for the Macho Allotment. Effects related to the construction of range facilities proposed are as follows:

- Construction of a cattle guard and fence on FR 123 would further reduce conflicts between recreationists and cattle by reducing the chance of cattle drifting towards State Highway 63.

- Development of one spring and a well would not affect recreational use because they are located in areas of low recreational use and this type of facility is consistent with Forest Management Area E for ROS and VQOs.

For the portion of the allotment not in the Pecos Wilderness, there would be no quantifiable conflicts between recreationists and cattle because much of the popular developed and dispersed recreation areas and private lands are not areas where cattle congregate. For the portion of the allotment located in the Pecos Wilderness, it is highly likely that people using the Winsor Trail would encounter cattle and evidence of grazing when cattle are in the Carpenter Ridge pasture, approximately 2 weeks each in the spring and fall every 5 years or so. No range facilities are proposed in the Carpenter Ridge pasture of the Macho Allotment. There would be no effects to the ROS and the VQOs in the Pecos Wilderness because this part of the alternative is consistent with Forest Plan Management Area H.

Solider Creek

No range facilities are proposed, so there would be no change from the existing condition in terms of ROS and VQOs. No conflicts with recreationists are anticipated from cattle grazing because the main recreational use occurs on Highway 63 and the Pecos River, where cattle do not congregate. Further, this allotment would not have cattle on it all the time; thus, hunters would encounter cattle very infrequently.

Valle Osha

This alternative would not have any direct or indirect effects on the ROS or VQOs for the Valle Osha Allotment. Effects associated with proposed facilities are as follows:

- Construction of two cattle guards and fence on FR 92 would reduce conflicts between recreationists and cattle by controlling the movement of cattle within the riparian area. Building the fence would not change the scenic value of the area because the fence would be located well within the tree line and as such would not be visible in the immediate foreground (within 300 feet) of the dispersed camping area.
- Building the fence between the Osha and Cow Creek allotments would not introduce a new type of visual distraction or change the scenic values of the area because there was previously a fence in the same location.
- Construction of ½ mile fence and renovation of the spring between the Ojitos and Valle Osha pastures would not block travel routes because people can easily go around the fence or through the gate.

Therefore there are no direct or indirect effects with these facilities and they are consistent with Forest Plan management direction.

There are no quantifiable, existing conflicts between recreationists and cattle with the current number of cattle. Since the proposed number of cattle would be the same, no direct or indirect effects are anticipated. Most of the people using this area in the spring and fall are hunters and they are accustomed to seeing cattle.

Recreation and Scenery - Cumulative Effects

Under Alternative 3, visitors are likely to encounter cattle in the Carpenter Ridge Pasture, which is in the Pecos Wilderness, of the Macho Allotment during the spring and fall when cattle are present every five years or so. As such, there would be cumulative effects.

The temporal boundary for this analysis is 15 years in the past to all projects on the Forest’s Schedule of Proposed Actions or in other official project planning status. Fifteen years is the boundary in the past because this is approximately how long cattle have not grazed in the Carpenter Ridge Pasture. The geographical area is the Pecos Wilderness because this is where people seeking a wilderness experience go. The past, present, and reasonably foreseeable future actions, their effects, and the cumulative effect with Alternative 3 is summarized in the table below.

Table 21. Cumulative effects for presence of cattle.

Action(s) –	Date of Action	Size of area	Effect of Action	Cumulative Effect (all actions)
Grazing in the Pecos Wilderness	on-going	Most of wilderness	Hikers see cattle	People would see cattle in more areas of the Pecos Wilderness (the Carpenter Ridge Pasture of the Macho Allotment, about 8,400 acres) for two weeks each in the spring and fall.

Environmental Justice – Affected Environment

Executive Order 12898 (1994) requires federal agencies to address the environmental justice of their actions on minority and low-income populations. This analysis considers demographic, economic, and human health factors.

The rural community of Pecos lies to the southwest of these five grazing allotments. Other numerous small, predominantly Spanish communities are located in or in the vicinity of the Sangre de Cristo Mountains. The Spanish first arrived in the area at least 400 years ago. Many families in the area trace their ancestry back to these original inhabitants. As such, there are strong ties to the land and a heavy reliance on the natural resources of the forest.

Environmental Justice – Environmental Consequences

Alternative 1 (No Change) and Alternative 3 (Proposed Action)

The selection of either of these alternatives would not result in adverse or disproportionate effects on low income or minority populations. These alternatives are consistent with activities implemented on National Forest System lands throughout the United States over the past several decades. As such, the environmental effects are predictable as are the outcomes of implementing mitigation measures that have been refined over years. There would be no displacement of minorities, changes of land use, or increases in taxes that would constitute an economic hardship. There would be no pollution or effects on public health.

Alternative 2 (No Grazing)

Eliminating the opportunity to graze cattle on any or all of the allotments would adversely affect local permittees by changing traditional use of the land and causing an economic hardship to those individuals who rely wholly or in part on the income generated from their long-term cattle operations.

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