



United States
Department of
Agriculture

Forest
Service

January 22, 2007



Environmental Assessment

Peralta Range Allotment Analysis

**Jemez Ranger District, Santa Fe National Forest
Sandoval County, New Mexico**

Township 18 North, Range 4 East, Sections 3-4, 8-10, 15-16, 21-22, 27-29, and
32-34

Township 17 North, Range 4 East, Sections 1-5, 9-17

Township 17 North, Range 5 East, Sections 6, 7, 18

For Information Contact: Range Program Manager
Derek Padilla
Jemez Ranger District
P.O. Box 150, Jemez, New Mexico, 87025
505-829-3535

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TTD). USDA is an equal opportunity provider and employer.

TABLE OF CONTENTS

1.0 PURPOSE OF AND NEED FOR ACTION 6

1.1 PROPOSED ACTION6

1.2 PURPOSE AND NEED7

1.3 EXISTING SITUATION.....9

1.4 MANAGEMENT DIRECTION.....11

1.5 DECISION FRAMEWORK.....14

1.6 PUBLIC INVOLVEMENT14

1.7 ISSUES.....15

 1.7.1 Key Issues..... 15

 1.7.2 Other Issues 15

2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION 16

2.1 ALTERNATIVES ELIMINATED FROM DETAILED STUDY16

 2.1.1 – *Vegetative Treatments on Peralta Allotment* 16

2.2 ALTERNATIVES CONSIDERED IN DETAIL16

 2.2.1 *Alternative 1 – No Grazing* 16

 2.2.2. *Alternative 2 – Current Management* 16

 2.2.3. *Alternative 3 – Proposed Action* 17

 2.2.4. *Alternative 4 – Reduced Grazing*..... 19

FIGURE 4. PROPOSED RANGE IMPROVEMENTS UNDER ALTERNATIVE 4 – REDUCED GRAZING. 21

2.3 MITIGATION AND MONITORING REQUIREMENTS21

 2.3.1 *Mitigation Measures* 21

 2.3.2 *Monitoring* 23

2.4 COMPARISON OF ALTERNATIVES26

3.0 ENVIRONMENTAL CONSEQUENCES..... 28

**3.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE
ACTIVITIES USED FOR CONSIDERATION OF CUMULATIVE EFFECTS 28**

3.2 SOIL..... 34

 3.2.1 *Affected Environment*..... 34

 3.2.2 *Environmental Consequences*..... 36

3.3 WATERSHED AND RIPARIAN AREAS 39

 3.3.1 *Affected Environment*..... 39

 3.3.2 *Environmental Consequences*..... 41

3.4 AIR 43

 3.4.1 *Affected Environment*..... 43

 3.4.2 *Environmental Consequences*..... 43

3.5 VEGETATION 44

 3.5.1 *Affected Environment*..... 44

 3.5.2 *Environmental Consequences*..... 46

3.6 WILDLIFE 49

3.6.1 *Affected Environment*..... 49
 3.6.2 *Environmental Consequences*..... 65
3.7 HERITAGE RESOURCES 86
 3.7.1 *Affected Environment*..... 86
 3.7.2 *Environmental Consequences*..... 87
3.8 RECREATION 88
 3.8.2 *Environmental Consequences*..... 88
3.9 ENVIRONMENTAL JUSTICE 89
 3.9.1 *Affected Environment*..... 89
 3.9.2 *Environmental Consequences*..... 90
CONSULTATION AND COORDINATION..... 92
REFERENCES..... 93
APPENDIX 1: ABBREVIATIONS AND ACRONYMS..... 98

TABLES

Table #	Title	Page #
1	Proposed authorization	7
2	Facilities – Purpose and Need	8
3	Existing situation	11
4	Distribution of allotment within Forest Plan Management Areas	11
5	Permit expiration dates	16
6	Current Management	17
7	Alternative 3 – Proposed Action	17
8	Alternative 4 – Reduced Grazing	20
9	Comparison of alternatives	26
10	Timber sales in proposed project area	29
11	Recent wildfires and prescribed burns recorded within the project area	30
12	Recreational activities within the project area	32
13	Roads within the project area	34
14	Soil Condition Ratings	35
15	Project Area and the corresponding 4 th and 5 th code watersheds	39
16	Perennial stream miles in the Peralta Allotment	39
17	Acreage of riparian vegetation	40
18	Vegetation type by percentage	44
19	Grazing intensity guide for rangelands in New Mexico	45
20	Range capability	46
21	How grazing affects root growth	47
22	Approximate number of acres grazed	49
23	PETS species potential occurrence in the Peralta Allotment	49
24	Acres of MSO Critical Habitat grazed in the Peralta Allotment	51
25	Santa Fe National Forest and NMED water quality temperature standards	56
26	Approximate suitable acres for Merriam’s turkey	58
27	Approximate suitable acres for the hairy woodpecker	59
28	Approximate suitable acres for the mourning dove	60
29	Approximate suitable acres for the Rocky Mountain elk	60

30	Effects on New Mexico PIF species of concern with potential habitat in Peralta	61
31	Financial Efficiency of each alternative for the Forest Service	91

FIGURES

Figure #	Title	Page #
1	Location of project area	9
2	Management Areas within project boundary	12
3	Proposed range improvements under Alternative 3 – Proposed Action	19
4	Proposed range improvements under Alternative 4 – Reduced Grazing	21
5	Key areas used for rangeland condition monitoring	25
6	Soil Condition ratings in the project area	36
7	Rio Grande cutthroat trout occupation in the Peralta Allotment	55
8	Temperature results from Upper Peralta Canyon, 2005	57

1.0 PURPOSE OF AND NEED FOR ACTION

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from implementation of the proposed action and alternatives. The purpose of this analysis is to inform the decision-making process and disclose expected effects of each alternative to the public. Supporting documentation, including more detailed analyses of project-area resources, interdisciplinary team meeting notes, references, and public comments are on file in the project planning record at the Jemez Ranger District Office in Jemez Springs, New Mexico.

1.1 Proposed Action

The Jemez Ranger District, Santa Fe National Forest proposes to continue to authorize livestock grazing on Peralta Allotment under the following terms:

- **Season of Use.** Anticipated normal season start and end dates are listed in table 1.¹ Actual start dates may vary annually in response to range readiness or other management concerns. Range readiness will be the primary determining factor for earliest entry dates and those dates may be adjusted annually up to two weeks earlier than the dates listed or to delay entry by 30 days depending on climate and plant growth. Season end dates may occur 30 days prior to or after the listed date, depending on ecological conditions as determined through monitoring, including forage utilization levels.
- **Animal Unit Months (AUM).**² The anticipated range of annual AUMs to be authorized for each allotment is listed in Table 1. Due to variability in annual precipitation levels and other climatic factors, authorized AUMs will be determined annually and written into Annual Operating Instructions based on precipitation measures. The annually authorized AUM number must be within the authorized range of AUMs in the permit.

The authorized range of AUMs is determined according to forage production estimates that are calculated from precipitation measurements from the nearest local weather station. Forage production estimates are calculated as a percent of normal (average) forage production for a 30 year period (1975 to 2005). The maximum and minimum of these forage production estimated for the last ten years are then used to determine the authorized range of AUMs for the ten year grazing permit.

The Peralta allotment will have an authorized range of AUMs from 70 to 120 percent of the average calculated capacity. This range is based upon precipitation data gathered from the Jemez Springs weather station.

¹ Under an adaptive management framework, the number of permitted cattle, season of use, and total head months can vary from year to year based on resource conditions. Forage availability, range readiness, and utilization are some of the parameters monitored to determine resource conditions. In a given year, there may be changes in the season of use, pasture rotation schedule, and the number of authorized cattle.

²An AUM is the amount of oven-dry forage (forage demand) required by one animal unit for a standardized period of 30 animal unit days. An animal unit is considered to be one mature cow of approximately 1,000 pounds, either dry or with calf up to six months of age, or their equivalent. The average value for an animal unit month is 780 pounds of oven dry forage.

Table 1. Proposed Authorization

Allotment	Normal Season	Range of Authorized AUMs	Permitted AUMs
Peralta	6/1 – 10/31	345 to 590	491*

- Permitted AUMs would be increased to 491 from the existing condition of 476, because currently 50 cattle are authorized for grazing between June 1 and October 31, and 24 cattle are authorized between June 1 and October 15; whereas the proposed action would authorize all 74 cattle from June 1 to October 31.
- **Infrastructure improvement.** The following facilities work would be accomplished to address various grazing management, watershed and wildlife objectives. They are presented in greater detail in Table 2:
 - Reconstruct three miles of boundary fence between the Del Norte Allotment and the Peralta Allotment
 - Install two water troughs to catch runoff from culverts under Forest Road 280
 - Clean out silt and install plastic liners in two existing water catchments in ephemeral drainages on Oaks Mesa
 - Install exclusion fencing around the associated riparian vegetation on the western water catchment on Oaks Mesa
 - Install up to two miles of cross fencing across the Peralta Allotment to keep cows in the lower portion of the allotment after trailing up through Peralta Canyon
- **Change from Existing Conditions.** The Proposed Action would result in a change from existing conditions by authorizing water developments that would facilitate grazing on Oaks Mesa. Proposed range improvements including cleaning out existing water catchments and cross fencing are meant to promote better distribution of livestock in areas with suitable grazing resources across the allotment. Installing cross fencing on the allotment and installing two water troughs along FR 280 would ensure that cattle impacts are equally distributed throughout the allotment thereby lessening impacts to the upper portion which is causing negative impacts under current management.

The proposed action would also result in a change to authorized AUMs written in the grazing permit from 476 to 491, to allow for synchronized on and off dates for cattle grazing. The change from existing conditions in the Proposed Action would be to authorize 24 cattle for 15 additional days, so that the date all cattle are to be removed from the Peralta Allotment is October 31 each year (unless modified by Annual Operating Instructions).

1.2 Purpose and Need

The purpose and need of this proposed action is for authorization of livestock grazing in a manner that moves toward Forest Plan objectives and desired conditions. A decision is needed on these allotments because:

Where consistent with other multiple use goals and objectives there is Congressional intent to allow grazing on suitable lands (*Multiple Use Sustained Yield Act of 1960, Forest and Rangeland Renewable Resources Planning Act of 1974, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976*).

The allotments contain lands identified as suitable for domestic livestock grazing in the Santa Fe National Forest Plan and continued domestic livestock grazing is consistent with the goals, objectives, standards, and guidelines of the forest plan.

It is Forest Service policy to make forage available to qualified livestock operators from lands suitable for grazing consistent with land management plans (*FSM 2203.1; 36 CFR 222.2 (c)*).

It is Forest Service policy to continue contributions to the economic and social well being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood (*FSM 2202.1*).

Need for change. There is a need for change from current management as the Peralta allotment is not meeting or moving toward desired conditions. Specific desired conditions not being met are as follows:

- Management flexibility to respond to changing resource conditions
- Acres in satisfactory range management status
- Relative distribution of livestock grazing

Table 2. Facilities - Purpose and Need

Proposed Action	Need	Purpose (Objective)
Clean out two existing water catchments on oaks mesa and install exclusion fencing around existing riparian vegetation.	The allotment is not meeting or moving toward desired conditions in an acceptable timeframe. Additionally, a capacity evaluation, in conjunction with monitoring data, revealed that the current forage obligation is above what is available.	Make additional forage on Oaks Mesa available for grazing while maintaining AUMs at current levels.
Place two water troughs along Forest Road 280 to catch runoff from culverts.	Currently, Peralta Creek is the main water source within the Peralta allotment. Livestock tend to congregate along Peralta Creek resulting in overuse of the area adjacent Peralta Creek. Alternate water sources are needed to avoid this situation.	Relieve grazing pressure in areas adjacent to Peralta Creek.
Construct a fence across the allotment.	The placement of a fence across the southern end of the Peralta allotment would allow the allotment to be split into two pastures. This would allow the lower portion to be used more effectively.	Keep cattle in the lower portion of the allotment (mostly on Oaks Mesa) in order to alleviate the overuse that is occurring in portions of the upper areas of the allotment.
Synchronize on and off dates by authorizing 24 cattle for an additional 15 days (an increase of 15 AUMs)	Authorizing all cattle on the Peralta Allotment is expected to allow for management efficiencies and reduce the likelihood of trespass cattle.	Allow for simplified monitoring and management of the cattle on the Peralta Allotment.
Reconstruct three miles of boundary fence.	In the early 1990's this fence was partially removed. It has become apparent that it is still needed.	Reduce drift of livestock from one allotment to the other.

1.3 Existing Situation

Location - the Peralta Allotment is located in the southeastern portion of the Jemez Ranger District, Santa Fe National Forest in:
Township 18 North, Range 4 East, Sections 3-4, 8-10, 15-16, 21-22, 27-29, and 32-34
Township 17 North, Range 4 East, Sections 1-5, 9-17
Township 17 North, Range 5 East, Sections 6, 7, 18

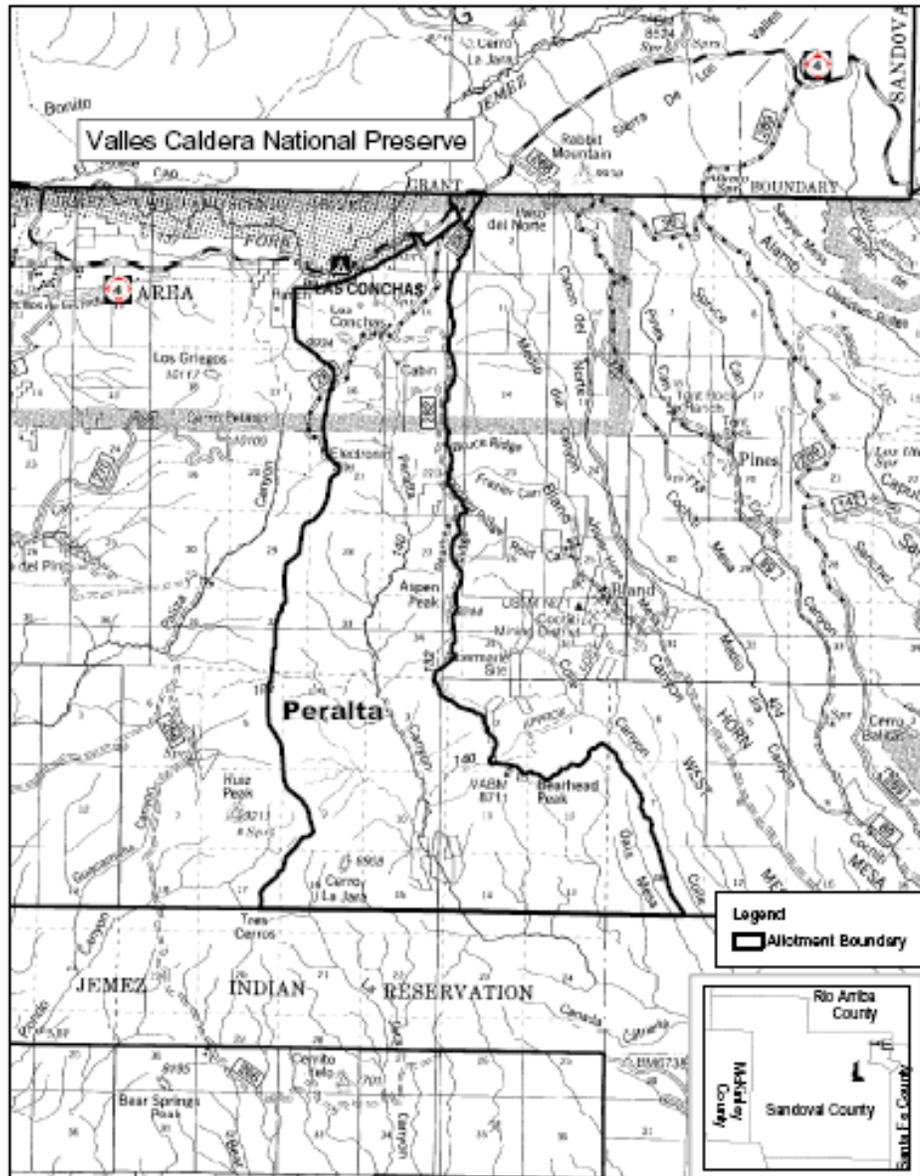


Figure 1. Location of project area

Setting – The Peralta Allotment is located between the V-Double Slash Allotment to its west and the Bland and Del Norte allotments to its east. It encompasses approximately 12,826 acres

(approximately 422 acres of which are located on private lands; not under the jurisdiction of the Forest Service). The allotments are bounded on the north by the Los Conchas Allotment and private land, to the south by tribal lands, and to the east and west by National Forest Service land. State Highway 4 runs near the northern portion of the allotments and Forest Roads (FR) 280 is the most common road used by the permittee to access the allotment through its northern end.

The allotment is located in the Jemez Mountains where topography is characterized by mountainous terrain in the higher elevations, steep sided canyons, and flat mesa tops in the lower elevations all with interspersed small mountain meadows or grassy canyon bottoms.

The Peralta allotment has one main canyon, **Peralta Canyon**. There are other minor unnamed canyons that feed into it. Peralta Canyon is perennial throughout its reach within the Peralta allotment. Peralta Canyon also runs in north/south direction and eventually drains into the Rio Grande nine miles away at its closest point. There is one main mesa, Oaks Mesa, within the allotment. This portion of the allotment has historically been grazed, but water catchments on the mesa have silted in due to lack of maintenance. As a result of a lack of water, Oaks Mesa is not currently available for domestic livestock use.

Elevations range from high mountain peaks including one unnamed peak along Peralta Ridge at 9,900 feet above mean sea level to canyon bottoms at 6,800 feet above mean sea level. Numerous ephemeral drainages run through the allotment; however, only Peralta Canyon is considered perennial.

Grazing Management - The current grazing management system and the average annual authorized AUMs of grazing use are displayed in this table. Start dates for the season of use may vary from two weeks earlier to one month later than the average date shown based on a range readiness determination that indicates resources are in a condition capable of supporting the beginning of the grazing season. Similarly the actual end date may vary by up to one month depending on resource conditions.

For the past five years, standards for stubble height have not been consistently met on the majority of key areas on the Peralta Allotment. In 2001 and 2002 the full authorization was not grazed due to this and other factors such as opportunities to graze cattle on the Valles Caldera. In 2003 and 2004 the number of cattle authorized to graze on the allotment was reduced from permitted numbers via Annual Operating Instructions due to drought. In 2002 and 2003 most utilization guidelines were met in all key areas, but in 2004 three out of four key areas did not meet utilization and stubble height guidelines. Cattle were not grazed in the Peralta Allotment in 2006.

Actual use on the Peralta Allotment has differed from permitted use because of varying reasons. Actual use from 2001 to 2005 is listed below:

2001

40 cattle: 7/21/2001 - 8/18/2001 and 10/1/2001 - 10/15/2001

2002

40 cattle: 7/21/2002 - 8/18/2002 and 10/1/2002 - 10/15/2002

2003

39 cattle: 6/1/2003 – 10/31/2003

19 cattle: 6/1/2003 – 10/15/2003

2004

45 cattle: 6/15/2004 – 10/31/2004

24 cattle: 6/15/2004 – 10/15/2004

2005

68 cattle: 6/15/2005 – 10/15/2005

2006

0 cattle

Table 3. Existing Situation

Peralta Allotment	
Total Acres	12,826
National Forest	12,404
Private	422
<u>Range Management Status*</u>	
Satisfactory	37%
Unsatisfactory	63%
No. of Pastures/Use Areas	1
<u>Range Structures</u>	
Springs Developments	0
Earthen Tanks	0
Restoration Dams	0
Corrals	1
Wells	0
Storage Tanks	0
Fences (miles)	8.2
Grazing System	1 – pasture – Continuous – Season Long
Authorized AUMs**	476
Normal Season	50 cattle for 6/1 – 10/31 24 cattle for 6/1 - 10/15

* Only reflects full and potential capability acres (See table 20 for more information)

** In 2006, no cattle were grazed on the Peralta Allotment

1.4 Management Direction

The Santa Fe National Forest Plan (Forest Plan) identifies the national forest lands within the Peralta allotment as suitable for domestic livestock grazing. The project proposal and action alternatives were designed to conform to Forest Plan direction, goals, and standards and guidelines, which are incorporated by reference. The allotments fall within Forest Plan Management Areas C, L, N, P, R, and X where emphasis is on the following:

Table 4. Distribution of allotment within Forest Plan Management Areas

	Percent Management Area					
	C	L	N	P	R	X
Peralta Allotment	<1	43	<1	12	27	18

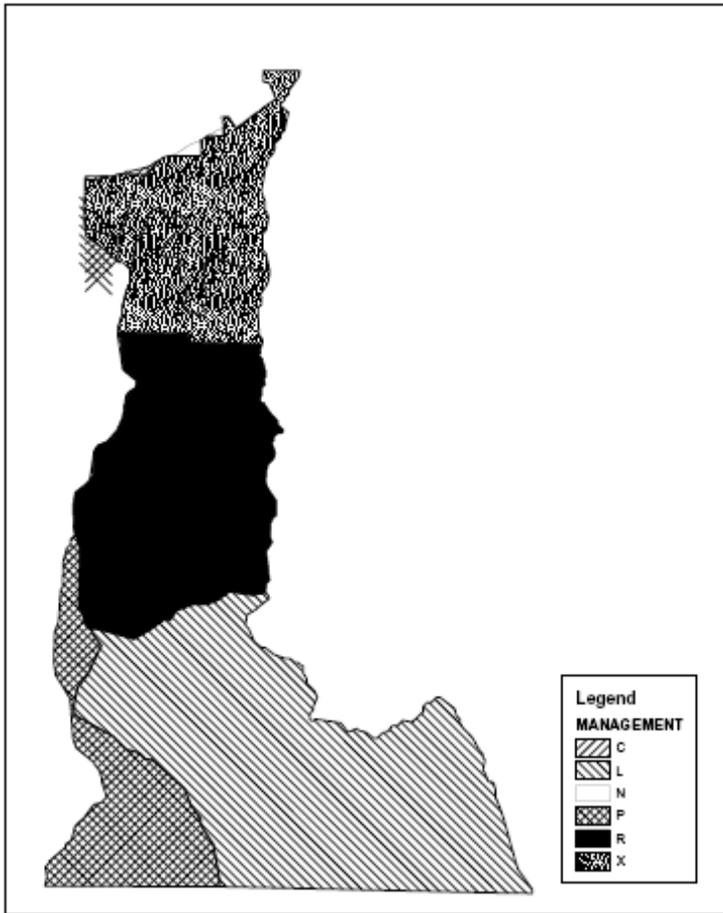


Figure 2. Management Areas within the project boundaries
(Management Area I – Heritage Resource emphasis - not pictured)

Management Area C - Emphasis in this area is on enhancement of visual quality and developed recreation opportunities while protecting essential wildlife habitat and riparian zones. Grazing activities occur where consistent with the primary emphasis of this area (USDA-FS 1987, pg 106). Standards and Guidelines related to range management include:

Within approved allotment management plans, emphasis will be given to proper utilization of the riparian zone (USDA-FS 1987, pg 109).

Management Area L - Emphasis is on providing semi-primitive non-motorized recreation opportunities. Range management may occur where consistent with this emphasis. These areas are closed to motorized travel and are identified as a roadless area in the Forest Service Roadless Area Conservation Final Environmental Impact Statement Volume 2 – Maps of Inventoried Roadless Areas (USDA-FS 2000, pg 133). Standards and Guidelines related to range management include:

Emphasize use of native or natural materials such as local rock, logs, and indigenous plant species for structural projects or facilities (USDA-FS 1987, pg 147).

Management Area N – Emphasis is on management that protects and enhances essential wildlife habitat. Grazing may occur when consistent with the protection emphasis of this area (USDA-FS 1987, pg 152)

Management Area P – Emphasis is cultural resource location, inventory, and protection. Grazing capacity is generally transitory in nature but there are allotments in intermingled grasslands (USDA-FS 1996, replacement pg 157)

Management Area R - Cultural resource location, inventory, nomination, and protection are emphasized. The emphasis is also on wildlife habitat improvement and essential habitat protection and enhancement. Grazing activities occur where compatible with the primary emphasis of this area (USDA-FS 1987, pg 165).

Management Area X - Management Area X is the Jemez National Recreation Area (JNRA) as designated by Congress in 1993 under Public Law 103-104 107 Stat. 1025. This management area is to be managed according to the JNRA Management Plan established in 2002 under the auspices of the 1993 JNRA Act. Emphasis in this area is on conserving, protecting, and restoring recreational, ecological, cultural, religious, and wildlife resource values. Grazing is permitted in the Jemez National Recreation Area (Public Law 103-104). Specific management guidance relating to grazing as written into the law is stated as follows:

Permit grazing within the recreation area in accordance with regulations prescribed by the Secretary. Riparian areas shall be managed in such a manner as to protect their important resource values (PL 103-104, Sec. 2[h]).

On page 6 of the JNRA Management Plan upland and riparian grazing standards are described as follows:

Upland standards: The protection of upland range resource values from unacceptable grazing effects will be determined through monitoring. Livestock grazing will be managed at a level corresponding to conservative intensity (FSM 2211.1 (R3)). Conservative grazing intensity for rangelands in New Mexico has been identified as utilization levels between 31 and 40 percent (Holochek and Galt, 2000).

Riparian Standards: The protection of riparian resource values from unacceptable grazing effects will be determined through monitoring. Grazing levels will not exceed any of the following four indicators. These standards build on standards established in Idaho Watersheds Project; Committee for Idaho High Desert v. Martha G. Hahn, State Director; Bureau of Land Management; Jenna Whitlock, Owyhee Area Manager No. 01-35033 (Owyhee) as affirmed by the United States Court of Appeals for the Ninth Circuit (9/24/2002). They are more conservative than those imposed by the court in Owyhee.

1. Key herbaceous riparian vegetation, will have minimum stubble height of four inches on the streambank, along the greenline, after the growing season (Owyhee) and during spring runoff (Clary and Webster, 1989; Elmore and Kauffman, 1994; Clary, 1999; Clary and Leininger, 2000; Baker et al., 2001);
2. Key riparian browse vegetation will not be used at levels exceeding 50 percent of the current annual twig growth that is within reach of the animals (Owyhee; Mosley et al., 1998);
3. Key herbaceous riparian vegetation on riparian areas, other than streambanks, will not be grazed more than 30 percent during the growing season or 60 percent during the dormant season (Owyhee; Clary and Webster, 1989, Mosley et al., 1998); and
4. Streambank instability attributable to grazing livestock will be less than ten percent on a stream segment (Owyhee).

1.5 Decision Framework

The District Ranger is the responsible official who will decide whether or not to approve the proposal. The District Ranger may select any of the four alternatives, or a combination thereof. The District Ranger also has the authority to determine what, if any, mitigation measures, monitoring, or other specifications are necessary for the implementation of a chosen alternative.

1.6 Public Involvement

The proposed project was scoped as part of a grazing analysis on five grazing allotments on the Jemez Ranger District - the Alamo, Bear Springs, Bland, Del Norte, and Peralta Range Allotment Analysis. During the analysis process on these five allotments, the Peralta Allotment was determined to include additional issues that the other allotments lacked, and it was therefore determined that this allotment would be analyzed under a separate Environmental Assessment. Scoping completed for the five allotments included the Peralta Allotment.

The proposal to renew livestock grazing authorizations for the Peralta Allotment was first listed in the Santa Fe National Forest Schedule of Proposed Actions in 10/01/2005 to 12/31/2005 edition. This list is distributed to numerous individuals and can be accessed on the Santa Fe National Forest Website at the following link: <http://www.fs.fed.us/r3/sfe/projects/projects/index.html>. A detailed project proposal was provided to 29 individuals, agency representatives, and interested tribes for comment during scoping in February 2005. Responses were received from six separate parties, three of which discussed the Peralta Allotment. Throughout the planning process, meetings have been held with the allotment permittee and other interested parties. This project was also included on a list of proposed activities submitted to interested tribes.

Using the comments from the public and other agencies, an interdisciplinary team developed a list of issues to address. This list was then used along with applicable NEPA regulations and Forest Service policy (FSH 1909.15) to develop a Preliminary EA.

In compliance with 36 CFR 215, a description of the proposed action, some possible alternatives, and anticipated effects were presented in the Preliminary EA document for a 30-day public comment period beginning October 22, 2006, which is the date of publication for a legal notice in the Albuquerque Journal.

Approximately three comments were received from the public and other government agencies during the 30-day comment period. Two comments were received with post-marks after the 30-day comment period had expired and are not eligible to appeal a decision based on this assessment. Comments were reviewed by an inter-disciplinary team of Jemez Ranger District Resource specialists on November 21, 2006. Comments received after the 30-day comment period were also reviewed at a later date by Forest Service personnel.

This final EA will be the primary document used to inform the decision-making process. The following changes were incorporated into this Final EA based on these comments:

- Alternative maps were replaced to be more legible
- Cumulative effects (section 3.1) and Recreation analysis (section 3.8) were edited to include information on cross-country ski activities

- Information on impacts associated with the placement of a cross-fence in Peralta Canyon was updated to correct wording that stated a cross-fence may block passage in Peralta Canyon when in fact it would not
- Section 3.3 was updated to include analysis of potential effects from soil erosion caused by cow trailing along the proposed cross-fence in Alternative 3, Proposed Action
- Section 1.3 Existing Condition was updated to include information on actual use (number of cattle that actually grazed the allotment) from 2001 to 2005 to supplement information present on permitted use in table 3.

1.7 Issues

The Forest Service interdisciplinary team grouped and sorted comments (both internal and external) received during the scoping period into issues and non-issues. Issues are defined as a concern or debate about the effects of the proposal. Issues were further categorized as key issues (used to develop alternatives to the proposed action) and other issues (addressed through mitigation measures common to all alternatives). The effects related to all issues are discussed in Section 3. Comments not considered issues to analyze in this EA were those:

1. Outside the scope of the proposed action/purpose and need, thus irrelevant to the decision being made;
2. Already decided (impacts avoided) by law, regulation, or other higher-level decision; or
3. Conjectural and not supported by scientific or factual evidence.

1.7.1 Key Issues

- Potential impacts to the Rio Grande cutthroat trout from grazing in Peralta Canyon
- Acres in satisfactory management status not meeting desired conditions

1.7.2 Other Issues

Other issues were noted and are discussed below. Mitigation measures were developed to address these *other issues*. A list of non-issues and reasons regarding their categorization is in the project record.

- **Soil and Vegetation** – continued grazing may result in over utilization on some allotments, particularly in view of the on-going drought.
- **Water (riparian resources)** – water sources (springs) and surrounding resources (vegetation and wildlife) can be adversely affected by grazing associated disturbances.
- **Wildlife** – construction activities associated with range improvements (noise and ground disturbance) may disturb wildlife species during breeding season, resulting in unsuccessful reproduction.
- **Heritage Resources** – activities associated with grazing (trampling, bedding down, and congregating near salt, water developments, and corrals) have the potential to affect archaeological sites by damaging surface and sub-surface artifacts and features.
- **Economics** – range improvements can be costly to the government or to the permittee, or both.

2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for management of the Peralta Allotment. This section 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. This chapter also identifies mitigation measures.

2.1 Alternatives Eliminated from Detailed Study

Alternatives eliminated from detailed study are those issues received during the scoping process that were first considered and then eliminated from study via the National Environmental Policy Act analysis process. The following project alternative was received during scoping:

2.1.1 – Vegetative Treatments on Peralta Allotment

This included meadow restoration thinning (removal of encroaching conifers on the borders of open meadows) as well a general thinning to promote more herbaceous growth. This alternative was not developed because such treatments are costly and it is anticipated that there will not be adequate funding to support these management actions in the foreseeable future. Furthermore, due to its relative isolation from nearby communities and sparse use by Forest users, Peralta Canyon is not currently considered a priority area for hazardous fuels projects.³

2.2 Alternatives Considered in Detail

2.2.1 Alternative 1 – No Grazing

Cattle grazing would no longer be authorized on the Peralta Allotment. The grazing permittee would not be authorized to return cattle to the allotment when the grazing season begins in 2007. No new permits would be issued. All range facilities would revert to the Forest Service where they would be evaluated for wildlife, watershed, and soil protection needs. Allotment boundary fences would not be removed, as they would be needed to prevent excess use by livestock from adjacent active allotments.

Table 5. Permit Expiration Dates

Allotment	Last Permit Expires
Old Permit	
Peralta	12/31/2005
New Permit	
Peralta	9/21/2016

2.2.2. Alternative 2 – Current Management

The current allotment management plan would continue to guide management on the allotment. No change would be made to the current operations. No new range facilities would be

³ Nationally, prioritization for vegetative treatments is in the wildland urban interface.

constructed. Grazing would continue to be administered according to Forest Service policy. Use would be permitted seasonally according to an adaptive management framework with livestock numbers adjusted to meet appropriate carrying capacities as displayed in table 6.

Table 6. Current Management

	Peralta
No. of Pastures	1
New Range Structures	
Earthen Tanks	0
Restoration Dams	0
Corrals	0
Wells	0
Fences (miles)	0
Grazing System	1 – pasture – Continuous – Season Long
Authorized AUM Range	333 to 571
Permitted AUMs	476
Normal Season	6/1 to 10/31*

* Current management for the Peralta allotment is for 476 AUMs. This equals to 50 head of cattle from June 1 to October 31 and 24 head of cattle from June 1 to October 15.

2.2.3. Alternative 3 – Proposed Action

This alternative would slightly increase AUMs compared to Current Management, but would be expected to enhance rangeland condition due to improvements that would increase distribution of cattle across the allotment and minimize grazing impacts in sensitive areas. Specifically, the cleaning of rock header dams on Oaks Mesa and the placement of two water troughs adjacent to FR 280 would increase distribution of cattle and the placement of a fence across the southern end of the Peralta allotment would allow the allotment to be split into two pastures allowing the lower portion to be used more effectively. All improvements on Oaks Mesa would be required to be constructed before current permitted AUMs would be allowed. Until such time, a temporary reduction in permitted numbers reflecting the ‘reduced grazing alternative’ would be instituted unless improvements were constructed prior to the grazing season.

Specific to range facilities, this alternative includes:

- Removal of accumulated silt and replacement of impermeable liners in two existing rock header dams (water catchments) on Oaks Mesa
- Installation of a riparian exclosure fencing in one or two areas of 0.25 acres in size in intermittent drainages on Oaks Mesa
- Installation of approximately 2 miles of cross fence in Peralta Canyon
- Reconstruction of three miles of fence on the boundary of the Del Norte and Peralta allotments
- Placement of two water troughs along FR 280 to catch runoff from culverts

Table 7. Alternative 3 – Proposed Action

	Peralta
No. of Pastures	2
New Range Structures	

Peralta Allotment Analysis

Earthen tanks	0
Rock dam maintenance	2
Tank decommissioning	0
Water troughs	2
Corrals – new/recon.	0
Trick tanks	0
Spring developments	0
Cattle guards	0
Fences (miles)	5.25
Grazing System	2 pasture – Deferred – Rotation
Authorized AUM Range	345 to 590
Permitted AUMs	491
Normal Season	6/1 to 10/31

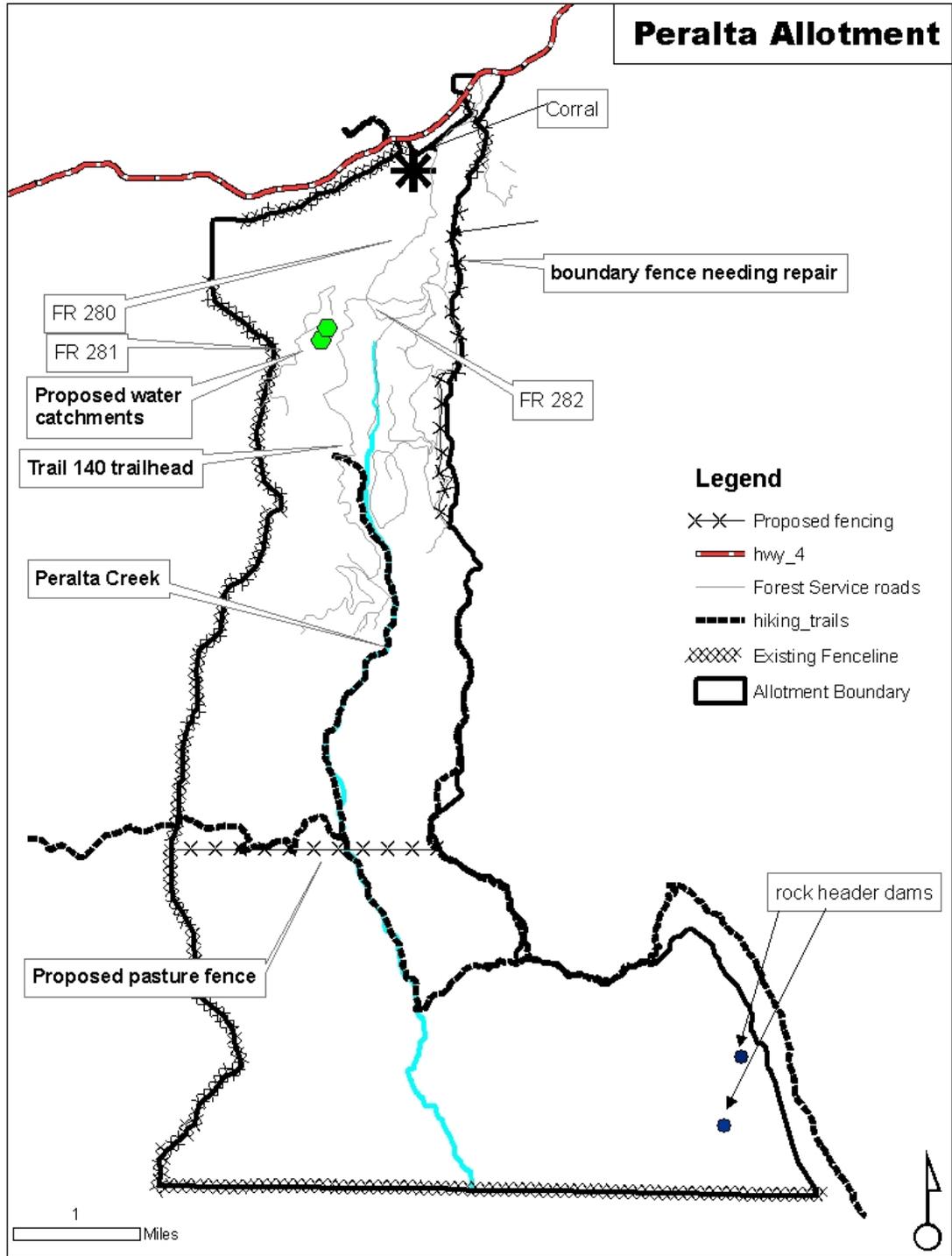


Figure 3. Proposed range improvements under Alternative 3, Proposed Action

2.2.4. Alternative 4 – Reduced Grazing

This alternative is similar to Current Management, except for the following changes:

The average range of AUMs for the Peralta allotment would be reduced by approximately 28 percent from current levels. Figure 3 displays existing and proposed range facilities. Specific to

range facilities, this alternative includes:

- Reconstruction of three miles of fence on the boundary of the Del Norte and Peralta allotments
- Placement of two water troughs along FR 280 to catch runoff from culverts

There is no specific time table for completing the facility work listed in this alternative. Work on individual facilities will only be initiated when such work will help move the range resources toward desired conditions. Monitoring data indicating resource responses to other changes in management (the number of permitted cattle, season of use, and total head months, rotation system, etc.) will be factored into decisions regarding whether or not to proceed with work on individual facilities. Work on individual facilities will then be initiated as funds become available.

Table 8. Alternative 4 – Reduced Grazing

Peralta	
No. of Pastures	1
<u>New Range Structures</u>	
Earthen Tanks	0
Tank Decommissioning	0
Water Troughs	2
Corrals – New/Recon.	0
Trick Tanks	0
Spring Developments	0
Cattle guards	0
Fences (miles)	3
Grazing System	1 pasture – Continuous – Season Long
Authorized AUM Range	0 to 422
Authorized AUMs in Permit	352
Normal Season	6/1 to 10/31

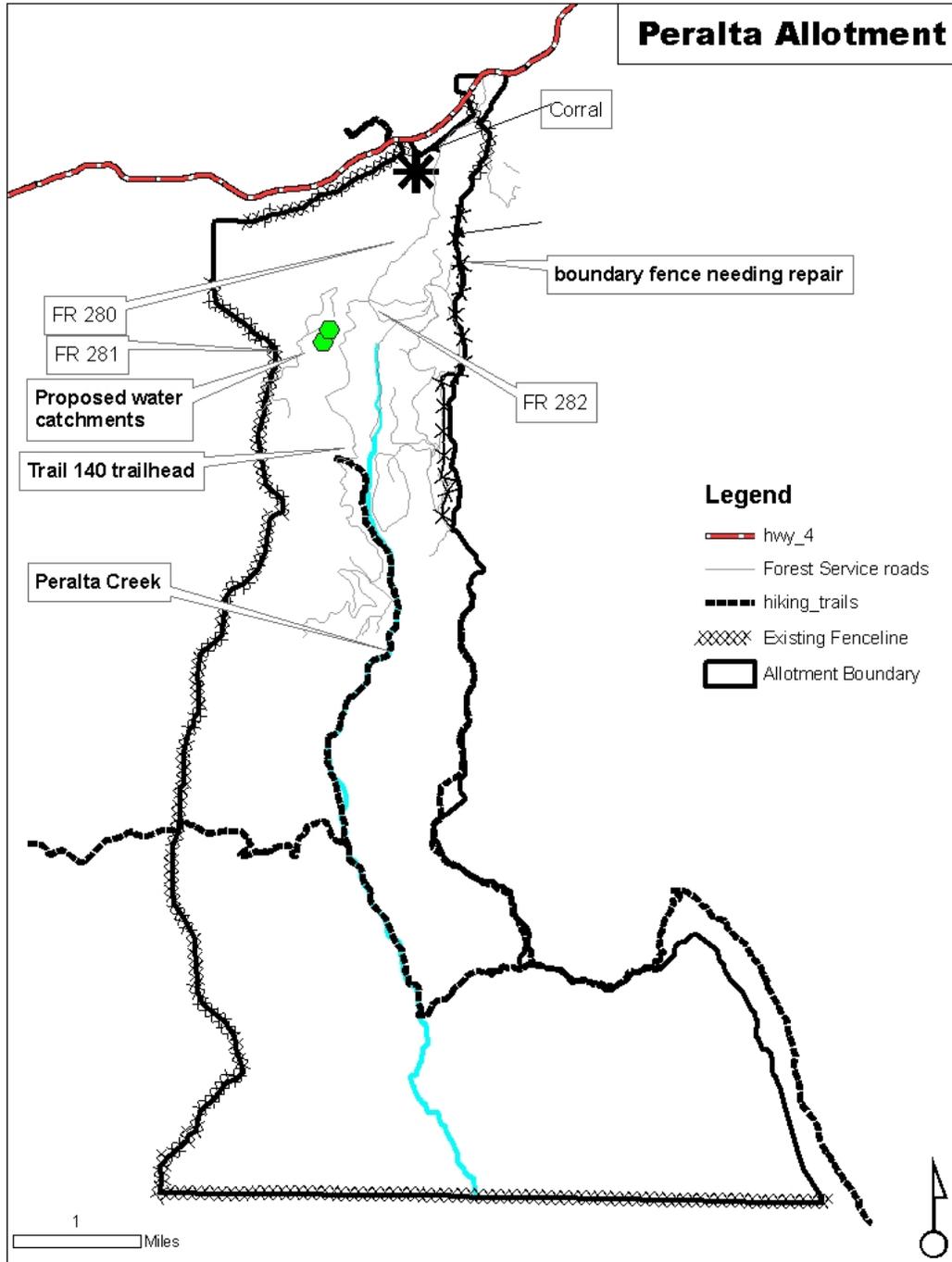


Figure 4. Proposed range improvements under Alternative 4 – Reduced Grazing

2.3 Mitigation and Monitoring Requirements

2.3.1 Mitigation Measures

To mitigate resource impacts, the following measures will be implemented under all alternatives. The mitigation measures included here are limited to those for which the Forest Service has authority. These mitigation measures have been used on previous projects and are considered to be effective in reducing environmental impacts. With full implementation of

applicable Forest Plan standards and guidelines, project design criteria, and the prescribed mitigation measures, no potentially significant adverse environmental effects would be expected to occur.

Soil, Water and Vegetation – the objective is to mitigate soil, water, and vegetation impacts from cattle grazing and range facility construction through incorporating elements of adaptive management.

- Cattle will not be moved onto an allotment or pasture until range readiness and facility inspections indicate that appropriate conditions exist;
- Key herbaceous riparian vegetation, will have an average minimum stubble height of four inches on the stream bank, along the green line, after the growing season and during spring runoff;
- Key riparian browse vegetation will not be used at levels exceeding 50 percent of the current annual twig growth that is within reach of the animals;
- Key herbaceous riparian vegetation on riparian areas, other than the stream banks, will not be grazed more than 40 percent;
- Stream bank instability attributable to grazing livestock will be limited to ten percent or less on a stream segment.
- Upland range resource values will be protected from unacceptable grazing effects as determined through monitoring (see above). Livestock grazing will be managed at a level corresponding to conservative intensity. Minimum acceptable stubble heights have been developed by the Forest Service for certain species (see section 3.5.1 Vegetation – Affected Environment). Residual plant material should not be reduced below those levels. Cattle will be moved when utilization of key forage species in key use areas approaches established standards.
- Salt will be placed so as to minimize impacts to riparian zones, meadow ecosystems, and other forest resources (USDA-FS 1987, pg 68). Salting locations will vary annually and will not be located within ½ mile of water sources when possible.

Wildlife – the objective is to mitigate impacts to wildlife from continued cattle grazing and from disturbance associated with the location and construction of range facilities.

- Construction and maintenance of range facilities will be evaluated and executed to have no adverse effect on threatened and endangered species (USDA-FS 1996, pg 68). If any listed or proposed Threatened, Endangered, or Sensitive species are found during project activities, 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.
- Allotment fence management will meet wildlife standards that allow easy migration and passage. All fences should be built to wildlife specifications (USDA-FS 1996, pg 66 and 67):
 - fencing on National Forest for wildlife specifications should be barbed wire 4 horizontal strands,
 - height – 40-42 inches,
 - spacing between top wire and second wire equals at least 12 inches,
 - bottom wire should be 16 inches from the ground,
 - all new fence sections should be marked with flagging to alert wildlife of new barrier, and
 - fences and loose wires will be removed as they are abandoned.
- Non-game entrance and escape ramps will be provided on water developments intended for livestock and wildlife use (USDA-FS 1996, pg 66). New and reconstructed livestock water developments will include wildlife access, cover, and escape considerations (USDA-FS 1996, pg 67).

- **Mitigations specific to Alternative 3 (Proposed Action):** To prevent disturbance to natural cattail pools on Oaks Mesa, construct barrier fence around these sites.

Mitigations specific to the northern goshawk

- Mitigation for Alternative 3 and 4 (Proposed Action and Reduced Grazing): Proposed construction activities (fences, water trough placement, restoration of rock header dam) planned within suitable habitat should occur October 1 through February 28 to avoid disturbance during breeding season. If goshawk surveys were done in May/June at each project site and were negative for response, then construction **at that site** can proceed with no seasonal restrictions.

Mitigations for the Jemez Mountain Salamander

- Do not disrupt fractured rhyolitic rock outcrops, large woody debris piles, or large decomposing Douglas fir logs during placement of water troughs or fenceline construction.
- Do not construct fences during wet periods from July 1 through September 30, when salamanders would be on the surface.

Mitigations specific to the peregrine falcon

- Mitigation for Alternative 3 (Proposed Action): Construction of the cross-fence across Peralta Canyon should be done in consultation with district wildlife biologist. Depending on final location of the fence, equipment used, and number of people present, seasonal restriction may be necessary to eliminate any noise/activity impacts during the breeding season.

Heritage Resources – the objective is to protect heritage resources (archaeological sites) from direct or indirect impacts caused by ground disturbing activities associated with the construction of range facilities.

- Range structures will be located so as to avoid concentrations of livestock on identified heritage resource sites. No ground disturbing activities will be conducted within known site boundaries.
- No salting will occur within or immediately adjacent to site boundaries.
- If any unrecorded sites are discovered during the course of project implementation, all project activities in the vicinity of the site(s) will cease and the District or Forest Archaeologist will be notified.
- The Forest will conduct a program of monitoring in the area as part of this project to determine the extent of grazing impacts on heritage resources. At a minimum, monitoring will occur halfway through the life of permit reissuance and just prior to reissuance in the future.
- Any additional range improvements not covered by this report will require additional heritage resource survey and/or clearance prior to construction.

Recreation – the objective is to reduce encounters between recreation users and cattle and minimize impacts to scenic quality.

- Within Management Area L emphasize use of native or natural materials such as local rock, logs, and indigenous plant species for structural projects or facilities (USDA-FS 1996, pg 147).

2.3.2 Monitoring

The objective of monitoring is to evaluate the effectiveness of grazing program implementation so as to avoid and minimize resource impacts by adapting management practices.

Implementation monitoring will include periodic inspections to ensure compliance with permit terms and conditions such as salting locations, seasonal restrictions, utilization, and any mitigation measures that are approved in the project decision. Stock checks (counting the number of cattle actually grazing on the allotment) will also be conducted to assure that only permitted livestock enter the allotment, the allotment is occupied only within the permitted time periods, and use occurs only within the approved areas within each allotment.

Effectiveness monitoring will determine if grazing standards and guidelines, grazing prescriptions, and Allotment Management Plan practices are effective in accomplishing the planned objects. Effectiveness monitoring is essential for determining the annual amount of authorized AUMs according to an adaptive management framework where each permit includes a range of authorized AUMs.

Range readiness will be monitored before permitted livestock enter the allotment at the beginning of the season to assess whether the soil is too wet and that sufficient forage growth has occurred.

Utilization monitoring measures forage utilization, riparian vegetation impacts, and condition of stream banks at the end of the season to assess whether standards and guidelines set in the Forest Plan are attained. **Stubble heights** of forage species may be measured during the grazing season for these same purposes. Stubble height measurements usually occur in the middle and end of the grazing season, unless resource conditions require more regular monitoring. These measurements will occur in key areas.

A **key area** is a portion of range which, because of its location, grazing or browsing value, and/or use, serves as an indicative sample of range conditions, trend or degree of seasonal use (Smith et al 2005). It guides the general management of the entire area of which it is part. Key area locations are evaluated annually during development of the Annual Operating Instructions. Changes in management actions (installation or removal of range facilities, season of use, number of animals, etc) can alter grazing patterns within a pasture and the degree to which a previously selected key area is representative of the current years planned use. Likewise, non-grazing management related changes in land use may also affect grazing patterns. All key area locations identified by the Forest Service and the permittees need to be reconsidered using the following guidelines.

- They are between 0.25 and 1.00 mile from livestock water sources, on slopes less than 15 percent, on satisfactory or impaired soils, and are greater than five acres in size.
- The key area must provide an indicative sample of range conditions, trend or degree of seasonal use.
- Potential key areas are not low production sites (< 100 pounds/acre), within 100-yards of roads or fences, nor on land controlled by another entity.

A **critical area** is similar to a key area but include areas that include sensitive habitat, riparian areas, or other areas of critical environmental concern. One area monitored in the Peralta Allotment is considered a critical area because of its proximity to Peralta Creek.

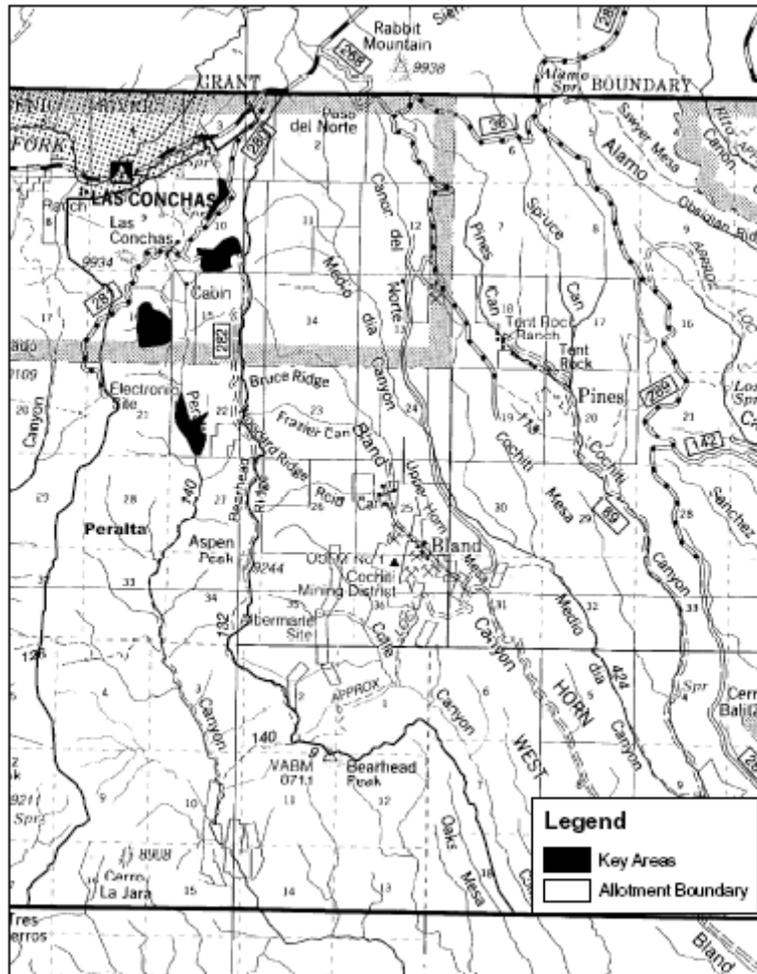


Figure 5. Key areas used for rangeland condition monitoring

Specific management goals (riparian areas, Endangered Species Act consultations, etc.) may require selection of monitoring locations that do not meet the previously listed criteria for a key area. The rationale behind selection of these critical areas should be documented.

Vegetation composition and trend will be monitored as needed using benchmarks. Benchmarks are reference points based on scientific literature or that are sensitive to management changes. For example, a common benchmark used in analysis of grazing impacts is a grazing utilization amount of 30 to 40 percent use, which is considered conservative use of resources based on current scientific literature (Holechek et al., pp. 11-14. 2000). Vegetation composition and trend monitoring last done in 1970s, and a reassessment of vegetation competition and trend in the project area was completed for this project.

Validation monitoring will determine if the stocking rates are appropriate by comparing actual use records and effectiveness monitoring results. This is usually completed on an annual basis with data collected from utilization and stubble height monitoring.

2.4 Comparison of Alternatives

This section compares the effects of implementing each alternative, to provide decision makers and the public a clear basis for choice. Table 8 summarizes the more detailed effects analysis descriptions contained in Section 3.0.

Table 9. Comparison of Alternatives

Objective	Alternative 1 No Grazing	Alternative 2 Current Management	Alternative 3 Proposed Action	Alternative 4 Reduced Grazing
Consistency with Forest Plan <ul style="list-style-type: none"> Forest Service policy to make forage available to qualified livestock operators from lands suitable for grazing consistent with land management plans 	This alternative would not comply with guidance in the Forest Plan, Forest Service policy, and federal regulations. <i>(FSM2203.1; 36 CFR 222.2 (c))</i>	This alternative would make forage available to qualified livestock operators from lands suitable for grazing and consistent with the Forest Plan. However, some areas suitable for grazing, but not currently in compliance with or moving toward grazing standards and guidelines in the Forest Plan would also be authorized for grazing use.	This alternative would make forage available to qualified livestock operators from lands suitable for grazing and consistent with the Forest Plan. Management changes in the form of water developments and maintenance as well as fencing would be authorized to move management toward desired conditions as described by grazing standards and guidelines in the Forest Plan.	This alternative would make forage available to qualified livestock operators from lands suitable for grazing and consistent with the Forest Plan. Management changes would be made for areas suitable for grazing, but not currently in compliance with grazing standards and guidelines in the Forest Plan. These changes are designed to move management toward desired conditions as described by grazing standards and guidelines in the Forest Plan.
Provide for management flexibility to respond to changing resource conditions while maintaining satisfactory range management status and distribution of cattle	N/A	Though adaptive management would allow for changes to grazing season and authorized AUMs (within the permitted range of AUMs) current management would not be likely to maintain or improve range management status or move conditions toward desired conditions.	Incorporating adaptive management, as well as reconstructing 3 miles of pasture fence, and installing range facilities to improve cattle distribution across the allotment would maintain or improve the number of acres in satisfactory range management status.	Incorporating adaptive management, as well as reconstructing 3 miles of pasture fence, and reducing the authorized range of AUMs on the Peralta Allotment would maintain or improve the number of acres in satisfactory range management status; installing 2 troughs will provide for better distribution of cattle and allow for management discretion in periods of drought, fire, or other events. These factors would result in maintaining satisfactory range management status throughout the allotment.

Objective	Alternative 1 No Grazing	Alternative 2 Current Management	Alternative 3 Proposed Action	Alternative 4 Reduced Grazing
Minimize potential impacts to Rio Grande cutthroat trout in Peralta Canyon	Potential impacts from grazing would be removed.	Impacts from grazing would continue to limit potential growth of resident RGCT populations.	Potential impacts from grazing would be minimized; however, impacts from recreational use would be likely to stay the same, increase, or possibly decrease.	Potential impacts from grazing would be decreased but still may exist. Impacts from recreational use would be likely to stay the same, increase, or possibly decrease.

3.0 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 comparison of alternatives presented in the chart above. This section is organized by resource. Within each section, the affected environment is briefly described, followed by the environmental consequences (effects) of implementing each alternative.

3.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIVITIES USED FOR CONSIDERATION OF CUMULATIVE EFFECTS

Discussion of environmental effects in Chapter 3 is placed in the context of past, present, and future environmental change through a cumulative effects analysis. This section discusses past, present, and reasonably foreseeable activities that will be discussed in consideration with the expected effects of alternatives.

The following activities have been identified as potentially contributing to the effects analyzed herein. These activities and occurrences have been part of the incremental change in ecological conditions in the project area, and may continue to influence conditions in the project area over the term of the project. Foreseeable future actions are those for which a proposed action has been approved or those proposed for NEPA analysis in the near future. Other possible future actions are considered too speculative to include in the analysis.

Grazing – The ranching tradition began in northern New Mexico with Spanish colonization in 1598. Grazing in the northern mountains intensified until the late 19th century, which at its greatest intensity resulted in the establishment of arroyos and severe erosion throughout the mountainous landscape. Around the turn of the century, much of the land in the current project area was transferred to federal ownership, and eventually came under the management of the Forest Service.

The Forest Service, including the Santa Fe National Forest, began to address the problems of land condition in the early part of the 20th century through grazing improvement programs and grazing permit reductions. Beginning in the 1920s and continuing throughout the 1960s, there was a continuous decline in the number of grazing permits and the number of animals permitted (Raish and McSweeney, 2003). Between 1971 and 2005 the Peralta Allotment has seen a net decrease of 305 AUMs due to various reasons such as a 1974 grazing utilization analysis that illustrated less forage than cows, decreasing forage production, and encroaching conifer growth.

Invasive Species. The presence of invasive species may affect the ecological condition of natural areas by adding stress on existing ecological relationships between species, modifying environmental conditions beyond the tolerance levels of native species, or directly competing with native species for available resources.

There is currently no official record of invasive species in the Peralta allotment; however, a small number of bull thistle was observed in the lower elevations of the canyon during a site visit in

2005. No treatments have been planned to eradicate the bull thistle in this area. An Environmental Impact Statement to analyze the effects of proposed noxious weed treatments throughout the Santa Fe National Forest is currently in progress with an expected completion date in 2006. A decision based on this analysis could provide the authority required to use one or more noxious weed treatments to control noxious weed populations within the proposed project area.

Fish and Wildlife. Fish and wildlife management activities may affect the status or trend in the populations of one or more species. Recently, New Mexico Game and Fish initiated a reintroduction of Rio Grande cutthroat trout to a seven-mile length of Capulin Creek. The reintroduction includes the headwaters of Capulin Canyon south and west to the Bandelier National Monument. A monitoring program will be implemented to monitor reintroduction success and to determine if other native species should be added as well.

Vegetation Treatment. The Cochiti Wildland Urban Interface (WUI) Fuels Reduction project, located adjacent to the community of Vallecitos, is a 771-acre mechanical thinning project, which the Forest Service began to implement in 2006. This project is designed to protect the community of Vallecitos from the risk of high-intensity crown fire that could come from the south or southwest. The project will include 158 acres of ladder fuel reduction, 356 acres of thinning small-diameter trees, and 257 acres of land treated to act as a fuel break. Thinning in the area has begun and is expected to continue through the next one to three years. Prescribed fire treatment of slash piles is expected to follow thinning and other mechanical treatment in the area up to 2010.

Timber Management. Timber management affects the environment by changing the successional stage of the forest ecosystem to a more open and younger stage. Effects usually include increased forage production, modification of wildlife habitat to favor more disturbance-dependent species, improved vigor and health of non-harvested trees, and fuels reduction. Timber management activities may create an increase in runoff from storm events for one or more years, which can contribute to sedimentation of nearby waterways.

There are no recorded timber sales in the last two decades in the Peralta Allotment. The area adjacent to and surrounding Peralta Canyon, however, has regularly been managed for timber production over the past 30 years. Most of the harvests on record from this area were concentrated in the late 1970s through the mid-1980s. They are located throughout the project area, with actual harvest occurring primarily on the mesa tops. The most recently recorded timber sale from the project area was the Dome timber sale, which included both fuels thinning and timber harvest in approximately 2,000 acres of ponderosa pine forest. This sale ended in 1994. Project information retrieved from available records is listed below:

Table 10. Timber Sales in the Proposed Project Area*

Timber Sale Name	Year	Location	Size*	Harvest Information
Rabbit	1977 – 1980	T18N, R5E Sec. 6,7,18 T18N, R4E Sec. 1	505 acres	Data not available
Borrogo[†]	1977-1978	T16N R3E T16N R4E T17N R3E T17N R4E	Approximately 4,000 acres	Data not available
Cochiti	1979	T18N, R5E Sec. 6,7 T18N, R4E Sec.	800 acres	Data not available

		1,12,13		
Mesa (includes fuelbreak from pines to Cerro Balitas)	1981 – 1984	T18N, R5E Sec. 19,20,29,30,32,33 T18N, R4E Sec. 13, 24 T17N, R5E 4,5 (along Cochiti Mesa)	2,470 acres	4,930 MBF 65% - PP 24% - DF 11% - TF

* Acreages are based on timber sale boundaries, not acreages that received timber harvest. All sizes are approximations

† Pers. Comm., Ron Herrera, October 5, 2005

MBF = Thousand Board Feet (4 MBF approximately equals 1 cord)

PP = Ponderosa Pine

DF = Douglas Fir

TF = True Fir (also called white fir)

BS = Blue Spruce

DBH = Diameter at Breast Height

Wildfire and Prescribed Burns – Fire plays many roles in the ecology of southwest forestlands. It affects the environment by changing the forest structure through killing both large and small trees and incinerating downed woody debris and litter. Fire is also a key part of nutrient cycling in the forest by returning nitrogen to the soil and carbon to the atmosphere. It also affects water flow and can have significant short-term and identifiable long-term consequences on water quality.

The proposed project area includes primarily ponderosa pine and mixed conifer forests, which before the 20th century are thought to have experienced low-intensity fire in return intervals ranging from approximately 2 to 25 years across the Jemez Mountains. These fires often occurred over extensive areas (e.g. watershed-wide) and in some years may have included most of the Jemez Mountains (Allen, 2002).

With the onset of fire suppression activities and intense grazing beginning in the late 19th century, the number and type of wildfires have changed. Prevention of wildfires throughout the early and mid 20th century has driven large-scale vegetation change in the Jemez Mountains, including increased density of woody species and fuel loadings, changes in species composition and structure in mixed conifer forests, and invasion of grasslands and meadows by trees and shrubs (Allen, 2002). Due to these changes, fire behavior is now more commonly expressed through unnatural stand-replacing conflagrations instead of large-scale, long-burning, and low-intensity wildfires.

Between 1909 and 1996, approximately 5,200 historic fires have been mapped in the Jemez Mountains according to available records (Allen 2002). The proposed project area, within the Jemez Mountains, has experienced several fires throughout the past few decades. For purposes of analysis these fire events have been divided into the following categories: prescribed burns, large fires (above 500 acres), medium fires (50 to 500 acres), and small fires (1 to 50 acres). The following table includes data on recent wildfires taken from available Santa Fe National Forest Geographic Information System (GIS) information:

Table 11. Recent Wildfires and Prescribed Burns Recorded within the Project Area

Incident	Date	Area	Size (acres)
Prescribed burns			
Oaks and West Mesa	Planned for	Mesa tops of Oaks	1,800 acres

Wildlife Habitat Enhancement Project	implementation in 2008	and West mesas – Includes the southeast portion of Peralta allotment and the southwest portion of Bland allotment	
San Juan Burn	There have been no recent prescribed burns in the project area. The nearest prescribed fire was the 7,200-acre San Juan burn. It was located approximately five miles west of the project area on San Juan Mesa.		
Paliza Prescribed Fire Treatment	An approximately 9,000-acre prescribed burn has been approved through the NEPA process in the Paliza Canyon area west of the proposed project area. Implementation on the Paliza Prescribed Fire is expected to begin in the winter of 2007-2008.		
Large Wildfires			
La Mesa	1977	Dome wilderness and mostly on Bandelier National Monument	17,000 acres
Dome	1996	Dome wilderness	10,000 acres
Medium Wildfires			
Unknown name	1970	Bland allotment	<100 acres
Unknown name	1972	Peralta allotment	<100 acres
Unknown name	1974	Del Norte allotment	<100 acres
Unknown name	1987	Bland allotment	<100 acres
Unknown name	1996	Bland allotment	<100 acres
Nicole	1996	Touches the western boundary of the Peralta allotment	500 acres
Unknown name	2000	Bland allotment	<100 acres
Cochiti Fire	2003	Bland Canyon	150 acres
Small Wildfires			
Various	Annually	Project-area	There are approximately 6 to 10 small fires a year that are between 1/10 to 50 acres in size. Most are lightning caused, but some are human caused.
Various	2006	Project-area	In 2006, two small wildfires (less than 3 acres each) were reported in or around the Peralta Allotment. One fire was on the south side of Ruiz Peak and the other was located on Peralta Ridge. Both fires occurred in late June from lightning strikes and were contained within 24 hours through Forest Service fire suppression efforts.

Recreation. Recreational activities in the project area include hiking, camping, rock climbing, hunting, bird watching, cross-country skiing, and vehicle use on unsurfaced and user-created roads. Impacts from these activities are short-term and primarily consist of minor ground disturbance in popular camping areas and from OHV use. Long-term impacts resulting from these uses include areas where vegetation is continuously trampled, resulting in trails that can impact nearby waterways.

The project area encompasses a portion of the Jemez Ranger District which receives light recreational use compared to other portions of the district. It receives such little use primarily because there is only vehicular access from the north via FR 280, and the allotment is mostly made up of Peralta Canyon and Oaks Mesa, which includes very rough terrain and few trails. Additionally, FR280 and secondary roads such as FR 281, FR 282, and others are impassible by low-clearance vehicles and impassible during bad weather. There are no developed campgrounds or day use areas in the area; only occasional dispersed camping, which occurs in the upper portion of Peralta Canyon during hunting season. There are a few Forest Service hiking trails (described below) and cross-country ski trails. There is also what appears to be a small network of user-created off-road motorcycle trails; however, these are not sanctioned or maintained by the Forest Service. There have been no recent Special Use activities approved in the project area.

Recreational activities in the project area can be categorized into two distinct activities: OHV use and hiking/skiing and hunting. Table 12 below discusses past, present, and reasonably foreseeable recreation activities that have been identified in the proposed project area.

Table 12. Recreational Activities in the Project Area

Action(s)	Date of Action	Area	Comments
Motorcycle Use	1989 - present	Upper portion of Peralta Canyon	Motorcycle tracks were observed during the 2005 field season in the upper portion of Peralta Canyon. These trails tend to be one track, show moderate use with a few areas of deeper ruts in wet areas. These one-track motorcycle trails are primarily used in the late spring, summer, and fall and are often the same trails used by cattle for travel throughout the upper portion of the Allotment.
Hiking	Ongoing	Throughout project area	There is one designated hiking trail in Peralta Canyon, FT 140, which runs directly down the canyon and crosses the stream several times. This trails receives occasional use of the canyon by hikers, but most likely is visited by less than 50 persons per year. Another hiking trail FT 132 branches off of this trail and heads east over a talus rock slope until it reaches the allotment boundary. Hiking trails in this area receive very light recreational use compared to other areas on the district due to the difficult access

Action(s)	Date of Action	Area	Comments
			to the area and rough terrain.
Cross-country skiing	Ongoing	Northern portion of the allotment in the Jemez National Recreation Area	There are several cross-country ski trails that occur in the northern portion of the Peralta Allotment. Most of these trails branch off of FR 280 and head toward the north. Cross-country skiing activity on the allotment only occurs during years there is sufficient snow and is thought to occur in moderate amounts compared to other portions of the district. Since cross-country skiing occurs only when there is sufficient snow cover it is unlikely this activity results in cumulative impacts to soil resources, water resources, or other resources in the allotment.
Hiking	Foreseeable future	Northwest portion of Bandelier National Monument	It is expected that the Bandelier National Monument will open up new hiking trails in the northwest portion of the Monument. This area includes the upper portions of the watersheds which encompass the proposed project area.
Hunting	Ongoing	Oaks Mesa and Peralta Canyon	Peralta Canyon includes the boundary between Game Management Units 6A and 6C. These areas in the canyon are far from roads, but do receive some use by big game hunters during hunting season in the fall.

There have been no recent substantial past actions such as trail construction or campground development within the project area. There are no ground-disturbing, recreation-based projects planned for this area in the foreseeable future. A discussion of existing recreation use of the proposed project area is included in the Affected Environment discussion in section 3.8 Recreation and Scenery of this Environmental Assessment.

Minerals Management. Portions of the proposed project area included intensive hard rock and ore mining in the late 19th century. Most mining in the project area was historically conducted in the Cochiti Mining District, which is located in private and Forest Service lands centered in the northern portion of the Bland allotment. There is; however, at least one historical mine in Peralta Canyon as well. Between 1889 and 1902, gold and silver mining was common in this area. Much of the ore was milled using early cyanide processes. Most of the mills, and their associated waste rock, are located on patented claims, not Forest System lands.

The historical literature notes extensive mineral activity has taken place between the Peralta Canyon and Medio Dia Canyon drainages. In addition to several patented mine parcels, turn-of-the-century maps note more than 100 mining claims, "mines" and prospects within this area. It is thought the majority of these historical mine sites are minor in extent and contain minimal waste dumps and associated shafts, adits and other mine features.

The Forest is currently undergoing an assessment process to determine which mines need to be closed and under which authorities they can be closed and reclaimed. A mine shaft in Bland Canyon was sealed in the fall of 2004 to prevent physical hazard and trash dumping. A separate survey is currently being completed to confirm land ownership boundaries in areas such as the Cochiti Mining District, which has intermingled public and private lands.

Development of Inholdings. There are two private land inholdings in the Peralta Allotment. The owners of these inholdings currently have no plans to develop additional structures.

Roads. Roads in the forest can enhance recreational access and access for grazing permittees and private property landowners. Creation of new roads, however, can add to fragmentation of the landscape, and can result in runoff and eventual sedimentation of nearby waterways.

According to table 13 there is currently 29.2 miles of existing road in the proposed project area, resulting in approximately 1.5 miles of road per every square mile of area in the forest. Existing road length and road density information is included in the table below.

Table 13. Roads within the Project Area

Allotment	Area (sq. miles)	Miles of Road (miles)	Road Density (miles/sq. mi)
Peralta	20.0	29.2	1.5

No new roads have been built in the past decade in the proposed project area.

FR 268D will be gated and closed for administrative use pending the completion of Oaks and West Mesa Wildlife Habitat Enhancement project. This road currently receives little use for access purposes, and may be occasionally used for OHV riding.

There are no new roads or major road maintenance projects planned for in the foreseeable future (pers. comm., Leyba 2005).

3.2 SOIL

3.2.1 Affected Environment

The allotment is located along the southern edge of the Valles Caldera. The predominant geologic landform in the area is Bandelier Tuff which consists of poorly welded tuff and pumice beds formed by aerial deposition during the volcanic activity of the Valles Caldera about 1.2 million years ago. Over many thousands of years this landscape has been dissected by water flowing south and east into the Rio Grande floodplain, resulting in a series of flat mesa tops separated by steep canyon walls. Some of the soils have a high erosion risk due to the nature of the parent material, the slope position and the depth and structure of the organic layer. Landforms within the area are not typical of those where mass movement is a dominant geomorphic process. Data from the Terrestrial Ecosystem Survey (TES) of the Santa Fe National Forest (USDA-FS, 1993) was used to determine soil condition. Soil condition is normally evaluated by examining properties that reflect past and present soil function. The physical condition of surface soil, a zone of maximum biological activity, has an essential role in nutrient recycling, vegetative productivity and diversity, water storage and movement, and geomorphic stability.

A *satisfactory* soil condition rating indicates past and current management have allowed soil to function properly and retain its inherent productivity. An *impaired* soil condition rating indicates past and/or current conditions or management activities have reduced the soil’s ability to function properly, biologically. Impaired soils have an annual soil loss in excess of tolerance (equivalent to the depth of soil generated on an annual basis) but less than potential (the loss predicted to occur following a catastrophic wildfire). Causes of accelerated erosion can include disturbance of vegetative cover or surface soil by humans (such as with road use and maintenance), disturbance by livestock or wildlife, low to moderate severity wildfires. An impaired rating can also be based on geologic conditions, such as steep slopes that naturally result in poor soil formation and conditions conducive to erosion.

An *unsatisfactory* soil condition rating can indicate that management activities have resulted in a loss of soil function. Generally these areas have degraded so far that they are not likely to recover in a timely manner, even if rested from use, without substantial restoration measures. An unsatisfactory rating can also be based on geologic conditions, such as steep slopes that naturally result in poor soil formation and conditions conducive to erosion. Soil condition ratings for the allotment are presented in Table 14.

Table 14. Soil Condition Ratings (all numbers in acres)

	Peralta
Satisfactory	7,309
Impaired	5,517
Unsatisfactory	0

About 57 percent of the soils are designated in satisfactory condition; 43 percent are considered impaired, and none are considered unsatisfactory. There are 13 TES map units within the project area. Based on these TES map units, soil loss rates in the project area indicate fairly stable soils, with acceptable movement rates that are well below tolerance levels for these soil types. However, map units 623 and 649 are listed as impaired, indicating soil loss is exceeding tolerance levels. A review of the location of units 623 and 649 indicate this rating can be primarily attributed to geologic conditions, the main factor being steep slopes that naturally result in poor soil formation and conditions conducive to erosion. These TES units are generally not accessible to livestock for grazing, although some trailing does occur in these areas. As with all areas, road development (past and present) have also contributed to soil impairment within the analysis area. Many roads have been closed to the general public, but with the increase in all terrain vehicle use, previously closed roads have been re-opened and new, user created roads have been established. OHV users have also utilized livestock trails for recreation purposes. There are isolated areas where this use is negatively impacting soil resources. An analysis of road density, use patterns, need, etc. is planned to be completed in the near future that will address issues related to the road system.

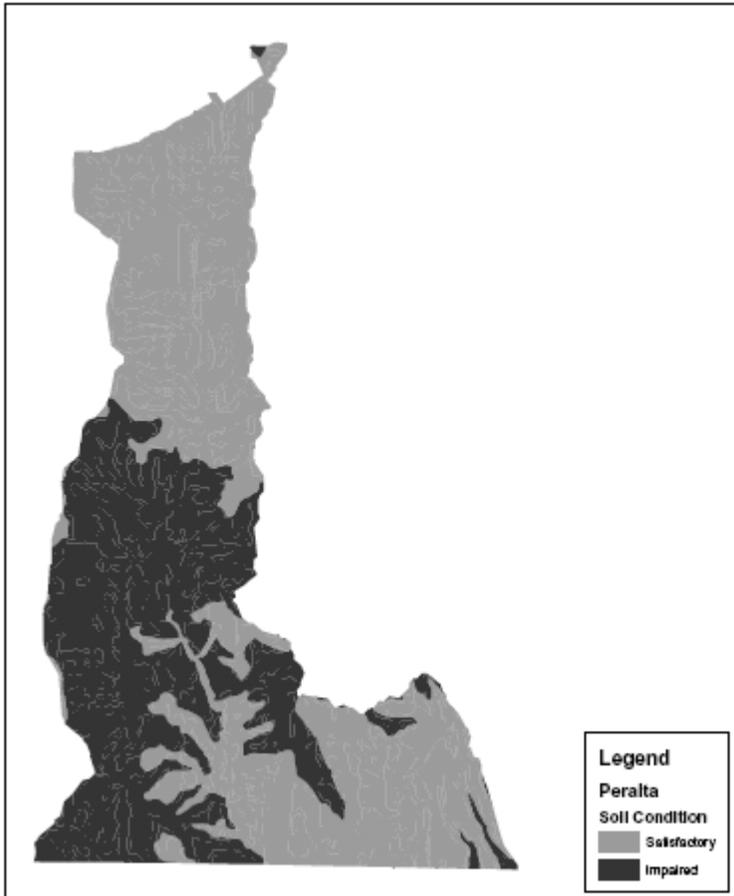


Figure 6. Soil condition ratings in the project area

3.2.2 Environmental Consequences

No Grazing (Alternative 1) – This alternative would have the least effect on soil within the allotment because as the grazing permit expires no cattle would be permitted in the area. Overall, however, there would be little change in soil condition because water developments would likely be retained and used by wildlife so there would continue to be limited localized disturbance to soil in the vicinity of the water sources. Additionally, the corrals would likely be retained for limited hunting use and as such, there would continue to be similar localized soil disturbance in these areas as well.

Current Management (Alternative 2) – Under this alternative, impacts to soils would continue to remain the same. Monitoring indicates that many of the key areas are consistently not meeting standards. Within the upper portion of Peralta Canyon cattle tend to congregate due to the presence of perennial water in Peralta creek. Here there is evidence of stream bank instability which is leading to soil loss that can be attributed to livestock grazing. Soil condition will continue to degrade at a steady or higher rate under current management on the Peralta allotment.

Existing Improvements. Soil compaction resulting from cattle grazing can occur in localized areas surrounding spring developments, within corrals, and where cattle tend to trail. Under this alternative, these localized effects would continue to occur at existing developments in addition to the grazing areas adjacent to Peralta Creek.

Compaction also occurs in the vicinity of and within the corrals (encompassing about ¼ acre around a corral). One corral is located on Peralta. Compaction in this area is limited because cattle are only in the vicinity of the corrals for a couple of days in June and a couple of days in October as well as incidental use in cases where a sick or injured cow may be treated. Generally, between the use in June and October, vegetation (consisting of perennial forbs and grasses) grows back in the area surrounding the corral. On occasion, hunters will use the corral during hunting season.

Thus, considering the existing corral and water sources, soil compaction caused by cattle grazing would affect less than 0.1% of the soils in these allotments. Jones (2000) states in her quantitative review of effects of cattle grazing on North American arid ecosystems that in all cases livestock seemed to have detrimental impacts to soil conditions, but goes on to say that the analysis did not take into account details of individual studies, such as stocking rates, intensity, etc. and that this was problematic because some range management text books give sound evidence of systems that are applicable in areas similar to the analysis area. As discussed, detrimental effects have been identified that can be attributed to livestock grazing, under this alternative those conditions could be exacerbated, but none of these effects are associated with existing improvements.

Proposed Action (Alternative 3) – Under this alternative, recommendations from Holechek et al. would apply. Holechek et al. state grazing standards should be set at the conservative use level, 30-40% use of the current year's growth (Holechek et al., pp. 11-14, 2000.). Holechek et al. also state "a stocking rate at 90% of the carrying capacity, with some adjustment in drought periods, will provide relatively high sustained ranch income and maintain or improve range condition (Holechek et al. p. 203, 1989.).

One of the components of range condition is soil condition, so adherence to his recommendations should maintain or improve soil conditions. Based on the estimated forage production, we are within the recommendations of Holechek et al. with the addition of the proposed improvements. Slight improvement in soil conditions would be expected on the allotment in those key areas that are not consistently meeting established guidelines under current management.

The two water developments and use of Oaks Mesa will allow for livestock to be less dependent on Peralta creek further reducing the impacts to soil resources in that area. Installation of the proposed improvements will provide for better distribution of livestock which is expected to lead to all key areas meeting established guidelines. The improved distribution gained by the installation of these improvements will exceed the impacts to soil condition created by their development. Impacts to soil conditions surrounding the proposed improvements would be similar to those described under Alternative 2, Existing Improvements.

Addition of a cross-fence in upper Peralta Canyon to create a pasture system would have both positive and negative impacts on soil resources. The placement of a fence to divide the canyon into an upper and lower pasture would result in additional soil erosion along the fence as cattle are observed to regularly trail along fencelines. A five-year study on cattle grazing in California woodlands found the following (George et. al. 2004):

Regular trampling by livestock keeps these trails devoid of vegetation throughout the year and reduces the infiltration rate, resulting in increased surface runoff along trails, especially along the downhill approach to stream crossings. During the dry season cattle trampling loosens surface soil, providing a ready source of sediment during the rainy season. The trails become a conduit for surface runoff and a source of sediment.

Thus, the addition of a cross-fence would create at least one additional cattle trail, which would add to existing sediment loads in Peralta Creek. However, efforts to place the proposed fence-line along the terrain as much as possible and away from steep slopes would reduce the channelization of water in cattle trails and minimize sedimentation to Peralta Creek to the extent possible.

The proposed cross-fence is also expected to have positive impacts by enabling a pasture system that can be used to better distribute cattle throughout the allotment for more effective use of available forage. Thus, cattle can be excluded from the upper portion of Peralta Canyon once grazing has met desired conditions (utilization of 30-40 percent of current year's growth), preventing run-off and sedimentation in Peralta Creek which is currently occurring as a result of grazing above these levels.

Thus overall, the addition of a cross-fence is likely to add a source of sedimentation through the likely addition of at least one cattle trail, but would reduce overall sedimentation to Peralta Creek by allowing for more ground cover which can trap sediment and hold soil in place during and after the grazing season.

Reduced Grazing (Alternative 4) – A reduction in AUMs is being proposed in conjunction with 2 additional water developments. Management flexibility is limited on the Peralta allotment so a reduction in AUMs is the only way to achieve the results desired to maintain or improve soil conditions within the identified key areas without additional improvements. As described in Alternative 3 the same recommendations from Holechek et al. would apply to this alternative as well. Under this alternative, the Peralta allotment would realize improvement in soil condition and would meet the recommendations of Holechek et al. The two water developments will allow for livestock to be less dependent on Peralta creek reducing the impacts to soil resources in that area.

Cumulative Effects (all alternatives) – Under Alternative 1, No Grazing, soil condition in upper Peralta Canyon would likely remain vulnerable to OHV use despite the removal of cattle. Livestock trails in upper Peralta Canyon would still be used by trail motorcycles, causing erosion in localized areas, mostly near steep slopes. Until the November 2005 Travel Management Rule is implemented in 2008, the current situation can be expected to continue. The road system would continue to add to soil impairment and soil loss in Peralta Canyon until a road management plan is developed which could lead to the closure of some roads for improvement in soil condition.

Cumulative Effects common to Alternatives 2, 3, and 4 - Recreation use, hiking, trail motorcycles etc. are cumulatively impacting soils resources in localized areas. Many of the trails were created by livestock and were then utilized by recreationists that have led to this situation, but as discussed in the affected environment section there are only a few areas of concern, mostly associated with the use of the same trails by livestock and trail motorcycles. Until an analysis of OHV use and our transportation system is completed this issue will continue to impact soil resources. Livestock do utilize old logging roads, closed roads, existing roads, etc., and add to the impacts to soil resources. Analysis of the transportation system is scheduled to be completed through the implementation of the November 2005 Travel Management Rule. A decision based on this analysis is expected to be implemented in 2008 to address this issue and alleviate impacts to soil resources by effectively reducing use on unauthorized roads.

Mining impacts are not currently impacting soils resources, so there are no cumulative impacts in regards to livestock grazing.

Under alternative 2, livestock grazing on the Peralta allotment would add to ongoing impacts to soil destabilization within Peralta Canyon and in those areas identified as not meeting established

standards and guidelines. Livestock would continue to over utilize critical areas and in conjunction with other uses such as motorcycle use could lead to a decline in soil condition.

Under alternative 3 and 4 the Peralta Allotment and those key areas identified as not consistently meeting established guidelines on the other allotments, would not significantly add to the cumulative effects of other activities. This would be due to the proposed changes and improvements that would mitigate impacts to soil resources resulting from cattle grazing.

3.3 WATERSHED AND RIPARIAN AREAS

3.3.1 Affected Environment

The Peralta Allotment lies within two 4th code watersheds: Jemez (HUC 13020202) and Rio Grande – Santa Fe (HUC 13020201). These then separate out into four different 5th code watersheds: Borrego Canyon – Rio Grande (HUC 1302020107), Rio Grande – Cochiti Reservoir (HUC 1302020102), Middle Jemez River (HUC 1302020203), and Upper Jemez River (HUC 1302020202).

Table 15. Project area and the corresponding 4th and 5th code watersheds

Allotment	4 th Code Watershed	5 th Code Watershed	Acreage within 5 th Code Watershed
Peralta	Rio Grande – Santa Fe (11,600 acres) Jemez (1,226 acres)	Rio Grande – Cochiti Reservoir	114
		Middle Jemez River	139
		Borrego Canyon – Rio Grande	11,347
		Upper Jemez River	1,226

Numerous ephemeral and intermittent drainages run throughout the allotment. Many of these are important collection sources for groundwater sources and the perennial stream present in Peralta Canyon.

Table 16. Perennial Stream Miles in the Peralta Allotment

Allotment	Perennial stream miles*
Peralta	6.5

*According to the SFNF GIS database.

Riparian Vegetation.

Riparian vegetation stabilizes stream banks and reduces erosion. Stream bank vegetation can improve water quality by filtering sediment and capturing excess nutrients in runoff from upland regions. Stream bank vegetation provides shelter for birds and small animals. Overhanging vegetation cools streams for fish and provides debris and organic matter for aquatic insects to feed off of. The maintenance of streambank structure and function is a key item in riparian-stream habitats from both fisheries and hydrologic standpoints (Bohn 1986, Platts 1983). Vegetation plays a principal role not only in the erosional stability of streambanks, but also in the rebuilding of degraded streambanks. These sediments form the physical basis for new bank structure (Elmore and Beschta 1987).

According to the Santa Fe National Forest’s GIS database and field visits, the Peralta Allotment supports riparian vegetation. Riparian areas are identified by using the Santa Fe National Forest’s Terrestrial Ecosystem Survey to locate complexes of community types and/or subseries communities that meet the definition of riparian area, specifically an area with a perennial or intermittent stream, hydrophytic plants, and hydric soil.

Table 17. Acreage of Riparian Vegetation

Allotment	Acres of riparian vegetation*
Peralta	130

*According to the SFNF GIS database.

In the Peralta Allotment there is mapped riparian vegetation at the very north end in the intermittent drainages and then in the north-central portion of Peralta Canyon there is another large grouping of riparian vegetation. From field reconnaissance, it was found that there is more unmapped riparian vegetation throughout Peralta Canyon, such as the one acre of riparian vegetation identified in intermittent drainages on Oaks Mesa.

Water Quality.

Very little water quality data exists for the natural water sources in this allotment. The perennial stream in Peralta Canyon is not listed as impaired on the 2004 State of New Mexico Integrated Clean Water Act §303(d)/§305(b) Report. At this time, there are no plans by the New Mexico Environment Department to survey Peralta Canyon for water quality analysis.

One surface water quality concern common to grazed waterways is that nutrients found in animal wastes stimulate algal and aquatic plant growth when they are deposited directly or washed into streams. If resulting plant growth is moderate, it may provide a food base for the aquatic community. If excessive, these nutrients stimulate algal blooms. Subsequent decomposition of the algae leads to low dissolved oxygen concentrations and changes in pH levels (US-EPA 1995), which endangers aquatic organisms. Normal levels of stream pH also vary depending on the mineral inputs into the system. Water with an acidic pH can be detrimental to many aquatic organisms, especially affecting invertebrates and embryonic development in fish. Most aquatic organisms require a pH range between 5.6 and 8.5. A range of 6.6 to 8.8 is allowed for pH in the New Mexico Water Quality Standards for the project area.

The state standards for plant nutrients fall under their “General Standards” category. They read as such, “Plant nutrients from other than natural causes shall not be present in concentrations which will produce undesirable aquatic life or result in a dominance of nuisance species in surface waters of the state.” The state is currently working on developing reference reaches in order to develop quantitative plant nutrient standards (Schiffmiller 2005).

The state standards for temperature in the project area is 20°C (68°F) or below. Water temperature is closely tied in to many biological and chemical processes in an aquatic system. It affects dissolved oxygen levels (oxygen levels become lower as temperature increases), rates of plant photosynthesis, the metabolic rates of aquatic organisms, and reproduction and migration of species. Poorly managed cattle grazing can affect stream temperature by removing riparian vegetation and by trampling undercut banks, both of which provide shade and cover.

Dissolved oxygen is another water quality parameter that is extremely important in aquatic systems. Dissolved oxygen levels fluctuate seasonally and over a 24-hour period. Oxygen levels

are usually lowest just before sunrise and highest sometime in midday. The levels vary with water temperature. Cold water holds more oxygen than warm water. Aquatic organisms are most vulnerable to lowered dissolved oxygen levels in the early morning on hot summer days when stream flows are low, water temperatures are high, and aquatic plants have not been producing oxygen since sunset. Low levels of dissolved oxygen are especially damaging to aquatic organisms during the summer months when metabolic rates are high. The state standard for dissolved oxygen is $\geq 10\text{mg/mL}$.

The New Mexico Environment Department, Department of Energy Oversight Bureau, in conjunction with Los Alamos National Laboratory's Earth and Environmental Sciences Division has data collected on May 26, 2004 from springs in Alamo and Spruce Canyons in the Alamo Allotment, which is east of the Peralta allotment (Yanicak 2005). These data were collected as part of a project to determine background-level perchlorate in local groundwaters, which is of little help when understanding the effects of cattle grazing on local water sources.

However, a few of the variables tested in this data set can be indirectly applied to the current management cattle grazing in the project area. The pH value measured for the spring in Alamo Canyon was 7.44. The spring in Spruce Canyon had a pH value of 6.95. Both values are well within the range allowed in New Mexico's water quality standards. Nitrate concentrations were found to be 0.20 and 0.00 mg/L in the springs of Alamo Canyon and Spruce Canyon, respectively. Phosphate concentrations were 0.08 and <0.01 milligrams/liter (mg/L) in the springs of Alamo Canyon and Spruce Canyon, respectively. All of these nutrient values are extremely low and would likely meet the state's qualitative standards for plant nutrients. While this data is not from the Peralta Allotment, it is reasonable to assume the pH and nutrient data can be used as a reference for the conditions in Peralta Canyon.

Temperature data was collected by the Santa Fe National Forest's Fisheries Program in 2005. A thermograph was placed at the downstream end of the riparian pasture that receives the heaviest grazing in the north end of the canyon. The thermograph was analyzed using the state's standards for High Quality Coldwater Fisheries. By these standards, Peralta Canyon does not fully support a high quality coldwater fishery (Ferrell 2006). "Upper Peralta Canyon suffered from 29 days of extreme temperature variation between day and night ($\geq 20^\circ\text{F}$) during the study period (May 24th to October 14th) and 72 days of high diurnal swing (12 to 20°F). Most often the temperatures elevated over a period of eight hours matching the time of greatest exposure to sun. This indicates that Upper Peralta is unable to thermally regulate due to the loss of solar cover (i.e. overhanging grasses, woody riparian vegetation, undercut banks) (Ferrell 2006)." In summary, Peralta Creek is considered impaired due to increased in-stream temperatures.

As indicated before, stream temperature is very important in maintaining dissolved oxygen levels in streams. It is safe to assume that those days that Upper Peralta experienced high to extreme diurnal swing in temperature it also experienced severe drops in the dissolved oxygen levels.

3.3.2 Environmental Consequences

Environmental consequences of each action (no grazing, current management, and the proposed action) will be discussed to disclose expected impacts to streambanks, streamside vegetation, and the expected runoff and sedimentation that may result.

No Grazing (Alternative 1) – This alternative would result in the most beneficial effects to riparian areas and stream morphology because there would be no cattle grazing in Peralta Canyon at any time. As such, grazing would not contribute to cumulative effects in riparian areas and an upward trend in riparian area and streambank recovery would be expected.

Cumulative Effects. OHV use is seen throughout the project area. Motorized vehicles are having an impact on the stream and riparian areas in Peralta Canyon. The hiking trail fords the stream numerous times and it is currently being used by motorized vehicles part-way down the canyon. Restricting access to motorized vehicles should be looked at in the future.

There have been multiple small to medium fires and timber sales in the project area over the past few decades. Some of these have likely contributed sediment to the stream affecting water quality. However, the vast majority of these was over a decade ago and has likely stopped contributing sediment to the stream above natural conditions.

Current Management (Alternative 2) –The riparian area at the upper end of Peralta Canyon is showing pressure from cattle grazing, mainly visible in the trampling of undercut banks and the need for woody riparian species and overhanging grasses. With the Current Management alternative, there would be a continued impact to the riparian resources in this allotment due to the high numbers of cattle allowed. This would result in a continued downward trend. Woody species, overhanging grasses, and streambanks would continue to be impacted in the meadow areas along Peralta Creek. Kauffman and Krueger have found that overgrazing is almost invariably detrimental to willow communities (1984).

Cumulative Effects. OHV use is seen throughout the project area. Motorized vehicles are having an impact on the stream and riparian areas in Peralta Canyon. The hiking trail fords the stream numerous times and it is currently being used by motorized vehicles part-way down the canyon. Both grazing, OHV use, and trail use along Peralta Creek contribute cumulatively to impacts to riparian resources in the area. Often, these impacts may act in synergy such as when cow trails are used by OHVs and hikers becoming ruts and channeling water and sedimentation directly into Peralta Creek. Current Management would result in the greatest cumulative impact amongst alternatives.

There have been multiple small to medium fires and timber sales in the project area over the past few decades. Some of these have likely contributed sediment to the stream affecting water quality. However, the vast majority of these were over a decade ago and have likely stopped contributing sediment to the stream above natural conditions.

Proposed Action (Alternative 3) – The riparian area at the upper end of Peralta Canyon is showing pressure from cattle grazing, mainly visible in the trampling of undercut banks and the need for woody riparian species and overhanging grasses. The implementation of a cross fence and water developments on Oaks Mesa will make a pasture system possible. The creation of a pasture system should help alleviate some of the grazing stress the stream receives from grazing for part of the season. However, it is unlikely that the riparian area or streambanks will be able to recover while still experiencing intense grazing pressure.

Cattle would need to be excluded from the floodplain in order to see any measurable recovery in the riparian area and streambanks. This proposal is not expected to completely exclude cattle from the floodplain of Peralta Creek but is expected to alleviate current watering pressure through the placement of two water troughs alongside FR 280. Providing water sources away from the stream reduces animal time in the stream and lessens impact on water quality (Miner, et al. 1992). These new water sources will help to improve water quality by decreasing the nutrient and bacterial input into the stream that might be occurring from the current management.

Cumulative Effects. OHV use is seen throughout the project area. Motorized vehicles are having an impact on the stream and riparian areas in Peralta Canyon. The hiking trail fords the stream

numerous times and it is currently being used by motorized vehicles part-way down the canyon. Cumulative effects to riparian resources caused by stream-crossing hiking trails, OHV use, and cattle grazing would be expected to continue, but would occur at less intensity than is currently occurring due to the implementation of a pasture system.

There have been multiple small to medium fires and timber sales in the project area over the past few decades. Some of these have likely contributed sediment to the stream affecting water quality. However, the vast majority of these were over a decade ago and have likely stopped contributing sediment to the stream above natural conditions.

Reduced Grazing (Alternative 4) – The riparian area at the upper end of Peralta Canyon is showing pressure from cattle grazing, mainly visible in the trampling of undercut banks and the need for woody riparian species and overhanging grasses. The reduction of AUMs should help alleviate some of the pressure this stream sees, but it is unlikely that the riparian area or streambanks will be able to fully recover while still experiencing season-long grazing pressure.

Cattle would need to be excluded from the floodplain in order to see any measurable recovery in the riparian area and streambanks. This proposal is not expected to completely exclude cattle from the floodplain of Peralta Creek but is expected to alleviate current watering pressure through the placement of two water troughs alongside FR 280. Providing water sources away from the stream reduces animal time in the stream and lessens impact on water quality (Miner, et al. 1992). These new water sources will only help to improve water quality by decreasing the nutrient and bacterial input into the stream that might be occurring from the current management.

Cumulative Effects. OHV use is seen throughout the project area. Motorized vehicles are having an impact on the stream and riparian areas in Peralta Canyon. The hiking trail fords the stream numerous times and it is currently being used by motorized vehicles part-way down the canyon. Restricting access to motorized vehicles should be looked at in the future.

There have been multiple small to medium fires and timber sales in the project area over the past few decades. Some of these have likely contributed sediment to the stream affecting water quality. However, the vast majority of these was over a decade ago and has likely stopped contributing sediment to the stream above natural conditions.

3.4 AIR

3.4.1 Affected Environment

Ambient air quality is regulated according to the Clean Air Act, Section 163; which requires Prevention of Significant Deterioration (PSD) according to the class of the air quality management area. The Peralta Allotment is within a Class II air quality management area that is in attainment of all air quality requirements.

3.4.2 Environmental Consequences

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

3.5 VEGETATION

3.5.1 Affected Environment

Within the Peralta allotment, elevation ranges from 6,800 – 9,900 feet. Habitat and vegetation is largely defined by elevation. Higher elevations exhibit a spruce dominant, mixed conifer forest that trends toward a ponderosa pine dominant forest as elevation decreases. Aspen stands are found along north facing slopes and in cool drainages. Kentucky bluegrass meadows, along with scattered patches of Arizona fescue, Mountain muhly and various other herbaceous species are the major sources of forage for livestock in the higher elevations. Table 18 displays the general vegetation types that occur on the Peralta Allotment.

Table 18. Vegetation Type (percent of allotment)

	Peralta
Riparian	1
Piñon / juniper	0
Grassland	0
Juniper Woodland	0
Ponderosa Pine	27
Mixed Conifer	72

The current production of forage vegetation ranges between 50- 1200 lbs. per acre (Padilla, 2005). Much of the range capability in the allotment is located in upper Peralta Canyon in Kentucky bluegrass meadows, yet there are several scattered small areas with capability of native grasses near the canyon bottom in lower Peralta Canyon. Under current management use has exceeded the conservative use level in most years necessitating the need for adjustments.

Common to all alternatives – key species utilization standards are defined as 30-40 percent utilization. Jones (2000) states in her quantitative review of effects of cattle grazing on North American arid ecosystems that livestock had varied impacts to vegetation resources, but that the analysis did not take into account details of individual studies, such as stocking rates, intensity, etc. which was problematic because some range management text books give sound evidence of systems that are applicable in areas similar to the analysis area. Holechek et al. (1998) is given as an example and is used to establish guidelines for grazing within this analysis area.

Holechek states grazing standards should be set at the conservative use level, 30-40% use of the current year’s growth (Holechek et al., pp. 11-14. 2000.). In another publication, Holechek et al. state “a stocking rate at 90% of the carrying capacity, with some adjustment in drought periods, will provide relatively high sustained ranch income and maintain or improve range condition (Holechek et al. p. 203, 1989).” Based on the estimated carrying capacity of the allotment, the allotment is not within the recommendations of Holechek et al. under current management. An assessment carried out by New Mexico State University, Range Improvement Task Force in October of 2005 further validated this capacity evaluation. Dr. Chris Allison states “Overall, the allotment is being grazed at an acceptable level with forage supply and demand apparently in balance”. This observation was based on a reduced stocking rate for the 2005 grazing season (included 68 cattle grazing from June 15 to October 15, which equals the same number of AUMs as in the Reduced Grazing Alternative) which is in line with the estimated carrying capacity.

Key areas are identified in the allotment management plan and annual operating instructions. Key species for the Peralta allotment are Mountain muhly (*Muhlenbergia montanus*), Bluegrass species (*Poa spp.*), and Arizona fescue (*Festuca arizonica*). Stubble height guidelines developed by the Forest Service for lands in New Mexico are the measures that will be used to determine compliance with the standards. Table 19 outlines the guidelines that will be used for these allotments.

Table 19. Grazing Intensity Guide for Rangelands in New Mexico (Holocheck & Galt, June 2000)

Qualitative Grazing Intensity Category	Use of Forage by Weight	Stubble Height Indicators of Grazing Intensity				
		Arizona Fescue	Mountain Muhly	Bluegrass	Blue Gramma	Western Wheatgrass
	---(%)--	-----Inches-----				
Conservative	31-40	6-7	4-5	4-5	2-2.5	4-5

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.

Table 20 displays acres of full, potential, and no capability on each allotment. Of the full capability areas, 1045 acres (37%) are considered in satisfactory range management status and 1790 (63%) acres are in unsatisfactory range management status.

Elements of alternatives 3 and 4 such as development of water troughs, cleaning of rock header dams on Oaks Mesa, and cross-fencing across Peralta Canyon were developed to address the unsatisfactory range. Implementing an adaptive management framework under Alternatives 2, 3, and 4 would allow for changes in season of use, and duration of use in a given area.

Table 20. Range Capability (Acres)

	Satisfactory	Unsatisfactory	Total (acres)
Peralta			
Full Capability	307	1,790	2,097
Potential Capability	738	0	738
No Capability	N/A	N/A	9,569
		TOTAL	12,404

Invasive Species. The Santa Fe and Carson National Forests jointly conducted a NEPA analysis and a revised Draft Environmental Impact Statement is expected to be released by January 2007. A decision on this subject is expected by mid to late 2007. Once finalized, a variety of treatment options will be available. These include but are not limited to chemical control, mechanical control, and biological control. Domestic livestock grazing on the forests (Carson and Santa Fe) has not been found to be a major contributor to the spread of weeds within affected range allotments. The overall trends indicate that the human activity along roads, trails, and recreation areas, along with disturbance at oil and gas well pads and the movement of seed or other vegetative propagules by water along riparian corridors, are the main transportation vectors at this time. However, this human activity can include the hauling of livestock on trailers which could contribute to the spread of invasive weeds if the vehicle comes from an infested area or drives through an infested area. Livestock permittees are not allowed to feed hay to their livestock on National Forest System lands, which could be a potential source of new infestations if it was allowed (USDA FS, 2004).

The following invasive plants occur within the allotment.

Bull Thistle – A small population (1-2 acres) was found along Forest Trail 140 at the southern end of the Peralta allotment. This population has not been treated to date.

Kentucky Bluegrass – much of the annual grass growth in the upper portion of the allotment used by cattle is Kentucky bluegrass. This species is a disturbance-adapted species that can replace native grasses with regular disturbance such as that resulting from grazing cattle. This population of Kentucky bluegrass is expected to be stable (not spreading) and currently functions as a substitute for native grasses in maintaining ground cover to reduce sedimentation in Peralta Creek (Tollefson 2006).

3.5.2 Environmental Consequences

No Grazing (Alternative 1) – As the permit expires, cattle would be removed from the allotments. Eventually, understory vegetation would no longer be grazed by cattle, but would continue to be grazed at a lower level by deer and elk. In those areas where plant diversity still exists, little improvement over the current condition would be expected. This is anticipated because studies have indicated that there is little difference in areas of light use (0 to 30 percent utilization, which would result with only wildlife use) and conservative use (30 to 40 percent) (Dietz, 1989 and Holechek et al, 2000).

In the Kentucky bluegrass dominated meadows, which make-up a large portion of Peralta Canyon classified as unsatisfactory for range management status purposes, status is not expected to change from *unsatisfactory*. The lack of diversity within these Kentucky bluegrass dominated meadows is the cause of the unsatisfactory rating. Cessation of livestock grazing would likely

improve the growth, vigor, and overall health of the Kentucky bluegrass, but would not result in increased biodiversity. Only through mechanical treatment (or some other type of intensive management intervention) would these areas be expected to respond with increased biodiversity thus improving range condition (Tollefson 2006).

Since much of the spread of invasive species within the allotments occurs adjacent to roads and dispersed 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.

Current Management (Alternative 2) – Under this alternative the Peralta Allotment would continue to be over-utilized. One possible negative impact is the expansion of Kentucky bluegrass meadows as the less grazing resistant vegetation is replaced with the disturbance adapted Kentucky bluegrass. This would lead to less diversity, negatively impacting range condition. In addition, in those area already dominated by Kentucky bluegrass vigor would be lost leading to less production, poor plant health, and eventually plant mortality. In the publication by Dietz 1989 he references a study in which root growth was monitored relative to defoliation. Zero to 40 percent utilization had no affect on root growth, while utilization exceeding 40 percent negatively impacted to root growth, with the impact increasing as use increased. Table 21 is reproduced from this publication:

Table 21. How Grazing Affects Root Growth (Deitz 1989)

Percent leaf volume removed	Percent root growth stoppage
10%	0%
20%	0%
30%	0%
40%	0%
50%	2-4%
60%	50%
70%	78%
80%	100%
90%	100%

Root growth is important because it is necessary for plants to remain healthy and vigorous. Past monitoring indicates 60 to 80 percent use on a consistent basis on the Peralta allotment on three out of four key (or critical) areas of the allotment.

Since livestock grazing has not been identified as a major vector for the spread of invasive species, no effects resulting in the spread of invasive species are anticipated as a result of this alternative. There are no impacts to overstory vegetation resulting from this alternative.

Proposed Action (Alternative 3) – Under this alternative permitted AUMs would slightly increase over Current Management, but would be expected to enhance rangeland condition due to improvements that would increase distribution of cattle across the allotment and minimize grazing impacts in sensitive areas (upper Peralta Canyon). Specifically, the cleaning of rock header dams on Oaks Mesa and the placement of two water troughs adjacent to FR 280 would increase distribution of cattle. The placement of a fence across the southern end of the Peralta allotment would allow the allotment to be split into two pastures allowing the lower portion to be used more effectively.

Greater distribution of cattle is expected to lead to meeting of established standard and guidelines and proper use of the allotment. The result would be maintenance or improvement of current range conditions (where possible) through improvement of vegetation health and productivity.

The impacts to vegetation through the installation of the proposed improvements would be minimal as less than 250 square feet of combined ground disturbance is associated with the proposed improvements.

Since livestock grazing has not been identified as a major vector for the spread of invasive species, no effects are anticipated as a result of this alternative. There are no impacts to overstory vegetation resulting from this alternative.

Cumulative Effects - because there would be no change to overstory vegetation under any of the alternatives, there would be no cumulative effects to overstory vegetation. No significant changes to general understory vegetation are expected. However, there may be minimal improvement to understory vegetation resulting from better distribution of cattle (through construction of water developments and cross fencing). Travel Management Planning implementation expected to begin in 2008 could lead to improvement in understory vegetation as road designations would limit resource impacts of OHV use by considering impacts on vegetation and related resources. There are no other known vegetative treatments planned for the project area, therefore no other vegetative impacts are expected.

Reduced Grazing (Alternative 4) – Under this alternative the permitted AUMs would be within the estimated carrying capacity without the reconstruction of the improvements on Oaks Mesa and the construction of cross-fencing in the southern end of the allotment. The placement of two water troughs adjacent to FR 280 would still occur to decrease the amount of time within upper Peralta Canyon by providing additional watering area in the uplands.

Greater distribution of cattle is expected to lead to meeting of established standard and guidelines and proper use of the allotment. The result would be maintenance or improvement of current range conditions (where possible) through improvement of vegetation health and productivity. The impacts to vegetation through the installation of the proposed improvements would be minimal as little ground disturbance is associated with the proposed improvements. Since livestock grazing has not been identified as a major vector for the spread of invasive species, no effects are anticipated as a result of this alternative. There are no impacts to overstory vegetation resulting from this alternative.

Cumulative Effects - because there would be no change to overstory vegetation under any of the alternatives, there would be no cumulative effects to overstory vegetation. No significant changes to general understory vegetation are expected. However, there may be minimal improvement to understory vegetation resulting from better distribution of cattle (through construction of water developments and cross fencing). Travel Management Planning implementation expected to begin in 2008 could lead to improvement in understory vegetation as user created roads and trails are closed and rehabilitated. There are no other known vegetative treatments planned for the project area, therefore no other vegetative impacts are expected.

3.6 WILDLIFE

3.6.1 Affected Environment

Table 22. Approximate Number of Acres Grazed

Allotment	Total acres	Acres fully or potentially capable	Percentage of allotment grazed	Acres with no capability	Percentage of allotment ungrazed
Peralta	12,404	2,835	22%	9,569	78%

I. PROPOSED, ENDANGERED, THREATENED AND SENSITIVE (PETS) SPECIES

The Santa Fe National Forest Threatened and Endangered species list (USFS 2004), R-3 Sensitive Species List (USFS 1999), and district maps and files were reviewed. The likelihood of occurrence for PETS species or their potential habitat within the allotment or in an adjacent area which could potentially be affected by grazing in this analysis area is noted below.

Table 23. PETS species potential occurrence in the Peralta Allotment

Species	Status *	Potential for occurrence in the Peralta Allotment
Rio Grande silvery minnow <i>Hypognathus amarus</i>	E	No occurrence; however, Peralta Canyon eventually drains into the Rio Grande which contains occupied habitat, and Critical Habitat for the silvery minnow
Bald eagle <i>Haliaeetus leucocephalus</i>	T	Possible transient roosting during migration
Mexican spotted owl <i>Strix occidentalis lucida</i>	T	One PAC overlaps the allotment boundary; potential breeding, roosting, and foraging habitat within allotment
New Mexican jumping mouse <i>Zapus hudsonicus luteus</i>	S	Minimal potential habitat present in stream corridor of Peralta Canyon.
Northern goshawk <i>Accipiter gentilis</i>	S	Potential nesting/roosting/foraging habitat present in allotment; a PFA overlaps a section of the allotment
Peregrine falcon <i>Falco peregrinus anatum</i>	S	Designated suitable breeding habitat present
Boreal owl <i>Aegolius funereus</i>	S	Potential habitat occurs at elevations above 9,500 feet in spruce/fir habitat
Jemez Mt. Salamander <i>Plethodon</i>	S	Suitable habitat present

<i>neomexicanus</i>		
Northern leopard frog <i>Rana pipiens</i>	S	Potential habitat in springs, wet areas, and lower elevation sidepools of intermittent and perennial streams.
Rio Grande chub <i>Gila pandora</i>	S	Habitat present; no confirmed occurrence.
Rio Grande Cutthroat Trout <i>Onchorhynchus clarki virginalis</i>	S	Confirmed occurrence in Peralta Canyon.
Chiricahua dock <i>Rumex orthoneurus</i>	S	Potential habitat in riparian corridors; however, no records of occurrence in the Jemez Mountains (Center for Plant Conservation, 2004).

* E = Endangered (federal) T = Threatened (federal) P = Proposed for federal listing
C = Candidate for federal listing S = Forest Service, Region 3, sensitive species

The Peralta Allotment is outside of the range or contains no potential habitat for the following PETS species: Holy Ghost ipomopsis, swift fox, Goat Peak pika, western yellow-billed cuckoo, white-tailed ptarmigan, Pecos bluntnose shiner, blue-black silverspot butterfly, hairless fleabane, and Arizona willow.

Rio Grande silvery minnow

Habitat for the silvery minnow includes stream margins, side channels and pools where water velocity is low or reduced from main-channel velocity. This species now occurs in NM in a 163 mile reach of the Rio Grande from around Cochiti Dam downstream to Elephant Butte Reservoir. Given that the range has been so severely restricted, the species is very vulnerable to a single natural-occurring event. The distance from lands managed by the national forests from that occupied by the silvery minnow is disjunct, and separated by many miles of dry or intermittent streams.

Rio Grande silvery minnow Critical Habitat: Critical habitat was designated for the silvery minnow in June 2002. The Critical Habitat designation extends from Cochiti Dam, Sandoval County, downstream to the utility line crossing the Rio Grande, a permanent identified landmark in Socorro County, a total of approx. 157 river miles (USFS 2004).

Affected habitat: The silvery minnow does not occur within streams within this allotment. Peralta Canyon drains into occupied habitat and Critical Habitat in the Rio Grande below Cochiti Dam about 11.8 miles from Allotment boundary, with sections of intermittent flow within this distance.

Bald eagle

The occurrence of breeding bald eagles in New Mexico is very limited. As of 2001, there were four bald eagle nests in NM, all on private land. Within Region 3, bald eagles nest on the Tonto, Coconino, Prescott and Apache-Sitgreaves National Forests in Arizona, and they winter throughout all 11 national forests in the region. Small numbers of eagles can be found wintering on all national forests in NM. The location and abundance of wintering eagles is dependent on food and availability of appropriate roosting and foraging habitat and can change year to year. In winter, the greatest number can be found along rivers and lakes; however, they can frequently be found in uplands where they use a variety of prey species, including prairie dogs (USDA FS 2004c, pp. 152-156).

Affected habitat: There are no large water bodies to provide breeding/foraging habitat within or near the Peralta Allotment. Past records note that bald eagle occurrence is uncommon on the Jemez Ranger District. The Jemez Mountains do not contain known breeding habitat. Observations occur during the winter at various sites on the district. Recent observations include winter sightings along Forest Road 376, Fenton Lake, the Valles Caldera National Preserve and Jemez River valley. Wintering bald eagles near the Jemez Mountains are known to use Cochiti Lake (>5 miles away) and the upper Chama River (>30 miles away). Migrating/ wintering eagles could pass through and roost, but it would be on a transient basis. The allotment does not occur in any area that drains into identified bald eagle nesting habitat. Streams are intermittent between the Peralta Allotment and junction with the Rio Grande.

Mexican Spotted Owl

The Mexican spotted owl (MSO) can be found in the forested mountains and canyons of central Colorado and southern Utah south through Arizona and New Mexico into Central Mexico. The owl’s distribution in this range is not contiguous, but occurs in patches of suitable habitat. The MSO Recovery Plan divides the MSO range into six Recovery Units (RU). The Santa Fe National Forest occurs in the Southern Rocky Mountains – New Mexico RU, which has a fairly small portion of the known owl sites throughout its range (USDA FS 2004c). MSO use a variety of habitats but are typically associated with multi-canopied stands of mature mixed-conifer and ponderosa pine-Gambel oak forests. In the Jemez Mountains, most nests are on cliff ledges or cavities in narrow steep-walled canyons.

Affected habitat: Approximately 51 acres within the Peralta Allotment is located within a Protected Activity Center (PAC). There are about 9,200 acres of mixed conifer habitat within this allotment that could provide other nesting/roosting/foraging habitat for MSO. None of the proposed range improvements (water troughs, fencing, etc.) are located within a PAC. No surveys have been done specifically for this allotment. A monitoring survey (two nights) of lower Peralta Canyon was conducted during the field season of 2006 for general wildlife MSO habitat monitoring. This survey showed no evidence of MSOs.

Critical Habitat for the Mexican spotted owl

Table 24. Acres of MSO Critical Habitat grazed in the Peralta Allotment

Allotment	Total Acres	Approx. Acres in Critical Habitat	Approx. # of acres in CH in capable/potential grazing	% of CH grazed
Peralta	12826	2015	282	14%

A section of the allotment is within Critical Habitat for the Mexican spotted owl. Greater than 85% of the Critical Habitat within this allotment is not grazed.

New Mexican meadow jumping mouse

This subspecies of the meadow jumping mouse is found in mesic habitats in lowland valleys and the riparian zone along mountain streams. Preferred habitat characteristics include dense riparian vegetation and permanently running water. Preferred habitat in the Jemez Mountains contains permanent streams, moderate to high soil moisture, and dense, diverse streamside vegetation of grasses, sedges, and forbs (Morrison 1985, 1988 in BISON). Some recent studies have noted

possible declines in populations where jumping mice have historically been found due to declines in habitat (Frey 2006).

Affected habitat: Grassy riparian meadows within the riparian corridor of Peralta Canyon could provide some suitable habitat for this jumping mouse; however, because of the limited amount of riparian acres (approximately 125 acres), population numbers would not be expected to be high or widespread. On field observation within the allotment, the majority of the riparian corridor in lower Peralta Canyon is within the conifer understory and not suitable habitat. Willow, other shrubs, forbs and grasses are growing on the streambanks under the conifer overstory. The grassy areas were not the thick, two to three foot high grasses indicative of jumping mouse habitat (compared with observations of other known habitat on the district). The majority of the riparian corridor in the lower canyon was about 50 feet at the widest section. Two small areas in the upper Peralta Allotment have potential to contain longer grasses, but these sites were small (< 1/8 acre), and one was in a marshy area and not close to perennial water flow. Sites on private land in the upper allotment could provide potential habitat.

Northern Goshawk

The northern goshawk reaches the southern limits of its nearctic breeding range in the highlands of Arizona, New Mexico and possibly western Texas southward to at least Jalisco, Mexico. The small New Mexico population occurs locally in mature coniferous forests of mountains and high mesas. The goshawk is a predator of small birds and mammals. Snags, downed logs, woody debris, openings, large trees, herbaceous and shrubby understories and interspersed vegetation structure are important features contributing to the presence of prey populations (NMDGF BISON)

Affected habitat: District records show one known PFA overlapping the boundary of the Peralta Allotment. Approximately 314 acres of the PFA are within the allotment. No surveys have been done specifically for this grazing allotment analysis. Breeding, roosting and foraging habitat is available within the allotment within the mixed conifer and Ponderosa pine forests.

Peregrine Falcon

The peregrine falcon was listed as an endangered species in 1970 after numbers of falcons had been reduced to a few hundred pairs at most in western U.S. and Mexico. Following a ban on the use of DDT and other chlorinated hydrocarbons, and successful captive breeding and release of over 6,000 falcons, there were over 2,000 pairs breeding each year across the U.S. The peregrine falcon was removed from the Federal Endangered species list in August 1999. In NM, breeding habitat is provided locally by cliffs in forested habitats in mountain and river canyons statewide. They prefer elevations from 6500-8599 feet but may be found from 3500-9000'. Data from NMDGF show that although productivity in the state had recovered from historic lows by the 1980s, it began trending lower after 1984. The goal for recovery is sustained occupancy of 85% of known territories. In NM, pairs occupied 81 percent of known falcon territories in 2004. Occupancy increased, however, productivity was slightly below recent averages and below historic levels (Johnson and Williams, 2004).

Affected habitat: There are two designated suitable nesting areas within the boundaries of the Peralta Allotment. Falcons could forage throughout the allotment.

Boreal owl

The boreal owl occurs mainly above 9,500 feet in spruce-fir forests. Surveys through 1996 showed this species to be resident in very small numbers in spruce-fir and similar habitats in the

Jemez Mountains; as of 1996, no boreal owls have been observed south of the Valles Caldera; this information is confirmed by review of the Natural Heritage database (BISON 2006).

Affected habitat: The northwestern section of the Peralta Allotment contains habitat above 9,500 feet. These owls may forage in openings or clearings early in the spring due to earlier snow melt, but would move back into spruce-fir forest for summer, fall and winter foraging (Palmer 1986).

Jemez Mountains salamander

The Jemez Mountains salamander (JMS) is found primarily in habitats between 7,200 – 9,600 feet in relatively high humidity microhabitats and soils that contain deep igneous, subsurface rock that is fractured to allow retreat underground to below the frost line. Much of the life cycle occurs underground with surface activity inside rotted coniferous logs or under rocks during a brief period of the summer when conditions are warm and wet. Habitat is typically Douglas fir, blue spruce, Engelmann spruce, ponderosa pine, or white fir.

Affected habitat: The northern section of the Peralta Allotment is within the Essential or Regular Survey Zone as designated by the Cooperative Management Plan for the Jemez Mountains Salamander (2000). The majority of the suitable habitat is in denser mixed conifer, where forage is sparse, and on steeper slopes where livestock would not tend to graze.

Northern leopard frog

The northern leopard frog is typically associated with streams and rivers, although lakes, marshes and irrigation ditches are also occupied. In New Mexico, they occur at elevations of about 3,500 to 11,000 feet. Their habitats include cattail marshes, beaver ponds and other water sources with aquatic vegetation. Breeding can occur at any time of year following heavy rainfall; eggs are deposited on emergent vegetation. Threats to local populations include alterations in wet areas, stocking of predatory fish; local extinctions as water dries up during years of low precipitation, and predation and competition by bullfrogs. Discussion with Charlie Painter of the NM Endemic Salamander Team noted that because of chytrid fungus infection, the leopard frog population in New Mexico has been declining (personal communication, 2005).

Affected habitat: Potential habitat is present in the riparian corridor of Peralta Canyon. Some small cattail pools on Oaks Mesa could also provide habitat.

Rio Grande chub

The historic distribution of Rio Grande chub was mainly in the cool water reaches of the Rio Grande and Pecos River (and tributaries) in northern New Mexico. They occupy impoundments and pools of small to moderate streams, and are frequently associated with aquatic vegetation. There are known populations in the Jemez River and all of its fish-bearing tributaries (Ferrell, personal communication, 2004). Rio Grande chub are being considered as part of a native fish re-introduction into nearby Capulin Canyon. Threats to this species include bank degradation, water diversion and decreases in water quality.

Affected habitat: surveys and analysis done by the forest fisheries biologist note that no Rio Grande chub occur within the project area in Peralta Canyon nor within downstream influence range of this stream (Ferrell 2005).

Rio Grande cutthroat trout

The Peralta Allotment has one primary fish-bearing stream located inside its boundaries – Peralta Canyon. Peralta is occupied solely by Rio Grande cutthroat trout for approximately 4.4 miles of stream.

Rio Grande cutthroat trout occupy two streams (Peralta Canyon, Medio Dia Canyon) within and adjacent to the Project Area and have been recently re-introduced into Capulin Canyon, located two canyons to the east. Two other canyons (Cochiti, Sanchez) have potential for re-introduction and/or population expansion into historically occupied habitat. Most canyons are intermittent or have short sections of perennial waters associated with seeps and springs, limiting the mileage of viable fish-bearing waters to 11.1 stream miles combined in Peralta, Medio Dia, Cochiti, Pines, Spruce, Sanchez, and Capulin canyons.

The importance and condition of the Peralta Canyon Rio Grande cutthroat trout population has been well-documented over the last four decades. Eleven streams on the Santa Fe National Forest were identified based on genetic testing in 1973 as having pure RGCT (McInnis and Stork 1974). The Peralta Canyon population was specifically cited by leading fisheries geneticist Dr. Behnke (Colorado State University) as “pure strain” that “appear as their ancestors appeared 100 or 1,000 years ago” (Behnke 1987). Of these 11, four streams, including Peralta, were considered to have “prime trout habitat in their entirety” and Peralta specifically should be considered “a reservoir population” to recover the species (Propst and McInnis 1975). This led to Peralta Canyon being a key component in the 1978 Rio Grande Cutthroat Trout Management Plan that was authored by the Santa Fe National Forest. The importance of the population led NMGF to close Peralta to fishing between 1982 and 1985 after which time their operational plan expired, and regulated fishing was again permitted.

More recently, the Peralta RGCT population is currently being managed as a Reserve Conservation Population by New Mexico Game and Fish, which is deemed the “a high priority for long range conservation management” (NMGF 2002).

The Peralta Canyon population is the only secure population in the proposed project area and represents 12 percent of the secure stream miles for Rio Grande cutthroat trout in the Jemez Mountains.

Grazing impacts. Cattle grazing primarily takes place upstream from the RGCT occupied corridor in the Peralta allotment. Cattle trail through Peralta Canyon in early June, following FS Trail 140, which crosses the stream approximately one dozen times. RGCT are spawning during this time and likely have individual cases where their redds (location where eggs are laid and fertilized) are trampled by cattle, potentially limiting annual spawning success.

All other creeks within the allotment are ephemeral or intermittent and are non-fish bearing.

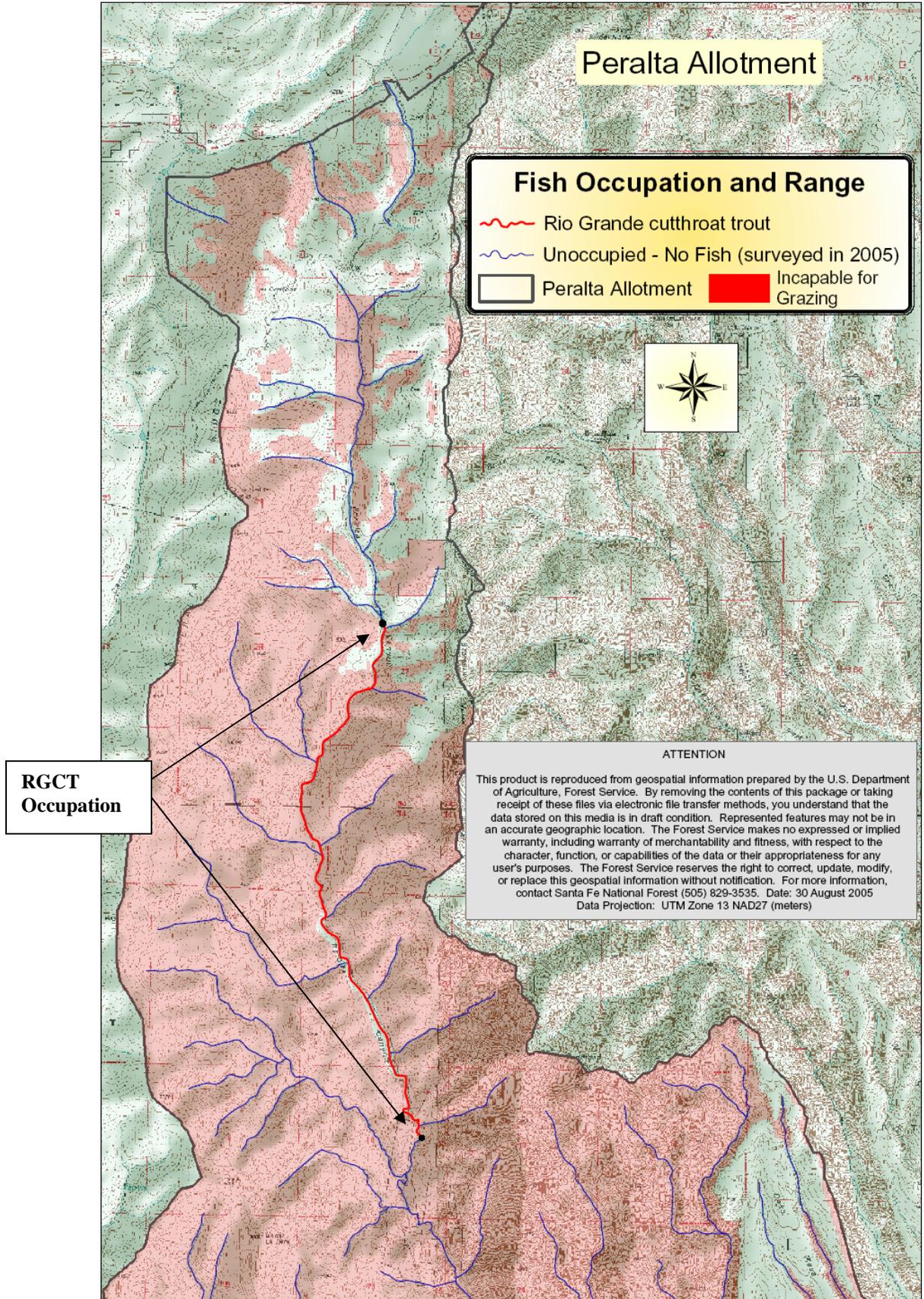


Figure 7. Rio Grande cutthroat trout occupation in the Peralta Allotment

Noted in field visits conducted in 2001, 2002, and 2005, the grazing that takes place immediately upstream appears to be concentrated in the Peralta valley bottom and has caused unstable stream banks, stream widening, a loss of woody riparian vegetation, and decreased root mass from forbs. These conditions were noted similarly in a 1975 survey where “effects of cattle grazing” has led to “poor condition of the creek banks” with “little or no riparian vegetation” (Propst and McInnis 1975).

Effects from cattle grazing has led to an elevated non-point delivery of fines, increasing turbidity, increasing stream temperature and possibly delivery of nutrients to downstream reaches. Thermographs had been placed in Peralta Canyon in two locations in 2005 to monitor the effects of grazing on stream temperature.

The “Upper” thermograph was located at the downstream end of the riparian pasture that receives the heaviest grazing. This thermograph is immediately upstream from the upper limits of Rio Grande cutthroat trout; thus, these readings indicate conditions being delivered to the fish population. The “Lower” thermograph was located downstream from the lower limits of Rio Grande cutthroat trout approximately five stream miles from the lowest extent of grazing. Readings from this thermograph would indicate if the system is able to recover over that stretch. Unfortunately, the Lower thermograph was lost during a flood event that took place during a monsoon.

The Upper thermograph was analyzed using standards established by the New Mexico Environment Department for High Quality Coldwater Fisheries as protected by the Clean Water Act. By NMED standards, Peralta Canyon does not fully support a high quality coldwater fishery. Since these standards were established for non-native fish (i.e. German brown trout), the Santa Fe National Forest has adopted standards more specific to native salmonids. This analysis determined that the Upper Peralta Canyon is not properly functioning for 20 percent of the analyzed time (June 1st to September 30th), and is at risk 32 percent of the time.

Table 25. Santa Fe National Forest and NMED Water Quality Temperature Standards

Water Temperature Standards	Properly Functioning	At Risk	Not Properly Functioning
SFNF 7-day Average Maximum	≤ 64°F	64 to 70°F	> 70°F
	Fully Support		Not Fully Support
NMED High Quality Coldwater Fishery	<73.4°F at one time; or ≤ 68°F for 4 consecutive hours over 4 consecutive days		≥ 73.4°F at one time; or > 68°F for 4 consecutive hours over 4 consecutive days

Further analysis was conducted on diurnal temperature swing (daily maximum minus daily minimum). While research has not been conducted specific to Rio Grande cutthroat trout on how diurnal temperatures affect their health, research on similar species indicate that the daily temperature fluctuations affect growth and fish health (Dickerson and Vineyard 1999, Meeuwig et. al 2004). Upper Peralta Canyon suffered from 29 days of extreme diurnal swing (≥20°F) during the study period (May 24th to October 14th) and 72 days of high diurnal swing (12<20°F). Most often the temperatures elevated over a period of eight hours matching the time of greatest exposure to sun. This indicates that Upper Peralta is unable to thermally regulate due to the loss

of solar cover (i.e. overhanging grasses, woody riparian vegetation, undercut banks). This is almost entirely due to grazing.

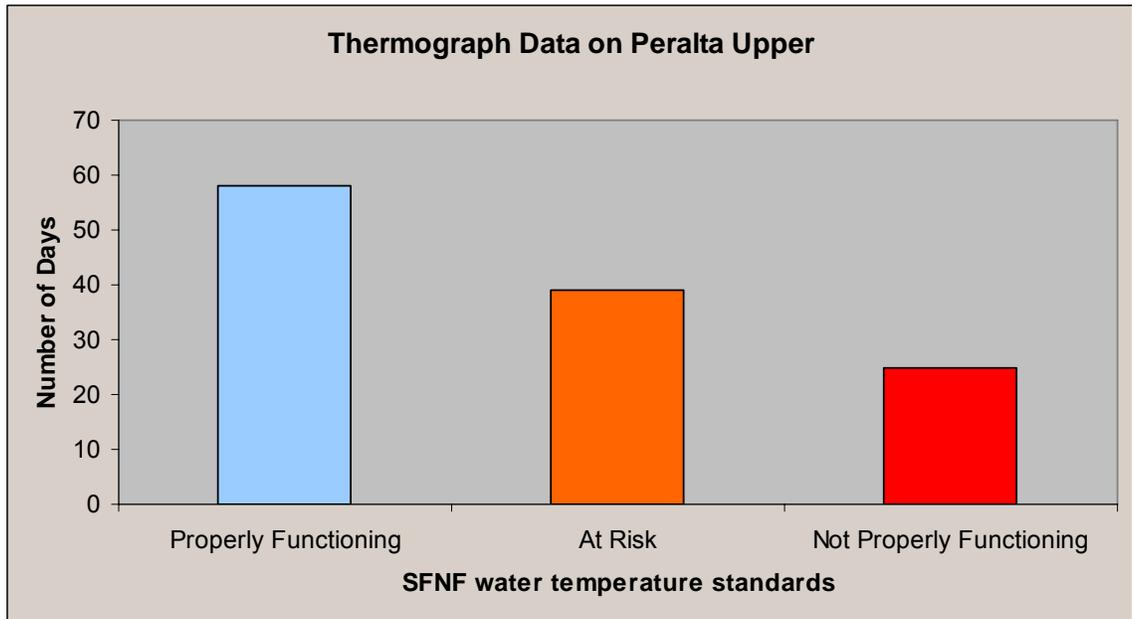


Figure 8. Temperature findings from Upper Peralta Canyon; June 1st to September 30th, 2005 as compared to Santa Fe National Forest Standards.

Non-point source pollution has been exacerbated by the loss of floodplain and riparian roughness which is created by taller grasses, denser riparian vegetation and intact stream banks. Grazing has decreased riparian roughness. With the loss of roughness, sediments and nutrients and other non-point source pollutants can deliver more readily into Peralta Canyon during snowmelt run-off and monsoon rain events. This is especially important to note since Rio Grande cutthroat trout spawning is triggered by snowmelt, which in this case also delivers an elevated amount of fines into the system. Fines or suspended sediments can settle on trout eggs, suffocating that year's progeny. In addition, elevated delivery of sediment can fill in pools (key overwintering fish habitat) and fill in interstitial spaces in the substrate (key aquatic macroinvertebrate habitat), leading to limited aquatic biota productivity.

All other creeks within the allotment are ephemeral or intermittent and are non-fish bearing.

Chiricahua dock

This species is a long-lived herbaceous perennial plant which grows in mid to high elevation (4,480 to 9,660 feet) wetlands with moist, organic soil adjacent to perennial springs or streams in canyons or meadows with associated coniferous or southwestern riparian deciduous forest. Associated species include sedges and rushes. This species has semi-succulent leaves and is very palatable to livestock and wildlife. Consultation with C. McDonald, Regional Botanist, notes that it is likely that Chiricahua dock is in the Jemez Mountains but has been identified as another Rumex species; recent genetic work shows that Chiricahua dock has a much broader distribution than previously supposed.

Affected habitat: No occurrences of this plant have been reported on this district, but there is potential for occurrence (Savinsky 2002, personal communication). The riparian corridor in this allotment would have potential habitat for this plant species.

II. MANAGEMENT INDICATOR SPECIES

A review of Management Indicator Species (MIS) for the Santa Fe National Forest (USDA FS 1995, page 96) shows the following MIS species have potential for occurrence in the Peralta Grazing Allotment: **Merriams turkey, pinyon jay, hairy woodpecker, mourning dove, Mexican spotted owl, elk, and Rio Grande cutthroat trout (RGCT)**. The allotment contains no habitat for Rocky Mountain bighorn sheep. **Mexican spotted owl and Rio Grande cutthroat trout** were discussed in detail in the PETS section or fisheries biologist report and will only be discussed briefly in this section. The Management Indicator Species Assessment for the Santa Fe National Forest (USFS 2003) contains more detailed habitat information and population trends for each species.

Merriam’s Turkey (*Meleagris gallopavo*) is the most common subspecies of turkey. It is found in many mountainous areas of northern New Mexico. Surface water is a range requirement. Hens normally nest within ½ mile radius of water. The ponderosa pine is an essential component of its permanent habitat, and is utilized as a source of mast and as a favorite roosting tree. Turkeys forage in grasslands, brush communities, deciduous tree-brush and in ponderosa pine. They eat grasses and grasshoppers in the summer and oak mast, piñon nuts, and mature ponderosa pine seeds in the fall. Tall grasses are eaten in the winter when the heavy snows come.

Approximately 3,585 acres in the Peralta Allotment contains suitable vegetation cover for the turkey in riparian, juniper, piñon/juniper and ponderosa pine cover types (See Table 26). Water may limit populations as water sources are limited to the canyon bottom, a few springs, and a few ponds (on private ownership), with little water available in the steeper uplands. The SFNF as a whole contains approximately 1.3 million acres of suitable turkey habitat. No specific surveys for turkey have been done in this project area. There have been occasional observations by FS personnel in this area. Abundance of turkey droppings seen on a field visit through the lower Canyon, indicate that turkey are common in this area. The population trend for the Merriam’s turkey is rated as stable to slightly increasing on the Santa Fe National Forest.

Table 26. Approximate suitable acres for Merriam’s turkey habitat

	Peralta
Ponderosa pine	3,460
Riparian	125
Total	3,585

Pinyon Jay (*Gymnorhinus cyanocephalus*) nests mainly in stands of piñon-juniper or pine woodlands. Diet consists of pine nuts, conifer and other seeds, fruits, insects, bird eggs, and nestlings. They breed in colonies up to 150. They are non-migratory but wander in winter flocks of 100’s to 1,000’s. Pinyon jay nesting populations are stable or decreasing based on Breeding Bird Surveys in NM. Pinyon jays were not observed in bird surveys done on Virgin Mesa (Dickson, 2002), and Dome Wilderness (USFS 2002) or in breeding bird surveys done along Forest Road 376 (Fair, 2002, 2004).

The Peralta Allotment contains potential habitat for this jay on a small amount of pinyon/juniper habitat on the southern end of Oaks Mesa. Forestwide, the Santa Fe National Forest contains

approximately 465,000 acres of piñon/juniper habitat. Based on the state trend and the breeding survey routes located near the forest, the trend for the pinyon jay population across the SFNF is ranked as stable to downward.

Hairy Woodpecker (*Picoides villosus*) is a forest generalist which keys in on snags, down logs, and live aspen. Nests are primarily in trees averaging 17-inch DBH and approximately 60 feet high. Trees averaging 17-inch DBH and down logs are important to support insect populations for foraging. Large trees which are future down logs and snags are maintained across the SFNF in accordance with the Forest Plan. About 12,690 acres in the Peralta Allotment in mixed conifer, ponderosa pine and piñon/juniper woodlands would provide breeding and foraging habitat. There are approximately 900,000 acres of hairy woodpecker habitat available across the SFNF. The population of hairy woodpeckers is considered stable to increasing on the SFNF.

Table 27. Approximate suitable acres for hairy woodpecker

Peralta	
Mixed conifer	9,230
Ponderosa pine	3,460
Total*	12,690

*Includes inholdings

Based on the habitat available, hairy woodpeckers would be expected to be common. Breeding Bird Survey (BBS) data for NM indicates a trend of about 5 percent increase in hairy woodpecker populations from 1980 to 2000 (Sauer and Hines 2001). Various surveys done on the Jemez District have recorded hairy woodpeckers: Virgin Mesa (Dickson 2002); breeding bird survey route (Vallecitos route on FR 376 and FR 144 (Fair 2002, 2004). Other bird surveys done in the Cerro Grande and Viveash burn areas showed that hairy woodpeckers were one of the ten most common species seen (Kotliar 2002). They were also common on surveys done in the Dome area (USFS 2002), and on Lake Fork Mesa and Sandoval Ridge (USFS 2003). It would be expected that woodpecker numbers have increased on the Jemez Ranger District because of tree mortality from bark beetle infestations, and recent large wildfires (Dome, Lakes, Virgin).

Mourning Dove (*Zenaida macroura*) is found across North America in many types of habitat including most forest types. It is widespread except in the Arctic and closed forests. Mourning doves are common to abundant in most counties in New Mexico; nesting populations are stable or decreasing based on Breeding Bird Surveys in New Mexico. The population trend for the mourning dove on the Santa Fe NF is ranked as stable based on the statewide trend and breeding bird surveys in and adjacent to the Forest.

Throughout the SFNF, mourning dove habitat is abundant, approximately 989,993 acres. This species is primarily found in lower elevations of the Forest, however, they can occur in Douglas-fir, ponderosa pine, spruce-fir, aspen, and piñon/juniper forest types. In all situations, abundant food and water must be available within 20-30 km. Nests are either in small trees or on the ground. Water developments and underburning (burning understory brush and downed wood via low-intensity fire) in ponderosa create favorable feeding areas.

Potential forage for mourning doves is predominantly in the lower elevations of this allotment in the Ponderosa pine, and riparian--a total of about 3,585 acres, although they can be found in the higher altitudes in mixed conifer. Breeding habitat would be limited to sites where water is available during the breeding season. Mourning doves have been recorded on various bird surveys on the Jemez District: Breeding Bird Survey Route (FR 376 and FR 144); (Fair 2002,

2004), and in bird surveys done on Virgin Mesa (Dickson 2002) and Sandoval Ridge (USFS 2003). No mourning doves were recorded on a survey in the Dome area (USDA FS 2002).

Table 28. Approximate suitable acres for mourning dove habitat

Peralta	
Ponderosa pine	3,460
Riparian	125
Total	3,585

Rocky Mountain Elk (*Cervis elaphus nelsoni*) inhabit most forest types with good forage and cover. They utilize a variety of habitat types during the course of their lives. Certain vegetation types are of limited value to elk due to aspect, elevation, snow depth, lack of water availability and/or vegetation components.

The Peralta Allotment provides approximately 3,585 acres of foraging habitat in ponderosa pine, piñon/juniper, juniper and riparian; however, some of these areas include steep cliff habitat which would be inaccessible. Mixed conifer in the allotment would provide cover habitat, but minimal forage.

In the northern higher elevations of the allotment, use would be mainly in summer because of usual snow cover in winter. Elk use in the lower elevations of the allotment would be mostly winter foraging, although some elk will remain through the summer (NMF&G, 2002c). The SFNF contains approximately 1,600,000 acres of elk habitat forest-wide.

Table 29. Approximate suitable acres for Rocky Mountain elk

Peralta	
Ponderosa pine	3,460
Riparian	125
Total	3,585

The population trend for the Rocky Mountain elk is ranked as stable to increasing on the SFNF. Since 1995, the New Mexico Department of Game and Fish (NMG&F 1996-97) has conducted aerial elk counts over the Jemez Mountains. The most recent population estimate in the Jemez Mountains, which includes Hunt Units 6A, 6B and 6C, is 3,440 +/- 657 (Kohlmann, NMG&F 2006). A large percentage of the Jemez Mountains herd summers on the Valles Caldera National Preserve. Many of these elk move through Hunt Unit 6A, in which this allotment is located, migrating to and from winter/summer habitat. Abundance of tracks and droppings seen on field visits indicates that elk are very common in this allotment.

III. MIGRATORY BIRDS

On January 10, 2001, President Clinton signed Executive Order 13186 placing emphasis on conservation of migratory birds.

The Forest Service, Southwestern Region, currently analyzes effects (impacts) in the following manner:

- effects to Species of Concern listed by Partners in Flight;
- effects to Important Bird Areas (IBAs);
- effects to important overwintering areas.

Migratory birds and their habitats are protected under the federal Migratory Bird Treaty Act of 1918.

NM Partners in Flight considers eight risk factors in identifying conservation priority species: Global Abundance, NM Breeding Abundance, Global Breeding Distribution, NM Breeding Abundance, Threats to Breeding in NM, Importance of NM to Breeding, Global Winter Distribution, and Threats on Wintering Grounds. Species with the highest risk factors are classified as “highest priority” for conservation action. This evaluation addresses general effects to migratory birds. Specific grazing effects to highest priority species for the main habitat types are shown on Table 30, which displays habitats and species that may occur in or near the Peralta Allotment.

Table 30. Effects on New Mexico PIF species of concern with potential habitat in Peralta Allotment

Veg type	Species	Habitat	Habitat Impacts	Disturbance Effects
Spruce-Fir subalpine	Blue grouse	Prefers ponderosa pine and Douglas fir; nests on ground usually within 50-150 m of free water.	Little impact would be expected; only a very small section in the NW corner of Peralta Allotment is over 9,500’, an altitude to support spruce/fir. Cattle typically graze along the road here but do not move up into the higher elevations because of lack of forage.	Little impact would be expected; a very small section in the NW corner of Peralta Allotment is over 9,500’. Cattle typically graze along the road here but do not move up into the higher elevations.
Spruce-Fir subalpine	Boreal owl	See PETS write-up	See PETS write-up	See PETS write-up
Mixed conifer, ponderosa pine	Northern goshawk	See PETS write-up	See PETS write-up	See PETS write-up
Mixed conifer, ponderosa pine	Mexican spotted owl	See PETS write-up	See PETS write-up	See PETS write-up
Mixed conifer	Williamson’s sapsucker	Forest openings and edges- needs mature pines and snags; nest cavity 5-60’ above ground	Cattle rubbing/scratching against trees could knock over smaller snag trees removing some nest cavity trees.	Because sapsuckers nest in tree cavities, cattle grazing in the area and permittee activity would not be a major disturbance.
Mixed conifer	Olive-sided flycatcher	Conifer forest openings and edges – needs mature pines and snags; nest 7-50’ above ground	Cattle grazing would not impact nests which are usually higher in mature trees. Cattle dung in area could increase insect availability.	Flycatchers usually sally for insects from perches in trees. Cattle grazing/permittee activity in area would not disturb this activity.
Mixed conifer	Dusky flycatcher	Low to medium density forests with shrub understory; nest 4-7’ above ground small tree or shrub	Cattle foraging would not be expected to remove any shrub/small tree habitat.	Cattle moving through shrubs or rubbing/scratching against small trees could disturb

				nests/young during breeding season.
Mixed conifer	Red-faced warbler	Does not occur in northern New Mexico	Not considered	Not considered
Ponderosa pine	Flammulated owl	Open mid-elevation yellow pine forest with cavity trees; nest cavity.	Large cavity trees would not be impacted by cattle grazing. Concentrated grazing in some localized spots can affect vegetation structure and composition, which could decrease or change prey species availability for food.	Because owls are active nocturnally, permittee activity would have little impact. Owls roost higher in trees close to trunk; cattle grazing or rubbing/scratching would have little impact on large trees
Ponderosa pine	Virginia's warbler	Ponderosa pine/scrub oak transition zone; nest on or in ground.	Cattle could trample on-ground nests. Foraging could reduce vegetation structure and composition reducing cover, and possibly changing insect availability.	Cattle moving through an area/permittee activity could disturb individual adults tending nests, possibly resulting in nest abandonment depending on intensity and duration of disturbance.
Ponderosa pine	Grace's warbler	Tall pine forests, also use Gambel oak; nest 20-60' above ground	Cattle grazing/permittee activity would not remove or modify habitat.	Because these birds nest high above the ground in larger trees, cattle grazing/permittee activity should have no impacts on nests/young. Birds foraging in Gambel oak could be disturbed by cattle moving through an area, but could fly from disturbance.
Ponderosa pine	Greater pewee	Does not occur in northern New Mexico	Not considered	Not considered
Ponderosa pine	Olive warbler	Does not occur in northern New Mexico	Not considered	Not considered
High elevation riparian/ Cliff/cave/rock	Black swift	Nests on cliffs and behind waterfalls.	There is no suitable nesting habitat in this project area.	No effect. No nesting habitat in or near this project area. Swifts could forage over area, but forage for insects usually above tree level, so no potential for disturbance.
High elevation riparian	Red-naped sapsucker	Aspen groves; pine forest.	Cattle rubbing/scratching against trees could knock over smaller snag trees removing some cavity trees. Concentrated foraging	Because sapsuckers nest in cavities higher in trees, cattle grazing in the area and permittee activity would not be a major disturbance.

			in aspen groves could reduce aspen regeneration in localized sites.	
High elevation riparian	Hammond's flycatcher	Spruce, Douglas-fir, aspen. Nests typically in aspen. sometimes in conifer.	Cattle grazing/permittee activity would have no effect on large trees. Concentrated foraging in aspen groves could reduce aspen regeneration in localized sites.	Because nests would usually be high in larger trees, cattle grazing and permittee activity would not be a major disturbance.
High elevation riparian	American dipper	Along rushing mountain streams; nest of moss and twigs on streambank. Feed on small fish and possibly aquatic plants.	Streambank nesting habitat could be trampled by cattle moving along stream. Any concentrated grazing near streams could impact water quality, stream structure and sedimentation, possibly affecting food sources.	Cattle drinking in streams and foraging along banks could disturb adults tending nests, possibly resulting in abandonment of nest, depending on intensity and duration of disturbance. Dippers foraging in stream could be displaced by cattle using stream and riparian area.
High elevation riparian	Veery	Does not occur on the Santa Fe National Forest	Not considered	Not considered
High elevation riparian	MacGillivray's warbler	Low dense undergrowth; shady thickets, especially willow and alder.	Concentrated grazing along streambanks could reduce or remove shrubs/vegetation impacting breeding habitat.	Cattle using riparian corridors could disturb individual nests, possibly resulting in abandonment of nest, depending on intensity and duration of disturbance.
High elevation riparian	Painted redstart	Does not occur in northern New Mexico	Not considered.	Not considered.
Middle elevation riparian	Yellow-billed cuckoo	No riparian cottonwood habitat in allotment	Not considered	Not considered
Middle elevation riparian	Lewis' woodpecker	Open canopy, and standing dead or downed snags; nests in large, dead or decaying trees	Cattle grazing/permittee activity would have no effect on large snags.	Because nests would usually be high in larger trees, cattle grazing and permittee activity would not be a major disturbance.
Middle elevation riparian	Red-headed woodpecker	Not present on SFNF; occasional transient	Not considered	Not considered
Middle elevation riparian	Willow flycatcher	Not present on SFNF; no extensive willow with slow-moving water habitat present	Not considered	Not considered

Middle elevation riparian	Lucy's warbler	Not present in northern New Mexico	Not considered	Not considered
Middle elevation riparian	Summer tanager	Not present in northern New Mexico	Not considered	Not considered
Middle elevation riparian	Painted bunting	Not present in northern New Mexico	Not considered	Not considered
Piñon/juniper	Gray flycatcher	Large mature piñons and junipers, dead trees, litter cover; nests low in bushes.	Grazing would not impact habitat in mature piñon/juniper	Cattle moving through or foraging in shrubs, rubbing/scratching against small trees could disturb nests/young during breeding season, possibly resulting in the loss of some nests.
Piñon/juniper	Bendire's thrasher	Midland shrubland and juniper woodland; nests low in brush.	Grazing would not remove large shrubs and juniper.	Cattle moving through or foraging in shrubs, rubbing/scratching against small trees could disturb nests/young during breeding season, possibly resulting in the loss of some nests.
Piñon/juniper	Black-throated gray warbler	Shrubby, mixed woods, piñon/juniper, oak brush; riparian thickets, rocky slopes; nest small trees/shrubs	Grazing would not remove piñon/juniper or large oak brush; there could be some impacts to riparian vegetation in those riparian areas grazed.	Cattle moving through or foraging in shrubs, rubbing/scratching against small trees could disturb nests/young during breeding season, possibly resulting in the loss of some nests.
Piñon/juniper	Ferruginous hawk	Does not occur on Santa Fe National Forest	Not considered	Not considered
Piñon/juniper	Gray vireo	Does not occur on Santa Fe National Forest	Not considered	Not considered
Cliff/Cave/Rock	Prairie falcon	Nests on cliff ledges	No impact to nesting habitat which occurs high on cliff walls; grazing would not be expected to reduce prey availability.	There would be no potential for disturbance to nests high on cliff walls.
Cliff/Cave/Rock	Peregrine falcon	See PETS write-up	See PETS write-up	See PETS write-up
Cliff/Cave/Rock	Black swift	Nests on high walls underneath or near waterfalls	Low potential for occurrence; no impact expected to cliff walls	No high wall/waterfall habitat is known in this allotment; if present, there would be no

				potential for disturbance to nests on high cliff walls
Cliff/Cave/Rock	Cave swallow	Do not occur in northern New Mexico	Not considered	Not considered

Important Bird Areas: There is no designated Important Bird Area (IBA) affected by the project.

Overwintering Areas: Many important over wintering areas are large wetlands. Important overwintering areas recognized on the Forest include: the Rio Chama and Rio Grande corridor. The Peralta Allotment could provide migration/winter transient roost sites for the bald eagle; however, it is not recognized as an important overwintering area because significant concentrations of birds do not occur here nor do unique or a high diversity of birds winter here.

IV. GENERAL WILDLIFE

Based on the varying elevations, forest types, and topography, the general wildlife species expected to occur within the allotment include (among many others) mule deer, elk, coyotes, mountain lion, bear, bobcats, ring-tailed cats, squirrels, bats, and other small rodents; a variety of birds including turkey, hawks, owls, and songbirds; and reptiles and a few amphibians. Peralta Canyon provides perennial water.

Oaks Mesa provides an area that is relatively undisturbed for wildlife use. There is no road access, and therefore, this area receives little use for recreation, hunting, or resource use (i.e., firewood collection). This area shows evidence of an abundant deer population compared to nearby areas.

3.6.2 Environmental Consequences

Environmental consequences of each action (No grazing, current management, the proposed action, and reduced grazing) will be discussed for Proposed, Threatened or Endangered Species, Management Indicator Species, migratory birds, and general wildlife effects. Cumulative effects in this document will be discussed separately for each of the categories mentioned above. Cumulative effects analysis for wildlife is based on the area within the boundary of the Peralta Allotment, unless otherwise noted.

No Grazing – Alternative 1

I. PROPOSED, ENDANGERED, THREATENED AND SENSITIVE (PETS) SPECIES

Rio Grande Silvery Minnow. This alternative would have no effect on the Rio Grande silvery minnow and no effect on Critical Habitat. Eliminating grazing in the Peralta Allotment would remove the potential for any sediment input from cattle grazing.

Bald Eagle. All alternatives would have no effect on the bald eagle. No grazing (Alternative 1) would remove any disturbance factors associated with livestock and permittee management from the allotment.

Mexican Spotted Owl. This alternative would have no effect on MSO. There would be no potential for disturbance from livestock or permittee activity, and no potential impacts from livestock grazing on understory vegetation. It is expected that with no grazing, there would be an increase in vegetation such as willow and alder in some riparian areas, which could improve prey opportunities for the MSO.

Critical Habitat for the Mexican Spotted Owl. Sections of the allotment are within Critical Habitat for the Mexican spotted owl. Approximately 65 percent of the Critical Habitat within the allotment is not grazed. In the no grazing alternative, there would be no effect on Critical Habitat for the MSO. Removing grazing from these allotments would eliminate any potential for localized vegetation impacts from livestock grazing.

Western Yellow-billed Cuckoo. All alternatives are likely to have no impact on the western yellow-billed cuckoo. The lowest elevations in the project area occur around 6,800 feet, which probably limits the occurrence of large numbers of these birds in the allotments included in this project analysis.

New Mexico Meadow Jumping Mouse. This alternative would eliminate any potential for impacts to jumping mice or their habitat.

Northern Goshawk. There would be no impacts on goshawk or goshawk habitat. Eliminating grazing would remove any potential for impacts of noise and disturbance from grazing and permittee activity.

Peregrine Falcon. Eliminating grazing would remove any potential for impacts of noise and disturbance of grazing.

Boreal Owl. All three alternatives would have no impacts on the boreal owl. The only potential habitat for this owl would occur at high elevations in spruce-fir forests. Because this forest type offers little in the way of forage, cattle would not be attracted to these areas.

Jemez Mountain Salamander. In this alternative, eliminating grazing would remove all potential for impacts of ground disturbance, soil compaction from range facilities or grazing/permittee activities.

Northern Leopard Frog. There would be no effect on the leopard frog. Elimination of grazing would remove potential for grazing-related impacts. There would be no water developments created to potentially create additional habitat.

Rio Grande Chub. There would be no impacts on the Rio Grande chub or potential habitat. The elimination of grazing in this allotment would improve riparian conditions, with increases in vegetative diversity and structure, stabilization of streambanks, and reduction of sediment input.

Rio Grande Cutthroat Trout. The elimination of grazing would improve stream habitat and watershed conditions in areas where RGCT historically, currently and are proposed to occupy; overall, this would likely lead to more productive aquatic habitat. There would be no reduction in available stream habitat for RGCT.

Chiricahua Dock. This alternative would have no impact on Chiricahua dock or potential habitat. There would be no potential for grazing impacts on riparian vegetation.

II. MANAGEMENT INDICATOR SPECIES

Merriam's Turkey. There would be no potential for impacts from grazing on turkeys; there would be no reduction in acres of turkey habitat available. The allotment will be available for use with no grazing disturbances, and no impacts to vegetation cover. With no grazing, it is expected that vegetation in riparian areas would become thicker, increasing nesting cover.

Pinyon Jay. There would be no potential for impacts from grazing on the pinyon jay; there would be no reduction in acres of pinyon jay habitat available.

Hairy Woodpecker. There would be no impacts on overall population trends for the hairy woodpecker and no reduction in number of acres of habitat available.

Mourning Dove. There would be no impacts on overall population trends for the mourning dove and no reduction in number of acres of habitat available.

Rocky Mountain Elk. There would be no potential for impacts from grazing on the elk; there would be no reduction in acres of habitat available.

III. MIGRATORY BIRDS

There would be no impacts on migratory birds. Because tall grass habitat would be increased, songbirds requiring these vegetation characteristics would increase. Riparian vegetation would increase providing better streamside corridor habitat throughout the project area.

IV. GENERAL WILDLIFE EFFECTS

There would be no grazing effects on wildlife. There would be no disturbances from cattle grazing or permittee management use; all forage would be available with no competition. Both upland and riparian vegetation would be expected to become more abundant and become more diverse overtime, increasing forage and cover for wildlife, although there will continue to be impacts from elk grazing in the area. There would be no benefit from restoration of water sources on Oaks Mesa; however, Oaks mesa will continue to provide high quality undisturbed habitat for wildlife, especially deer populations.

Current Management – Alternative 2

I. PROPOSED, ENDANGERED, THREATENED AND SENSITIVE (PETS) SPECIES

Rio Grande Silvery Minnow. Livestock grazing in the Peralta Allotment may affect, not likely to adversely affect, the Rio Grande silvery minnow; and may affect, not likely to adversely affect, Critical Habitat for the Rio Grande silvery minnow. As noted in the Biological Assessment for the Continued Implementation of the Land and Resource Management Plans for the Eleven National Forests and National Grasslands of the Southwestern Region (USDA 2004), any effects are likely to be insignificant or discountable due to the distance from the managed lands to the occupied or critical habitat. On a field trip through Peralta Canyon in May 2005, the forest fisheries biologist noted that turbidity was present in the upper section of the stream but had cleared by the lower end of the canyon (personal communication, Ferrell, 2005). Because of the distance between the allotment boundary and junction with silvery minnow habitat, and the intermittent nature of the stream between these two points, sediment would be expected to drop out of the system.

Bald Eagle. All alternatives would have no effect on the bald eagle. This determination meets the criteria designated within the Framework for Streamlining Informal consultation for Livestock Grazing Activities (USDA 2005) for no effect determination:

- Livestock grazing will not occur in areas that drain into identified bald eagle nesting habitat (Upper Verde and Salt Rivers and Tonto Creek in Arizona) or roost sites.
- Livestock management activities (beyond presence of livestock) in the action area will not occur within .25 miles of a bald eagle roost or nest site during any time of occupation by bald eagles.

Eagle presence in the allotment would be infrequent. Roosting or perch sites would usually be high in trees or on cliff ledges. Permittee or cow movement through the area would not be expected to cause a major disturbance. Because eagles' diets consist primarily of fish from large streams and lakes, and carrion, any riparian or vegetation changes in the allotment would have no effect on the bald eagle.

Mexican Spotted Owl. With implementation of monitoring practices, grazing within the Peralta Allotment may affect, but would not be likely to adversely affect the MSO. This determination is based on the criteria designated within the USDA Guidance Criteria (USDA 2005) for this determination:

- In owl foraging areas, forage utilization will be maintained at conservative levels.

Because MSO in the Jemez Mountains have been found to nest in cliff cavities, there would be no potential for impacts to nest sites from livestock grazing. Nest sites observed on the Jemez District are in narrow side canyons with thicker mixed conifer overstory with little grassy understory; therefore, cattle would typically not be attracted to these sites for foraging.

In this alternative Oaks Mesa will continue to be ungrazed. The area of Oaks Mesa within a PAC would be expected to maintain current populations of MSO prey.

This alternative has the greatest potential to impact prey species overall in the riparian sections of Peralta Canyon. Currently, problems have occurred with over-utilization of forage. Vegetation along the stream has been impacted to the point where cover for prey species is lacking in most areas along the channels in the upper Canyon. This is a combination of livestock and elk use. Because of the proximity of this allotment to the Valles Caldera, the upper Peralta allotment is grazed more heavily by elk than areas further from the Caldera. With no reduction of livestock grazing in this allotment, current levels of impacts on vegetation would continue with potential impacts to MSO prey base, such as meadow voles, in Peralta Canyon.

MSO pellet studies in the Jemez Mountains from 1982 through 2000 show that voles were about 7% of prey items overall; woodrats and insects were in the highest percentages (>30% and >20% respectively) of the prey items. Terry Johnson (2004) collected the pellets for this study and feels that with the number of pellets collected in each PAC, a fair sample of year-round prey items was obtained. Recent pellets from another Jemez RD PAC (Johnson 2004) showed woodrats and insects to be the major prey items. Although impacts on riparian vegetation may affect MSO foraging in the Peralta Canyon, because of the large foraging range of the MSO and their use of varied prey items, with indications that woodrats and insects are used in higher percentages, it would not be expected that any impacts on foraging in the Peralta riparian areas would limit their ability to find food.

No range improvements would be constructed in this alternative. Without construction of these range facilities (greater capacity water tanks, fence to separate pastures and allow rotation), there

will not be an improvement in cattle range distribution throughout the area. Livestock will continue to concentrate near riparian areas and not extend range to use other available forage. Riparian conditions in upper Peralta Canyon would not be maintained or improve. Therefore, prey opportunities for the MSO will not be improved in these areas.

Critical Habitat for the Mexican Spotted Owl. With implementation of grazing monitoring standards, grazing within the Peralta Allotment may affect, but would not be likely to adversely affect Critical Habitat for the MSO. Impacts of grazing on primary constituent elements of critical habitat include:

- 1) *Mixed conifer; (2) High basal area of large diameter trees; (3) Moderate to high canopy closure; (4) Wide range of trees sizes suggestive of uneven-aged stands; (5) Multi-layered canopy with large overstory trees of various species:*
 - No effect. Grazing will not impact tree species or number of trees within the allotment.
- 2) *High snag basal area:* No effect. Grazing will not impact large snags.
- 3) *High volumes of fallen trees and woody debris:* No effect. Grazing will not impact amounts of down wood or woody debris.
- 4) *High plant species richness; 5) Adequate levels of residual plant cover to provide for needs of MSO prey species:* Under current grazing management, very little grazing occurs within the boundaries of Critical Habitat other than a few small upland pastures along the western boundary of the CH within the allotment. There could be reduction in species richness of low ground cover grass/shrub vegetation in this grazed area.

New Mexico Meadow Jumping Mouse. Grazing within Peralta Allotment would not be expected to cause a trend to federal listing or cause an overall decline in population numbers of this species. Suitable habitat is not abundant within this allotment, and potential sites seen were small. Grazing would be maintained at current level; there would be no range improvements to increase range distribution of cattle, and no reduction in AUMs. Current levels of impacts to riparian vegetation would continue. Any suitable habitat present would continue to be grazed, with no potential for improvement / expansion of potential habitat.

Northern Goshawk. With implementation of grazing monitoring measures in key areas, grazing within this allotment may impact individuals but would not cause a trend to federal listing or cause a decrease in overall species populations. Because no range improvements would be constructed, there would be no potential for disturbance from these activities. With no rotation of grazing or construction of range improvements to better distribute cattle grazing, there will be no improvement of riparian vegetation within the allotment – therefore, no potential to improve prey diversity for goshawk. Because less than 1/4 of the Peralta Allotment area is grazed and the forage range of the goshawk is approximately 6,000 acres, any localized impacts to vegetation and prey species, would not be expected to impact the ability of goshawks to find prey within and adjacent to the allotment.

Peregrine Falcon. With implementation of grazing monitoring measures in key areas and mitigation noted below, grazing within this allotment would not be likely to cause a trend to federal listing or cause a decrease in overall species populations. Grazing would occur in one suitable habitat area. Vegetation impacts in the riparian area would continue with no potential for improvement. Because no range improvements would be constructed, there would be no potential for disturbance from these activities; however, there would be no potential for better distribution of grazing from either rotational grazing or placement of upland waters. Oaks Mesa will remain ungrazed with no potential for disturbance to suitable breeding habitat.

Boreal Owl. This alternative would have no impacts on the boreal owl. The only potential habitat for this owl would occur at high elevations in spruce-fir forests. Because this forest type offers little in the way of forage, cattle would not be attracted to these areas. Boreal owls may forage into openings or clearings early in the spring until snow melt. Because grazing will not normally begin until June 1 (could range two weeks earlier), this would not impact early spring season when boreal owls may come down into open areas.

Jemez Mountain Salamander. Grazing within the Peralta Allotment would not be likely to cause a trend to federal listing or cause a decrease in overall species populations. No range improvements would be constructed; there would be no potential for ground disturbance, or soil compaction from these activities. If salamanders were present, there could be some localized impacts to individuals with movement of cattle through an area. Any localized concentrations of cattle could cause soil compaction that could deter salamander movement under ground. The Cooperative Management Plan (2000) notes that only a small percentage of individuals that occur at a site are surface active; therefore, only a small number of the population would have potential to be impacted at any one time. According to the Cooperative Management Plan, current levels of livestock grazing are not believed to be a direct threat to the viability of JMS populations because the majority of salamander habitat is too rocky or steep to support livestock grazing.

Northern Leopard Frog. There could be some localized impacts to individuals; these impacts would not be expected to cause a decline in populations or a trend to federal listing. There could be some direct impacts to individuals, young or eggs with cattle moving through wet areas and entering streams or other water sources. The majority of leopard frog habitat is in the lower elevation canyon which would receive lower impact from livestock because of use just for trailing cattle to the upper allotment, or because of steep access.

Rio Grande Chub. Rio Grande chub, a Forest Service Sensitive Species, is not located within or within an influential range downstream from the Project Area. This action would not lead to the decline of the species and/or listing of species under the protection of the Endangered Species Act.

Rio Grande Cutthroat Trout. There could be some impacts on site productivity and habitat quality, but no negative impacts on the overall population trends; there would be no reduction in available stream habitat. Operating under the current management would maintain and/or degrade current riparian, stream and floodplain conditions. Without implementation of range facilities, distribution would not change. Cattle would continue to be concentrated in the valley bottom. RGCT populations in Peralta Canyon would continue to be suppressed due to sediment loading, turbidity and possibly nutrient delivery and elevated stream temperature in significant part due to grazing taking place upstream.

Chiricahua Dock. Grazing on this allotment could cause impacts to individual plants (if present) in riparian areas. Because major occurrences of this plant do not occur on this district, any impacts would not be expected to cause a trend to federal listing or a decrease in the overall population. Riparian area in this allotment is minimal (125 acres). Many of the riparian acres in the lower allotment are used either minimally for trailing cattle through to the upper Canyon, or are not accessible because of steep slopes, therefore, there would be no potential for impacts to these areas.

II. MANAGEMENT INDICATOR SPECIES

Merriam's Turkey. Grazing as proposed in this alternative would have no negative impacts on the overall species population; there will be no reduction in acres of turkey habitat available. Individuals or groups of turkeys could be impacted by localized grazing, especially during the breeding period, when ground nests and/or family groups could be disrupted; riparian and upland vegetation diversity and structure could be decreased in localized sites. Although grazing may temporarily decrease vegetation in localized areas, these areas will still provide habitat for travel corridors, bugging, etc. Grazing could impact riparian vegetation that could affect nesting cover, and vegetation structure and composition changes that could affect insect availability in localized areas. Monitoring measures which maintain minimum utilization standards would minimize impacts. Turkeys can also forage on steeper slopes, so would use areas that livestock may not access.

Pinyon Jay. Grazing in this allotment would have no impacts on the pinyon jay or its habitat; there will be no reduction in acres of piñon/juniper habitat available. No grazing would occur on Oaks Mesa. No pinyon jay habitat would be impacted.

Hairy Woodpecker. Grazing within the Peralta Allotment under all three action alternatives would not have an impact on the overall population trends for hairy woodpecker in the project area; there would be no reduction in number of acres of habitat available. These woodpeckers nest and forage for the most part high in larger diameter trees/snags that would be unaffected by grazing and permittee activity. Diet is mainly insects within decaying trees. Grazing would have no impact on availability of snags or downed wood.

Mourning Dove. Grazing within the Peralta Allotment would have no impact on the overall population trends for mourning dove; there would be no reduction in number of acres of habitat available. Mourning doves nest on average 10-25 feet high in trees, rarely on the ground. Grazing and permittee activity would have little potential for direct impacts to nests; however, visual and noise stimuli could have some localized disturbance effects. Grazing would not impact presence of nesting habitat. Grazing could reduce grasses developing seed heads for food source; however, doves would be able to forage on steeper slopes which cattle cannot access.

Rocky Mountain Elk. Grazing in the Peralta Allotment will have no negative impacts on the overall population trends for elk. There will be no reduction in acres of available habitat. No additional water sources would be developed. There would be no improvement in cattle/elk distribution across the allotment to provide more even foraging. Current conditions of impacts on vegetation and riparian area would continue with competition with livestock for forage. Elk range farther from water sources than cattle, access steeper areas than livestock and can also jump the pasture fences, which expands their range and ability to find food. Oaks Mesa will continue to provide undisturbed habitat area with no competition from livestock for forage.

III. MIGRATORY BIRDS

Individuals of some species could be impacted, but there would be no declines in species populations. Less than 25 percent of this allotment is open for grazing, so bird communities on the majority of the allotment would not be impacted by livestock grazing. Continued current impacts on vegetation from grazing will maintain or decrease habitat for some species, while increasing habitat for others. The main impacts would occur in the riparian zones where cattle tend to concentrate. Impacts would be greater in the breeding season, when cattle moving through an area could impact individual nests. In this alternative, riparian vegetation will continue to be

reduced. Because birds have a large foraging range, any local impacts on vegetation would not limit their ability to find food.

Important Bird Areas: There is no association or important link between the bird communities in this project area and these IBAs. Therefore, no IBA is affected by this project.

Overwintering Areas: Many important over wintering areas are large wetlands. Important overwintering areas recognized on the Forest include: the Rio Chama and Rio Grande corridor. The Peralta Allotment could provide migration/winter transient roost sites for the bald eagle; however, it is not recognized as an important overwintering area because significant concentrations of birds do not occur here nor do unique or a high diversity of birds winter here.

IV. GENERAL WILDLIFE EFFECTS

General effects: Potential for grazing effects to wildlife will occur on less than 25% of the acreage in the Peralta Allotment; approximately 75 percent of the allotment is ungrazed and available for wildlife use with no grazing impacts. A percentage of this ungrazed area is steep cliffs which would not be used by most wildlife other than birds, small mammals, reptiles and amphibians. The majority of the riparian area in this allotment receives some grazing, although the lower section of the Canyon currently receives less, since cattle trail through this area early in the season to reach the upper pastures. Potential effects to wildlife from grazing include those caused by cattle foraging and moving through areas, and those from permittee activities for livestock operations. Movement of cattle could impact ground nesting birds; litter and burrowing species such as small rodents, amphibians, and reptiles; and birds which nest in shrubs or low tree branches. There could be competition for forage with other ungulates, such as elk and mule deer, and other forb/shrub users, such as rabbits and other small rodents. In localized areas of heavier cattle concentration, such as near water sources, soil could become compacted deterring movement of salamanders, voles, insects, and other subsoil species. Permittee activities for care and maintenance of livestock and livestock facilities, depending on frequency and noise intensity, would create noise and movement disturbance. Any potential impacts would be greater during the breeding season. Disturbances associated with livestock activity and grazing would generally not extend beyond ¼ mile of the activity because topography, vegetation would buffer sounds and visual disturbances.

Grazing will cause localized changes in vegetation structure and composition. Depending on duration and intensity of grazing, short-term loss of cover/food can occur and could lead to more long-term shifts in vegetation cover, changing animal species occurrence (i.e., could change prey base and have localized impacts on predator populations, necessitating increased hunting range distances).

Utilization standards minimize potential for the above effects. It is possible that some localized areas could receive concentrated grazing that could impact streambank vegetation resulting in limited willow/other shrub growth with resultant decreased cover/forage/nesting sites for wildlife in the riparian corridor. Streambanks can become physically modified by trampling and removal of vegetation. Sedimentation and lack of streambank vegetation can cause streams to become shallower and lack adequate woody debris cover. Resulting decrease in water quality and aquatic habitat can impact habitat diversity.

Following guidelines in Riparian Area Management TR 1737-14 1997 Grazing Management for Riparian Wetland Areas, USDI BLM, USDA Forest Service, as noted below, will minimize potential for the above impacts:

Utilization guidelines (See Mitigations section 2.3) where used for riparian areas and riparian pastures, should:

- Maintain both herbaceous and woody species (where present) in a healthy and vigorous condition and facilitate their ability to reproduce and maintain different age classes in the desired riparian plant community.
- Leave sufficient plant residue to protect banks, filter sediment, and dissipate flood energy during runoff events.
- Maintain consistency with other resource values and objectives; e.g., esthetics, water quality, etc.
- Limit streambank shearing and trampling to acceptable levels.

Consultation with our district rangeland management specialist (Padilla, 2003) notes that since 1999, some use standards were not met in Peralta Allotment.

Effects specific to Current Management (Alternative 2): Potential impacts would include those under general effects above. Without construction of range facilities to better distribute grazing or reduction in numbers, current vegetation and riparian impacts will continue. Livestock will continue to concentrate near riparian areas and not extend range to use other available forage. Riparian conditions in upper Peralta Canyon would not be maintained or improve. Oaks Mesa will not be grazed, therefore, would continue to provide undisturbed wildlife habitat for nesting/foraging.

Proposed Action – Alternative 3

I. PROPOSED, ENDANGERED, THREATENED AND SENSITIVE (PETS) SPECIES

Rio Grande Silvery Minnow. Livestock grazing in the Peralta Allotment may affect, not likely to adversely affect, the Rio Grande silvery minnow; and may affect, not likely to adversely affect, Critical Habitat for the Rio Grande silvery minnow. As noted in the Biological Assessment for the Continued Implementation of the Land and Resource Management Plans for the Eleven National Forests and National Grasslands of the Southwestern Region (USDA 2004), any effects are likely to be insignificant or discountable due to the distance from the managed lands to the occupied or critical habitat. On a field trip through Peralta Canyon in May 2005, the forest fisheries biologist noted that turbidity was present in the upper section of the stream but had cleared by the lower end of the canyon (personal communication, Ferrell, 2005). Because of the distance between the allotment boundary and junction with silvery minnow habitat, and the intermittent nature of the stream between these two points, sediment would be expected to drop out of the system.

Bald Eagle. All alternatives would have no effect on the bald eagle. See discussion for Bald Eagle under Alternative 2.

Mexican Spotted Owl. Grazing within the Peralta Allotment may affect, but would not be likely to adversely affect the MSO. This determination is based on the criteria designated within the USDA Guidance Criteria (USDA 2005) for this determination:

- In the action area, livestock grazing or livestock management activities will occur within PACs, but no human disturbance or construction actions associated with the livestock grazing will occur in PACs during the breeding season.
- Livestock grazing and livestock management activities within PACs, in the action area, will be managed for levels that provide the woody and herbaceous vegetation necessary for cover for rodent prey species, the residual biomass that will support prescribed natural and ignited

fires that would reduce the risk of catastrophic wildfire in the Forest, and regeneration of riparian trees.

- In owl foraging areas, forage utilization will be maintained at conservative levels.

This is the only alternative which proposes grazing that would be located within a PAC (51 ac.). By maintaining forage utilization at conservative levels through rangeland monitoring, potential impacts to prey base would be minimized. Because the nest site is not within the area grazed, there would be no potential for impacts to nesting. The nest sites observed on the Jemez District are in narrow side canyons with thicker mixed conifer overstory with little grassy understory; therefore, cattle would typically not be attracted to these sites for foraging.

None of the proposed rangeland improvements will be located in PACs. Therefore, there would be no potential from disturbance from construction activities to nesting.

There could be some temporary and localized vegetation impacts where cattle tend to concentrate. With construction of a fence to create two pastures, and by following monitoring requirements, cattle could be rotated before any impacts would be widely distributed. Because these impacts would be localized and temporary, there would not be expected to be any widescale reductions in available habitat for MSO prey species. Construction of larger capacity permanent water sources would provide more water in the upland area, and reduce need for cattle to visit riparian area for water. It is anticipated that dividing the Peralta Allotment into two pastures which will be used on a rotational basis will reduce impacts on riparian corridor, maintaining grasses and vegetation at a level that will maintain MSO prey species.

Critical Habitat for the Mexican Spotted Owl. With implementation of monitoring standards, grazing within the Peralta Allotment may affect, but would not be likely to adversely affect Critical Habitat for the MSO. Effects for primary constituent elements 1 through 3 would be the same as in Alternative 2. 4) *High plant species richness*; 5) *Adequate levels of residual plant cover to provide for needs of MSO prey species*: This alternative has the most potential of all alternatives to impact the vegetation elements of Critical Habitat. Oaks Mesa is located within the boundaries of CH; with promotion of grazing on Oaks Mesa, grazing could locally impact vegetation, especially in areas surrounding rock header dams where livestock would tend to concentrate.

New Mexico Meadow Jumping Mouse. Grazing within Peralta Allotment would not be expected to cause a trend to federal listing or cause an overall decline in population numbers of this species. Suitable habitat is not abundant in this allotment. Riparian acres make up less than 1 percent of this allotment; riparian habitat in the lower canyon is within conifer overstory, and unsuitable for habitat. Pasture rotation and increase in upland water storage capacity would reduce riparian impacts; riparian vegetation would be expected to increase somewhat under this alternative.

Northern Goshawk. With implementation of grazing monitoring measures in key areas, and implementation of mitigation noted below, grazing within this allotment may impact individuals but would not cause a trend to federal listing or cause a decrease in overall species populations. Goshawks typically nest high in larger trees. Cattle grazing through an area would be unlikely to create disturbance to nest sites. Permittee activity (movement and noise), depending on distance from nest site, duration and intensity of disturbance, could disturb nesting behavior. This disturbance would have a greater impact earlier in the breeding season. Once goshawks are incubating eggs and feeding young (usually after May 1), it is more likely that they will retain nest. Because grazing season in the Peralta Allotment normally will not begin until June 1, disturbance during the early vulnerable breeding period is usually eliminated. The season of use

could vary up to two weeks earlier; however, this would be after May 15 and still beyond the more vulnerable period. Grazing effects on vegetation structure and composition could reduce abundance or variety of prey species in localized areas, but would not have impacts over large areas. Since less than 25 percent of the total area of the Peralta Allotment is grazed and because of the goshawk's ability to forage over a wide range (typical foraging range is approximately 6,000 acres), prey opportunities would not be limited. Grazing would have no effect on canopy cover levels, and thus, there would be no change in existing vegetation structural stages. There are no grazing improvements proposed in a known goshawk territory. Construction of proposed improvements (troughs, fences) would create noise and activity disturbance. Mitigation to do goshawk surveys for any projects in potential habitat (mixed conifer or ponderosa pine habitat) done during the breeding season (March 1 to September 30) would eliminate potential for impacts to nest sites.

Peregrine Falcon. With implementation of grazing management measures in key areas and mitigation noted below, grazing within this allotment would not be likely to cause a trend to federal listing or cause a decrease in overall species populations. Grazing will occur within two suitable breeding habitats. Falcons nest in cavities high on cliffs where cattle would have no access; therefore, there is no potential for direct impacts to nests. Visual or noise stimuli during the early breeding season (March 1 to May 15) would have the greatest potential for short-term and localized effects to breeding birds. Grazing will not normally begin until June 1 in the Peralta Allotment; therefore, there would usually be no disturbance during the early breeding season. The season of use could vary up to two weeks earlier; however, this would be after May 15 and still beyond the more vulnerable period. One fence and improvement of rock header dams are located within suitable habitat zones. Improvement of the water dams will be hand work, removing sediment, and would not involve any loud activity – no seasonal mitigation would be necessary for this work. Construction of a fence across the canyon, depending on equipment used and number of people present could create disturbance and impact breeding behavior. With implementation of mitigations (Section 2.3) there would be no impact. Because falcons forage above the tree canopy, no adverse effects would be expected from a fenceline across the canyon; there would be little potential for any collision with the fence in the understory (personal comm., Johnson, 2006).

Indirect effects to falcons would include impacts on prey species caused by temporary and localized impacts on grassy vegetation. Because of utilization monitoring, cattle would be moved before these impacts become widespread. Because prey includes songbirds, which forage over a wide range, any temporary impacts on vegetation would not be expected to cause a decline in songbird populations. Falcons also range over a several mile territory; therefore, it is not anticipated that there would be any impacts to the falcons ability to find food. Placement of larger water troughs in upper Peralta Canyon would be expected to distribute cattle better throughout allotment, resulting in more even forage use and reduced impacts to riparian areas, providing improved habitat for prey species.

Boreal Owl. All three action alternatives would have no impacts on the boreal owl. See discussion for boreal owl under Alternative 2.

Jemez Mountain Salamander. Grazing within the Peralta Allotment would not be likely to cause a trend to federal listing or cause a decrease in overall species populations. Impacts would be similar to Alternative 2, but because of better distribution of grazing in two pasture system, potential impacts would be reduced.

Construction of fenceline in essential or occupied habitat could cause some impacts, either directly from project activities or indirectly from soil compaction from cattle use. The primary

period in which salamanders are on the surface is during the seasonal rains (typically July 1 through October 15). Avoiding construction of range improvements during this period would eliminate potential for direct impact to salamanders on the soil surface (see Mitigations section 2.3). Typically, construction of fences creates trailing of cattle along those fences with resultant soil compaction along fences. These trails are usually less than about two feet wide so soil compaction would not limit surface access for the salamander over a wide area. The proposed fence line between Del Norte and Peralta Allotment, and larger water trough placement areas, which are in suitable habitat, were surveyed in 2004 or 2005 with negative findings. The Endemic Salamander Team was consulted regarding the replacement of larger water troughs in essential habitat. Because these are metal tank placements and involve little ground disturbance, the Team concurred that no adverse effects to JMS are anticipated from placement of these troughs. No suitable habitat occurs on Oaks Mesa, so promoting grazing on this mesa would have no effect on JMS.

Northern Leopard Frog. There could be some localized impacts to individuals; these impacts would not be expected to cause a decline in populations or a trend to federal listing. There could be some direct impacts to individuals, young or eggs with cattle moving through wet areas and entering streams or other water sources. Because leopard frogs have been found in water developments (Britton 2005, Painter 2005), proposed replacement of larger water troughs and restoration of rock header dams (Oaks Mesa) would provide some additional habitat. With a mitigation to provide escape ramps from these water troughs, there would be no potential for frogs to get trapped in these tanks; rock header dams would require no escape ramps. Other impacts from grazing could include effects on water quality from waste products, and sedimentation from streambank trampling (Smith 2003). The majority of leopard frog habitat in this allotment would be in the lower elevation canyons which would not receive much impact from livestock because of steep access. There are several small pools in drainages on Oaks Mesa which contain cat-tails, so maintain fairly perennial water. With mitigation (Section 2.3) to fence out cattle, any livestock impacts to these pools would be minimal. Restoration of rock header dams could impact these natural pools by holding back water flow to these sites, possibly decreasing the time period that these pools would hold water.

Rio Grande Chub. Rio Grande chub, a Forest Service Sensitive Species, is not located within or within an influential range downstream from the Project Area. This action would not lead to the decline of the species and/or listing of species under the protection of the Endangered Species Act.

Rio Grande Cutthroat Trout. Grazing in the Peralta Allotment under this alternative would limit site productivity but will have no negative impacts on the overall species population; there will be no reduction in miles of available stream habitat available. With the expansion of range availability on Oaks Mesa, the implementation of a cross fence, and placement of water troughs on FR280, range conditions would improve. It is expected that streambank and riparian conditions along Peralta Canyon would likely improve nominally. RGCT populations would continue to be suppressed due to sediment loading, turbidity and possibly nutrient delivery and elevated stream temperatures in significant part due to grazing taking place upstream.

Chiricahua Dock. Grazing on this allotment could cause impacts to individual plants (if present) in riparian areas. Because major occurrences of this plant do not occur on this district, any impacts would not be expected to cause a trend to federal listing or a decrease in the overall population. Placement of larger capacity water troughs in the uplands could reduce some use of the riparian area, and use of Oaks Mesa for grazing rotation would reduce time period that livestock would spend in the riparian area. Placement of a cross fence to hold cattle in lower canyon longer could produce greater impacts in the lower canyon than Alternative 2.

II. MANAGEMENT INDICATOR SPECIES

Merriam's Turkey. Grazing as proposed in this alternative would have no negative impacts on the overall species population; there will be no reduction in acres of turkey habitat available. With rotational grazing, vegetation impacts would be reduced from Alternative 2. Placement of larger capacity water troughs in the uplands would reduce need for cattle to visit riparian zone for water. Oaks Mesa, which is currently undisturbed by grazing, will be grazed reducing somewhat seed source for turkey. Restoration of rock header dams on Oaks Mesa would increase water availability and could improve nesting habitat for turkeys; however, this could be offset by potential disturbance to nest sites from livestock.

Pinyon Jay. Grazing in piñon/juniper habitat in the Peralta Allotment under this alternative would have no negative impacts on the overall species population trend; there will be no reduction in acres of piñon/juniper habitat available. In this alternative, grazing would be promoted on Oaks Mesa, thus, grazing would occur in piñon/ juniper. Cattle grazing would cause no reduction of piñon/juniper trees, therefore, no change in availability of piñon nuts.

Hairy Woodpecker. Grazing within the Peralta Allotment under all three action alternatives would not have an impact on the overall population trends for hairy woodpecker in the project area; there would be no reduction in number of acres of habitat available. These woodpeckers nest and forage for the most part high in larger diameter trees/snags that would be minimally affected by grazing and permittee activity. Diet is mainly insects within decaying trees. Grazing would have no impact on availability of snags or downed wood.

Mourning Dove. Grazing within the Peralta Allotment would have no impact on the overall population trends for mourning dove; there would be no reduction in number of acres of habitat available. Effects would be similar to Alternative 2 and 4 with the exception that this alternative would restore two water sources on Oaks Mesa which would provide additional water for the dove on the high mesa.

Rocky Mountain Elk. Grazing in the Peralta Allotment will have no negative impacts on the overall population trends for elk. There will be no reduction in acres of available habitat; however, quality of grazing could be reduced. Creating a two pasture rotational grazing system and placing larger capacity water troughs in the uplands in upper Peralta Canyon will help spread livestock foraging more evenly over the allotment, reducing impacts on forage. Construction of fences could create travel barriers; however, use of mitigations to construct fences to wildlife standards will allow migration and passage. Promoting cattle grazing on Oaks Mesa in this alternative will open to grazing what is currently relatively undisturbed habitat. From deer and elk pellets seen on the mesa, these species commonly forage on this mesa. With the addition of livestock grazing, quality and quantity of forage will be reduced for elk. Restoration of rock header dams on Oaks Mesa would provide additional water availability during dry periods.

III. MIGRATORY BIRDS

Individuals of some species could be impacted, but there would be no declines in species populations. Impacts to songbirds in this alternative will be less than in Alternative 2. Construction of a fence to create two pastures for rotational grazing method will reduce vegetation impacts in this allotment. There will be localized impacts in riparian areas or near water where cattle concentrate. Because of their large foraging range, these localized impacts would not limit ability to find food.

Oaks Mesa will be grazed negating some of the quality habitat which currently is relatively undisturbed for nesting and foraging. There could be some localized reduction in tall grass nesting and foraging habitat. Placement of larger capacity water troughs in the uplands will provide additional water sources for birds. Restoration of rock header dams on Oaks Mesa will also provide additional water sources. Development of more water sources would provide both positive and negative impacts. Birds would benefit from more distributed water sources for drinking, bathing, and emerging insect sources. Livestock and other ungulate use around the water could reduce vegetation, impacting individual nests and reducing forage and cover. Water sources could attract more predators to the site, increasing avian predation (Finch et.al 1997).

Overall the rotation grazing system, following appropriate allowable use standards, should provide minimal impacts to birds and their habitat. In localized areas, individual birds could be negatively impacted by grazing and permittee activity, however, these losses would not be expected to cause declines in overall species population.

Important Bird Areas: There is no association or important link between the bird communities in this project area and these IBAs. Therefore, no IBA is affected by this project.

Overwintering Areas: Many important over wintering areas are large wetlands. Important overwintering areas recognized on the Forest include: the Rio Chama and Rio Grande corridor. The Peralta Allotment could provide migration/winter transient roost sites for the bald eagle; however, it is not recognized as an important overwintering area because significant concentrations of birds do not occur here nor do unique or a high diversity of birds winter here.

IV. GENERAL WILDLIFE EFFECTS

General effects: See discussion under Alternative 2.

Effects specific to the Proposed Action (Alternative 3): Potential impacts would include those under general effects discussed under Alternative 2. Creation of two pastures for rotation grazing, replacement of larger capacity water troughs, and restoration of rock header dams on Oaks Mesa will result in better distribution of grazing of livestock and wildlife ungulates. By providing more upland sources for water, cattle may become better distributed throughout the allotment minimizing overuse of riparian areas. There will be short-term disturbance human activity during construction of fences, placement of water troughs and restoration of dams on Oaks Mesa. Water troughs could trap small rodents, bats, amphibians; mitigation to include escape ramps in all tanks will eliminate this possibility.

Construction of fences could block travel paths or cause injuries from barbed wire snags. Mitigation to construct all fences to wildlife specifications will minimize impacts.

Many species would benefit from an additional water source during dry periods of the year. Predators, such as snakes, hawks, predatory mammals, could benefit from the concentration of prey near the water source – to the detriment of the prey species. Livestock could reduce the vegetation around the water source possibly reducing cover and forage sites. Expanding livestock distribution would result in additional grazing in upland areas that formerly were grazed less or not grazed. It would be expected that broader livestock distribution and additional grazing in upland areas would have minor impacts to wildlife as long the appropriate allowable use standards for grazing and required stubble heights are maintained. Expanding distribution would be beneficial in that foraging will be more evenly spread over the allotment, and reduce impacts on riparian areas. Rotational grazing would also help maintain adequate forage/cover for wildlife.

Current grazing in Peralta Canyon has caused unstable stream banks, stream widening, loss of woody riparian vegetation and decreased root mass from forbs causing elevated sediment delivery to the stream (Ferrell 2006). With proposed two pasture rotation system, riparian vegetation species and structure would be expected to increase, resulting in better quality wildlife habitat (both aquatic and terrestrial).

Reduced Grazing – Alternative 4

I. PROPOSED, ENDANGERED, THREATENED AND SENSITIVE (PETS) SPECIES

Rio Grande Silvery Minnow. Livestock grazing in the Peralta Allotment may affect, not likely to adversely affect, the Rio Grande silvery minnow; and may affect, not likely to adversely affect, Critical Habitat for the Rio Grande silvery minnow. As noted in the Biological Assessment for the Continued Implementation of the Land and Resource Management Plans for the Eleven National Forests and National Grasslands of the Southwestern Region (USDA 2004), any effects are likely to be insignificant or discountable due to the distance from the managed lands to the occupied or critical habitat. On a field trip through Peralta Canyon in May 2005, the forest fisheries biologist noted that turbidity was present in the upper section of the stream but had cleared by the lower end of the canyon (personal communication, Ferrell, 2005). Because of the distance between the allotment boundary and junction with silvery minnow habitat, and the intermittent nature of the stream between these two points, sediment would be expected to drop out of the system.

Bald Eagle. All alternatives would have no effect on the bald eagle. See discussion for Bald Eagle under Alternative 2.

Mexican Spotted Owl. With implementation of monitoring practices, grazing within the Peralta Allotment may affect, but would not be likely to adversely affect the MSO. This determination is based on the criteria designated within the USDA Guidance Criteria (USDA 2005) for this determination:

- In owl foraging areas, forage utilization will be maintained at conservative levels.

Impacts would be similar to the Proposed Action. Grazing methods in this alternative would reduce grazing by 28 percent from the current level. Range improvements (water troughs) would help distribute grazing more into the uplands of upper Peralta Canyon, and help reduce impacts in riparian area. This alternative has the added benefit that no range improvements would be done on Oaks Mesa so that Oaks Mesa will remain ungrazed. This will eliminate any potential for any impacts to MSO foraging habitat within the PAC area.

Critical Habitat for the Mexican Spotted Owl. With implementation of monitoring standards, grazing within the Peralta Allotment may affect, but would not be likely to adversely affect Critical Habitat for the MSO. Effects for primary constituent elements one through three would be the same as in Alternative 2. As under Current Management, very little Critical Habitat will be grazed in this alternative (only a small section on the western border of Critical Habitat within the allotment). Because livestock numbers will be reduced, potential for impacts to species richness and plant cover will be reduced.

New Mexico Meadow Jumping Mouse. Grazing within Peralta Allotment would not be expected to cause a trend to federal listing or cause an overall decline in population numbers of this species. A reduction of cattle numbers as proposed in this alternative would be expected to reduce vegetation impacts, especially in the riparian corridor which could increase habitat for the meadow mouse.

Northern Goshawk. With implementation of grazing monitoring measures in key areas, and implementation of mitigation noted below, grazing within this allotment may impact individuals but would not cause a trend to federal listing or cause a decrease in overall species populations. Effects would be similar to Alternative 3, except that there would be no potential for disturbance from construction of a fence across Peralta Canyon or restoration of rock header dams on Oaks Mesa. Oaks Mesa will remain undisturbed for nesting/foraging/roosting.

Peregrine Falcon. Grazing within this allotment under this alternative would not be likely to cause a trend to federal listing or cause a decrease in overall species populations. Impacts would be similar to the Proposed Action, except that grazing would occur in one suitable breeding habitat, not two. With reduced livestock numbers, understory vegetation would be expected to be maintained or minimally increase so that prey species (songbirds) will be maintained or slightly increase in the allotment. Oaks Mesa will not be open for grazing, with no potential for disturbance to suitable breeding habitat.

Boreal Owl. All three action alternatives would have no impacts on the boreal owl. See discussion for boreal owl under Alternative 2.

Jemez Mountain Salamander. Grazing within the Peralta Allotment would not be likely to cause a trend to federal listing or cause a decrease in overall species populations. Effects would be similar to the Proposed Action except that no fence line crossing Peralta Canyon would be constructed in suitable habitat.

Northern Leopard Frog. There could be some localized impacts to individuals; these impacts would not be expected to cause a decline in populations or a trend to federal listing. Effects would be reduced from Alternative 2 with fewer cows grazing the allotment. Placement of larger capacity water troughs in the uplands could also help minimize livestock use in the riparian zone. Oaks Mesa would not be grazed; no potential for impacts to habitat in cattail pools.

Rio Grande Chub. Rio Grande chub is not located within or within an influential range downstream from the Project Area. This action would not lead to the decline of the species and/or listing of species under the protection of the Endangered Species Act.

Rio Grande Cutthroat Trout. Grazing in the Peralta Allotment under this alternative would limit site productivity but will have no negative impacts on the overall species population; there will be no reduction in miles of available stream habitat available. It is expected that streambank and riparian conditions along Peralta Canyon would likely be maintained or improve nominally.

Chiricahua Dock. Grazing on this allotment could cause impacts to individual plants (if present) in riparian areas. Because major occurrences of this plant do not occur on this district, any impacts would not be expected to cause a trend to federal listing or a decrease in the overall population. With reduced cattle numbers and placement of larger capacity water troughs in the uplands, impacts to riparian vegetation would be reduced from Alternative 2. Because there will be no cross fence to hold cows that could have potential impacts in the lower canyon, impacts to lower Peralta Canyon would be less than the Proposed Action.

II. MANAGEMENT INDICATOR SPECIES

Merriam's Turkey. Grazing as proposed in this alternative would have no negative impacts on the overall species population; there will be no reduction in acres of turkey habitat available. With reduction in AUMs, vegetation impacts would be less than Alternative 2. Grazing would not

occur on Oaks Mesa, leaving this as undisturbed habitat; however, rock header dams will not be restored to increase water availability on the mesa.

Pinyon Jay. Grazing in this allotment would have no impacts on the pinyon jay or its habitat; there will be no reduction in acres of piñon/juniper habitat available. No grazing would occur on Oaks Mesa. No pinyon jay habitat would be impacted.

Hairy Woodpecker. Grazing within the Peralta Allotment under all three action alternatives would not have an impact on the overall population trends for hairy woodpecker in the project area; there would be no reduction in number of acres of habitat available. These woodpeckers nest and forage for the most part high in larger diameter trees/snags that would be minimally affected by grazing and permittee activity. Diet is mainly insects within decaying trees. Grazing would have no impact on availability of snags or downed wood.

Mourning Dove. Grazing within the Peralta Allotment would have no impact on the overall population trends for mourning dove; there would be no reduction in number of acres of habitat available. Mourning doves nest on average 10-25 feet high in trees, rarely on the ground. Grazing and permittee activity would have little potential for direct impacts to nests; however, visual and noise stimuli could have some localized disturbance effects. Grazing would not impact presence of nesting habitat. Grazing could reduce grasses developing seed heads for food source; however, doves would be able to forage on steeper slopes which cattle cannot access.

Rocky Mountain Elk. Grazing in the Peralta Allotment would have no negative impacts on the overall population trends for elk; there would be no reduction in acres of available habitat. Reduction in AUMs will reduce competition for forage. Placement of larger capacity water troughs in the uplands in upper Peralta Canyon would help spread livestock foraging more evenly over the allotment, reducing impacts on forage. Oaks Mesa would remain ungrazed; the high quality of undisturbed habitat on this mesa with no competition from livestock for forage will be preserved. Rock header dams would not be restored on the mesa, so no additional water sources would be provided.

III. MIGRATORY BIRDS

Individuals of some species could be impacted, but there would be no declines in species populations. Impacts to songbirds in this alternative will be less than in Alternative 2. Impacts will be similar to Alternative 3, with the exception that in this alternative, Oaks Mesa will continue to provide high quality, undisturbed habitat for nesting and foraging.

Important Bird Areas: There is no association or important link between the bird communities in this project area and these IBAs. Therefore, no IBA is affected by this project.

Overwintering Areas: Many important over wintering areas are large wetlands. Important overwintering areas recognized on the Forest include: the Rio Chama and Rio Grande corridor. The Peralta Allotment could provide migration/winter transient roost sites for the bald eagle; however, it is not recognized as an important overwintering area because significant concentrations of birds do not occur here nor do unique or a high diversity of birds winter here.

IV. GENERAL WILDLIFE EFFECTS

General effects: See discussion under Alternative 2.

Effects specific to Alternative 4: Impacts will be similar to the Proposed Action (Alternative 3) with the exception that Oaks Mesa will not be grazed and will continue to provide undisturbed high quality habitat for wildlife nesting/foraging. Water sources on Oaks Mesa will not be restored, so no longer-term water sources will be created; however, water is available in small cattail pools in drainages.

Cumulative Effects

I. PROPOSED, ENDANGERED, THREATENED AND SENSITIVE (PETS) SPECIES

Rio Grande Silvery Minnow. Because of 1) the distance of the managed land from silvery minnow habitat, 2) the intermittent nature of the stream between the allotment and the Rio Grande, and 3) the fact that turbidity in Peralta Canyon was noted on field visit to clear by the lower end of the canyon before exiting National Forest, any sediment contributions to cumulative effects on the Rio Grande silvery minnow or its critical habitat would be expected to be minimal.

Bald Eagle. Because there are no direct or indirect effects to the bald eagle anticipated from continued grazing on the Peralta Allotment, there will be no contribution to cumulative effects on the bald eagle in any alternative.

Mexican Spotted Owl and Critical Habitat. Effects considered would be those that would contribute to direct effects of disturbance to nesting sites, and indirect effects from impacts to vegetation which could contribute to impacts on MSO prey. As noted above, because of the location of MSO nests, there is little potential for direct effects from grazing on MSO nesting; therefore, there would be no contribution to cumulative effects from grazing disturbance.

Because of the proximity of this allotment to the Valles Caldera, there is heavy elk use, as evidenced by observations of elk tracks and pellets near the springs in the northern section of the allotment and in the Peralta Canyon riparian area. Elk grazing in combination with livestock grazing impacts the vegetation in the riparian corridors of this allotment. Both the **Proposed Action** and **Reduced Grazing** alternatives will help alleviate impacts of this combined use. The **No Grazing** alternative would eliminate any livestock contribution to these effects. A proposed prescribed burn on Oaks Mesa would increase forage on the mesa top, so that if grazing were to occur as proposed in the Proposed Action, implementation of this prescribed burn could increase understory grasses/shrubs and minimize any grazing impacts on MSO prey species and #4 and 5 of Critical Habitat elements.

New Mexico Meadow Jumping Mouse. Other cumulative use includes wildlife use of grassy vegetation, i.e., elk, rabbits, other small rodents, and insects such as grasshoppers. This cumulative use could reduce vegetation below standards needed for cover habitat in localized areas. Also, elk could also contribute to trampling effects of streambanks, and reduction of riparian vegetation. Because jumping mice have been found in the Jemez Mt. in areas of moderate grazing (Morrison, undated), it is not expected that these cumulative effects would lead to declines in overall populations. OHVs and motorbikes traveling through wet areas and crossing streams would be a major contribution to cumulative effects for streambank disturbance. Private land in the allotment could contain habitat; however, because fences have not been maintained, livestock also graze here.

Northern Goshawk. Effects considered would be those that would contribute to direct effects of disturbance to nesting sites, and indirect effects from impacts to vegetation which could

contribute to impacts on prey species. Motorbikes and OHV use would cause noise disturbance, which could combine with intermittent permittee disturbance, to cause cumulative effects, dependent on frequency and distance from nest sites, with the OHVs and motorbikes contributing the major part of the disturbance. Because less than 1/4 of the Peralta Allotment area is grazed and the forage range of the goshawk is approximately 6,000 acres, any cumulative effects of localized impacts to vegetation and prey species, would not be expected to impact the ability of goshawks to find prey within and adjacent to the allotment.

Peregrine Falcon. Effects considered would be those that would contribute to direct effects of disturbance to nesting sites, and indirect effects from impacts to vegetation which could contribute to impacts on prey species. As noted above, because of the location of falcon nests high on cliff sites, there is little potential for direct effects to nesting from cattle grazing; therefore, there would be no contribution to cumulative effects from grazing disturbance. Other disturbance factors are moderate to high in this allotment from recreationists: hunting, OHV use, and motorbikes. These uses are difficult to control; however, we do have control of grazing permittee use and have placed restrictions on seasons for construction and use of range improvements in suitable breeding habitat zones, which will minimize contribution of grazing disturbance to cumulative effects. With mitigations (discussed in Mitigations Section 2.3 under general Wildlife), there would be no contribution to disturbance cumulative effects during breeding season.

The proposed prescribed burns on West Mesa/Oaks Mesa, San Juan Mesa will enhance diversity of prey by increasing shrub/grasses, and adding to songbird habitat. Because of the falcon's large foraging range, any localized impacts on vegetation and prey species would not be expected to cause negative cumulative effects to availability of prey species for the falcon.

Boreal Owl. Because there are no direct or indirect effects to the boreal owl anticipated from this grazing proposal, there will be no contribution to cumulative effects.

Jemez Mountain Salamander. Those projects which would contribute to direct effects of disturbance to on-surface salamanders, or indirect effects of soil compaction are considered for cumulative effects. As noted, off-highway vehicle use in the form of motorbike use is high in this area. Bikers have been noted to seek areas that are "challenging" – rocky, steep slopes. These uses could impact salamander habitat. The Cooperative Management Plan for the JMS (2000) notes that cattle grazing does not usually occur on the steep rocky areas necessary for salamander habitat; therefore, grazing would be a minor contribution to these cumulative effects under all alternatives.

Northern Leopard Frog. Other uses that would be considered for cumulative effects when combined with grazing would be those that would impact springs, streams and wet areas. Hiking trails cross streams but have point of impact in constant area; therefore potential for impacts would be limited. Anglers walking through side pools, and motorbikes running through wet areas and streams would be a major factor in impacts to eggs and young.

Rio Grande Chub. Rio Grande chub, a Forest Service Sensitive Species, is not located within or within an influential range downstream from the Project Area. This action would not lead to the decline of the species and/or listing of species under the protection of the Endangered Species Act.

Rio Grande Cutthroat Trout. Delivery of sediments and quality of thermal regulation appear to be the greatest concern for maintaining quality stream habitat within the Project Area. These conditions are readily limiting the productivity of current and historically occupied Rio Grande

cutthroat trout waters in Peralta Canyon. Unmanaged off road vehicle activity, such as the motorcycle trails, will continue to increase until the Forest fully implements and enforces a OHV travel management plan based on the November 2005 Forest Service Travel Management Rule (expected to be completed in 2008). Elk grazing, which is heavy in this area due to proximity to the Valles Caldera, also impacts meadow and riparian grasses and other vegetation.

If the Proposed Action or Reduced Grazing were selected, grazing would continue to incrementally add to sediment delivery and negate thermal regulation; however, overall cumulative effects from livestock grazing will be less than under Current Management.

Chiricahua Dock. Other uses which would contribute to cumulative effects on this plant are OHV use primarily in the form of motorbike use. Field visits have shown motorbike tracks in the riparian area in the northern end of the canyon where most grazing occurs. Because direct and indirect impacts are expected to be minimal because major occurrences of this plant are not known on this district, there would be no adverse contribution to cumulative effects from this grazing proposal.

II. MANAGEMENT INDICATOR SPECIES

Merriam's Turkey. Because there is no reduction in turkey habitat or impacts on population trends from any of the alternatives, there would be no contribution to cumulative effects.

Pinyon Jay. Because there is no reduction in pinyon jay habitat or impacts to population trends from any of the alternatives, there will be no contribution to cumulative effects.

Hairy Woodpecker. Because there is no reduction in habitat for the hairy woodpecker or impacts to population trends from any of the alternatives, there will be no contribution to cumulative effects.

Mourning Dove. Because there is no reduction in dove habitat or impacts to population trends from any of the alternatives, there will be no contribution to cumulative effects.

Rocky Mountain Elk. Competition can occur between elk and livestock for forage. Wildfires in the Dome and La Mesa area, prescribed fire on San Juan Mesa, past timber sales, and treatments in WUI areas have created large expanses of grassy areas producing increased forage. Proposed prescribed fires on West Mesa/Oaks Mesa will also increase forage distribution adjacent to the Peralta Allotment. Because there is no reduction in elk habitat or impacts to population trends from any of the grazing proposals, there will be no contribution to cumulative effects.

Mexican Spotted Owl. The Peralta Allotment, which is adjacent to the Valles Caldera, is grazed heavily by elk. This combined use by livestock and elk under current management is impacting riparian vegetation. With implementation of the Proposed Action or Reduced Grazing, these impacts would be expected to be reduced. Prescribed fire on San Juan Mesa, and proposed prescribed fires on West Mesa/Oaks Mesa will also increase forage distribution, improving forage distribution and reducing impacts on MSO prey. Because of large foraging range of MSO and use of a variety of prey species, any localized impacts on vegetation and prey base would not be expected to limit their ability to find prey.

Rio Grande Cutthroat Trout. Delivery of sediments and quality of thermal regulation appear to be the greatest concern for maintaining quality stream habitat within the Project Area. These conditions are readily limiting the productivity of current and historically occupied Rio Grande

cutthroat trout waters in Peralta Canyon. Unmanaged off road vehicle activity, such as the motorcycle trails, will continue to increase until the Forest fully implements and enforces the November 2005 Forest Service Travel Management Rule (initiation expected in 2008). Elk grazing, which is heavy in this area due to proximity to the Valles Caldera, also impacts meadow and riparian grasses and other vegetation.

If the Proposed Action, Reduced Grazing, or Current Management were selected, grazing would continue to incrementally add to sediment delivery and negate thermal regulation; however, overall cumulative effects from livestock grazing will be less through the Reduced Grazing option than under Current Management.

III. MIGRATORY BIRDS

No Grazing (Alternative 1): Because there would be no grazing, there would be no potential contribution of livestock grazing to cumulative effects. **Current Management (Alternative 2); Proposed Action (Alternative 3); Reduced Grazing (Alternative 4):** Effects considered would be those that would contribute to disturbance to ground and understory nesting species, and indirect impacts to habitat. Alternative 3 and 4 which contain measures to reduce impacts of grazing to vegetation would contribute less to cumulative effects than Alternative 2.

Riparian habitat in Peralta Canyon shows evidence of impacts from motorbike and some ATV use. Motorbikes and ATV use would cause noise and ground disturbance, which could combine with cattle movement and intermittent permittee disturbance, to cause cumulative effects, dependent on frequency and distance from nest sites, with the ATVs and motorbikes contributing the major part of the disturbance. Some riparian areas are inaccessible to cows because of steep access, and are likewise not frequently used for recreation, such as hiking or camping; therefore, this riparian habitat would remain relatively undisturbed for nesting habitat.

Indirect effects noted above would include minimal temporary and localized impacts on grass/shrub vegetation. Other cumulative use includes wildlife use of grassy vegetation, i.e., elk, mule deer, rabbits, other small rodents, and insects such as grasshoppers. Understory habitat for nesting/cover/food sources (insect and seed) have been increased by the Dome Fire, La Mesa fire, other small wildfires, and past timber harvest which have added to tall grass/shrub in adjacent areas. This increase in vegetation would also result in more forage being available, with resultant better distribution of wildlife/livestock forage use, and decreased potential for concentrated grazing in localized areas; therefore, lower potential for localized impacts on grass/shrub vegetation. The proposed prescribed burns on West Mesa/Oaks Mesa, and San Juan Mesa (adjacent to the Peralta Allotment) will also enhance understory bird habitat by increasing shrubs/grasses.

Any potential impacts to migratory birds will be minimal and localized. About 75 percent of the Peralta Allotment is not grazed and will provide habitat for migratory birds with no grazing disturbance or localized habitat impacts. Therefore, any potential cumulative effects would be expected to be minimal and would not cause an overall decline in any migratory bird species populations.

IV. GENERAL WILDLIFE EFFECTS

No Grazing (Alternative 1): Because grazing would be eliminated in all of the allotment, there would be no contribution to cumulative effects. **Current Management (Alternative 2):** Road

use in this allotment is limited. The majority of public vehicle use occurs on FR280, and is associated with private landownership, radio tower maintenance, and other forest uses, such as fuelwood gathering, hunting, pleasure driving. Those uses which maintain vehicles on established unsurfaced roads would be at low speed and would not present a major disturbance to wildlife. Off-road vehicles do create major disturbance; this use would be more problematic in the spring during breeding season. Because of deep canyons and cliffs, no roads are accessible across the allotment. Recreation use in the allotment in some aspects is relatively light compared to other portions of the district. There are no developed campgrounds or day use areas. There are a few hiking trails. Other recreation in this area includes mountain bike-riding, and hunting. There appears to be a fairly extensive network of motorcycle trails which are not sanctioned or maintained by the Forest Service. This use occurs in all seasons (except when snow precludes motorcycle/ATV use) and throughout the allotment, and it is probable that this use creates disturbance to wildlife. This disturbance would be the major contributor to a cumulative effect of noise and movement disturbance when combined with grazing management effects. Past wildfires/prescribed burns and proposed burns in and adjacent to the area create more grass/shrub growth and better quality and increased forage. This would provide better distribution of foraging for wildlife. **Proposed Action (Alternative 3):** Cumulative effects would be similar to Alternative 2; however, because of additional range improvements and proposed two pasture grazing system, contributions to cumulative effects would be decreased. There will be temporary disturbance effects for placement of water troughs, fences, and restoration of rock header dams (Oaks Mesa). Cattle and livestock will be restricted from or will avoid these areas during project activity, as will most wildlife, so there would be no combined impacts. Any disturbance from permittee activity to drop off or move cattle from pasture to pasture would also be temporary, ½ to one day. This is the only alternative that has any contribution to cumulative effects of disturbance and vegetation impacts on Oaks Mesa. Because grazing will be done under restrictions of grazing monitoring and rotation, there should not be a lack of availability of forage for wildlife in any areas of the grazing allotment. Grazing occurs on about 22 percent of this allotment, and although there could be some localized sites where wildlife and livestock would compete for food, forage opportunities would be well distributed. Any cumulative impacts would not be expected to contribute to any widespread negative impacts on wildlife. **Reduced Grazing (Alternative 4):** Cumulative effects would be similar to Alternative 3 with the exception that no grazing will occur on Oaks Mesa.

3.7 HERITAGE RESOURCES

3.7.1 Affected Environment

Heritage resources include both archeological (e.g. pueblo ruins) and historical sites (e.g. turn-of-the-century railroad ties), and also elements important to maintaining the traditional beliefs and lifeways of local social groups.

Approximately seven percent of the Peralta Allotment has been previously surveyed, resulting in ten previously recorded sites. Most of the surveyed area in the allotment is from recent surveys completed on Oaks Mesa. Coincidentally, this is also where a majority of sites were identified. Few other sites have been identified in other parts of the allotment most likely due to the steep slopes and narrow bottom of Peralta Canyon.

None of the sites recorded in the Peralta allotment are listed on the National Register of Historic Places.

3.7.2 Environmental Consequences

Grazing activities have the potential to adversely impact heritage resources in a number of ways. Impacts include, (1) damage to archeological features and artifacts from trampling or concentration of livestock, and (2) damage to standing walls or rock art from cattle rubbing against them, and (3) damage to features and artifacts by the construction and use of range facilities (developed springs, corrals, fencing, etc.). Livestock concentration is greatest around water facilities, in corrals, adjacent to fences, at salt feeding locations, and in shady locations with good wind flow.

No Grazing (Alternative 1) – This alternative would result in the least impact to heritage resources since all potential grazing impacts would be removed once grazing permits expire.

Cumulative Effects. Since no impacts are expected to result from this alternative, approval of this alternative would not result in cumulative effects to heritage resources.

Current Management (Alternative 2) – Current management would limit grazing to Peralta Canyon and there would continue to be no grazing on Oaks Mesa. Since all but one of the recorded sites occurs on Oaks Mesa, and the one site located in Peralta Canyon is inaccessible by cattle, it is highly unlikely there would be any effects under this alternative.

Cumulative Effects. Since no impacts are expected to result from this alternative, approval of this alternative would not result in cumulative effects to heritage resources.

Proposed Action (Alternative 3) – Under this alternative, two rock header dams will be cleaned to allow grazing on Oaks Mesa. Surveys on Oaks Mesa have identified nine sites, almost all of which are historic structures including foundations of wooden cabins and corrals.

Surveys for proposed improvements such as cleaning and lining of two existing rock header dams and the installation of enclosure fencing around riparian vegetation near those rock header dams showed that no sites were located nearby the proposed improvements on Oaks Mesa.

Potential impacts to sites from grazing activities on Oaks Mesa are expected to be minimal, based on studies in the nearby Alamo Allotment that showed no measureable impacts to sites occurring in areas grazed by cattle.

Cumulative Effects. Since no impacts are expected to result from this alternative, approval of this alternative would not result in cumulative effects to heritage resources.

Reduced Grazing (Alternative 4) – Like the Current Management Alternative, Reduced Grazing would limit grazing to Peralta Canyon and there would continue to be no grazing on Oaks Mesa. Since all but one of the recorded sites occurs on Oaks Mesa, and the one site located in Peralta Canyon is inaccessible by cattle, it is highly unlikely there would be any effects under this alternative.

Cumulative Effects. Since no impacts are expected to result from this alternative, approval of this alternative would not result in cumulative effects to heritage resources.

3.8 RECREATION

The project area encompasses a portion of the Jemez Ranger District which receives relatively light recreational use compared to other portions of the district primarily due to limited vehicular access. There are no developed campgrounds or day use areas in the proposed project area. There are two Forest Service hiking trails, Forest Trail 132 and Forest Trail 140.

The Peralta Allotment does receive a moderate amount of OHV use in the form of motorcycle trails and ATV use on existing roads. It is primarily motorcycle trails that have been observed in off-road areas - these are not sanctioned or maintained by the Forest Service.

OHV Use. A map provided by the Black Feather Motorcycle group (dated 1989, but received in 2002 as current information), shows user created trails in the upper part of Peralta Canyon. Motorcycle tracks were observed during the 2005 and 2006 field season in the top of Peralta Canyon starting from the southern terminus of Forest Road 280 and extending south on Forest Trail 140 approximately 1.5 miles. This trail then heads north and eventually meets up back at Forest Road 280, completing a loop.

In addition to motorcycle use, other ATV use (4-track vehicles) is a regular occurrence on existing forest system roads in the project area. ATV use has been observed primarily on Forest System Roads 280, 281, and on unnamed roads leading to private property in the allotment.

Hiking Trails. There are two primary hiking trails in the Peralta Allotment. Forest Trail 132, Bearhead Ridge Trail, begins 4 miles south of the northernmost point of the Peralta Allotment on the eastern side. The trail generally runs south/north along the eastern ridge of Peralta Canyon along the allotment boundary. Forest Trail 140 begins at the junction of FR 280 and FR 281 and continues south down the middle of the canyon for approximately 4.5 miles. At this point the trail splits: one leg continues south along the canyon towards a private inholding. The other trail climbs toward the east for 1.25 miles, joining Forest Trail 132 on the ridge overlooking Peralta Creek.

Trail use is expected to be light (less than 100 hikers per year) due to limited vehicular access and lack of any trail maintenance. Access to these trails is primarily from the north on Forest Road 280 and connecting spur roads that lead to private property. Since Peralta Canyon empties into lands owned by the Pueblo of Jemez few people are authorized to park on the southern end and hike north into the allotment.

Cross-country skiing. The Peralta Allotment includes several cross-country ski trails in the northern 1/3 of the allotment, primarily adjacent to FR 280. The Forest Service has no data on use of these trails, however, estimations based on observations from Jemez Ranger District personnel show that this area receives moderate use by cross-country skiers compared to other areas of the district.

Special Uses. The project area receives no applications for special use authorizations. The area does, however, experience dispersed camping from one or two groups per year usually occurring during hunting season.

3.8.2 Environmental Consequences

No Grazing (Alternative 1) – Under this alternative there will be little direct or indirect effect to recreation use. Regardless of cattle grazing, the public would continue to use the area for the above outlined activities. This use is expected to continue at its current rate.

Cumulative Effects. Eliminating grazing in the project area would result in relatively little cumulative effect to recreation use and special use permits. Recreation use overall is relatively light in this area and there have been no reported public concern by the public concerning cattle/human conflicts.

Current Management (Alternative 2) – If the current management remains the same, there can be very little change in the direct and indirect effects of cattle grazing.

Cumulative Effects. Since current management is expected to result in very little direct or indirect effects to recreational use of the proposed project area, there are no cumulative effects from this alternative.

Proposed Action (Alternative 3) – The proposed action includes developing a variety of infrastructure improvement devices for cattle use and reconstruction of some fences. Additional watering source may divert cows to other watering areas reducing impacts to existing trails, but possibly creating new ones. The cross fence to be established across upper Peralta Canyon would not require that hikers and motorcycle users go through a gate as the fence will be placed along a bluff above the canyon to prevent cattle from traveling down into the canyon and into the upper portion of the allotment. Neither the fence nor additional water catchments will be in the way of any existing cross-country ski trails. There have been no known reports of people attaining special use permits in the area having any conflicts with cattle grazing in the area, so this proposal would have no direct or indirect effect to that aspect of district activities.

Cumulative Effects. Since the proposed action is expected to result in no direct or indirect effects to recreational use of the proposed project area, there are no cumulative effects from this alternative.

Reduced Grazing (Alternative 4) – Under this alternative there will be little direct or indirect effect to recreation use. Similar impacts are expected as in Alternative 2.

Cumulative Effects. Since the proposed action is expected to result in no direct or indirect effects to recreational use of the proposed project area, there are no cumulative effects from this alternative.

3.9 ENVIRONMENTAL JUSTICE

3.9.1 Affected Environment

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, provides for agencies to determine if a proposed action will result in disproportionately high and adverse effects to minority or low-income populations. Those effects are to encompass both human health and environmental effects, and are to include the cumulative and indirect effects on a community.

Livestock grazing has occurred in northern New Mexico, and portions of the Jemez Mountains, since shortly after Spanish colonization in 1598. A permittee's ability to use National Forest

System Lands for livestock grazing plays an important role in their economic well-being and in their cultural tradition.

In a recently published report entitled, “Economic, Social, and Cultural Aspects of Livestock Ranching on the Española and Canjilon Ranger Districts of the Santa Fe and Carson National Forests: A Pilot Study,” the authors explain that 94 percent of the permittees in the study reported livestock ownership and ranching had been in their family for several generations (Raish and McSweeney, 2003). Over 70 percent reported that they (or their families) have held their Forest Service grazing permits for over 50 years. Considering Forest Service lands are often a key component of contemporary grazing operations; which utilize a combination of public lands, private lands, and grant lands, it is likely that changes to Forest Service grazing authorizations will have serious implications to these grazing operations.

There is one permittee for the Peralta Allotment. This permittee lives in a local minority community adjacent to National Forest System Lands. The Forest Service does not have any information on the permittee’s family income or how much revenue is made as a result of grazing on National Forest System lands.

Economic Analysis. Financial efficiency is defined in Forest Service Handbook (FSH) 1909.17. Financial efficiency is determined by Present Net Value for the Forest Service. This analysis is based on the standard 10-year period covered by a term grazing permit beginning in 2006 with the following assumptions:

- The analysis is based only on those values that can have a cash value readily assigned;
- Range inspections, permit administration and range maintenance will only continue so long as there is grazing.

The Forest Service mandates and management objectives that are not solely or primarily based on financial analysis; some of our partners operate under similar circumstances. Therefore, fiscal analysis results are not a primary determining factor in land management decisions. The no grazing alternative is the baseline for this analysis.

3.9.2 Environmental Consequences

No Grazing (Alternative 1) – This alternative would have the largest effect on surrounding communities and low-income populations. Grazing permits would expire and grazing in the proposed project area would be required to stop. Those who had relied on public lands as part of their ranching operations would have to quit ranching or find other affordable forage sources.

Though the majority of small ranching operations in northern New Mexico are not full-time operations, in many cases the de-authorization of grazing permits would cause those permittees to be unable to continue with their ranching operations. This would impact the income of those permittees, their families, and communities. In addition, for many of the permittees it would interrupt a cultural tradition that has existed for centuries.

Cumulative Effects. Grazing permit reductions and consolidation has been the trend in Forest Service grazing management since the early 1900s. This is also true for grazing management in the project area. Expiration of all of the grazing permits in the project area (without reauthorization) combined with past permit reductions, would mean the removal of grazing as a source of income for those permittees. Cumulatively, this alternative would have an incremental contribution to the removal of grazing from income for local communities, whereas it was once one of the main sources of income in these communities.

Current Management (Alternative 2) – Livestock grazing as proposed in this alternative would have no anticipated effects to disadvantaged communities with minority or low-income populations.

Cumulative Effects. Since no impacts are expected to result from this alternative, the selection of this alternative would not result in cumulative effects.

Proposed Action (Alternative 3) - Livestock grazing as proposed in this alternative would be similar to that in Current Management (Alternative 2) although the permittee would be required to provide labor for the proposed improvements which in the short term would have a negative impact. The surrounding community would benefit from purchases made by the permittee associated with the construction of these improvements.

Cumulative Effects – Since the effects of this alternative are relatively insignificant, resultant cumulative effects are not anticipated.

Reduced Grazing (Alternative 4) – Under this alternative negative impacts would result from the reduction of 107 AUMs in the Peralta allotment. This reduction in authorized AUMs would impact the permittee. The reduction in AUMs translates to approximately 25 cow/calf pairs that would be taken off of the Peralta Allotment. This change would result in economic consequences for that single permittee, but is not expected to have a larger direct or indirect effect to disadvantaged communities or low-income populations that are adjacent to the project area.

Cumulative Effects. Since no impacts are expected to result from this alternative, the selection of this alternative would not result in cumulative effects.

	Alternative 1, No Grazing	Alternative 2, Current Management	Alternative 3, Proposed Action	Alternative 4, Reduced Numbers
Peralta	-\$2,197.80	-\$19,342.19	-27,442.19	-\$22,217.61

Table 31 above shows the expected net present value for the term of the 10-year grazing period for each alternative. Alternative 1, No Grazing, would result in the least cost for the Forest Service. Alternative 3, Proposed Action, would result in the greatest cost. This portion of the analysis only estimates expected costs for the Forest Service and does not include estimated costs or revenues for permittees, or non-market costs (benefits of no grazing to water quality or costs to cultural values from selecting the No Grazing alternative) associated with each alternative.

CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Team Member	Position	Contribution/Role
John Peterson	Jemez District Ranger	Responsible official
Travis Moseley	Acting Jemez District Ranger (August 2006 – November 2006)	Responsible official
Derek Padilla	Jemez Ranger District Range Program Manager	Chapters 1 and 2, Soil analysis, and Vegetation analysis, Economic analysis
Mike Dechter	Jemez & Cuba Ranger District National Environmental Policy Act (NEPA) Coordinator	Writer/editor
Jo Wargo	Jemez Ranger District Wildlife Biologist	Wildlife analysis
Erica Nevins	Jemez and Cuba Ranger District Hydrology Specialist	Water resources analysis
Jennifer Boyd	Jemez, Cuba, and Coyote Ranger District Heritage Resource Specialist	Heritage Resources analysis
Sean Ferrell	Santa Fe National Forest Fisheries Biologist	Rio Grande cutthroat trout and Rio Grande chub analysis
Anne Karsian-Ferrell	Jemez Ranger District Recreation Program Manager	Recreation analysis

FEDERAL, STATE, AND LOCAL AGENCIES:

New Mexico Game and Fish
 USDI Fish and Wildlife Service
 New Mexico State Historic Preservation Office
 Bandelier National Monument
 New Mexico Environmental Department

TRIBES:

Pueblo of Jemez
 Pueblo of Santo Domingo

OTHERS:

Terry Johnson – Predatory bird specialist (private contractor)
 New Mexico Range Improvement Task Force
 Antonio Montoya – Peralta Permittee

REFERENCES

- Allen, C.D. 2002. Fire and Vegetation History of the Jemez Mountains. USGS Fort Collins Science Center, Jemez Mountains Fields Station, Los Alamos, NM.
- Allison, Christopher. 2005. Letter to Antonio Montoya regarding field visit and assessment of Peralta allotment conducted on October 13, 2005. New Mexico Range Improvement Task Force.
- Behnke, R.J. 1987. Identification of intraspecific diversity in cutthroat trout: For what purpose? Proceedings 67th Annual Conference, Western Assoc. Fish & Wildlife Agencies.
- Belsky, A.J., A. Matzke, S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in the western United States. Published by Journal of Soil and Water Conservation, 1999, Vol. 54, pp. 419-431).
- Bohn, C., and J. Buckhouse. 1985. Coliforms as an indicator of water quality in wildland streams. J. Soil and Water Cons. 40:95-97.
- Bohn, Carolyn. 1986. Biological importance of streambank stability. Rangelands. 8(2): 55-56.
- Center for Plant Conservation. 2004. *Rumex orthoneurus*.
http://www.centerforplantconservation.org/ASP/CPC_ViewProfile.asp?CPSNum=3787
- Dickson, L. 2002. Northern Arizona University. Bird surveys, Virgin mesa and Lake Fork mesa. Jemez District files.
- Dietz, Harland E. 1989. Special Report: Grass: The stockman's crop, How to harvest more of it. Sunshine Unlimited, Inc. Lindsborg, KS.
- Elmore, W. and R. Beschta. 1987. Riparian areas: perceptions in management. Rangelands 9(6): 260-265.
- Fair, J. 2002, 2004. Breeding bird survey data for 1999, 2000, 2002, 2004, Vallecitos. Jemez District files.
- Ferrell, S. 2003. Personal communication re: fish and aquatic habitat. USFS Forest Fisheries Biologist, Jemez Springs.
- Ferrell, Sean and Derek Padilla. 2005a. Personal communication re: Peralta Allotment field trip. Jemez Ranger District: Jemez Springs, NM
- Ferrell, S. 2005b. Personal communication (email) re Rio Grande chub. January 13, 2005, Jemez Ranger District files, Jemez Springs, NM.
- Ferrell, S. 2005c. Rio Grande cutthroat trout (*Onchorhynchus clarki virginalis*). Specialist report for East Jemez 5 Allotments EA. Sean Ferrell, Santa Fe National Forest Fisheries Biologist. Santa Fe, NM.
- Ferrell, Sean. 2005d. personal communication and Jemez 5 Effects Analysis. Forest Fisheries Biologist, Santa Fe National Forest.

George, Melvin R.; Royce E. Larsen, Neil K. McDougals; Kenneth W. Tate; John D. Gerlach, Jr.; and Kenneth O. Fulgham. 2004. Cattle grazing has varying impacts on stream-channel erosion in oak woodlands. *California Agriculture*: Vol. 58 No. 3. Pp. 138.

<http://californiaagriculture.ucop.edu/0403JAS/pdfs/erosion.pdf>

Holechek, Jerry L., Rex D. Piper, and Carlton H. Herbal. 1989. *Range Management Principles and Practices*. Prentice-Hall, Inc. Englewood Cliffs, NJ.

Holechek, Jerry L. and Dee Galt. 2000. Grazing Intensity Guidelines *in Rangelands* 22 (3). June 2000. pp 11-14.

Johnson, Terry. 2004. Personal communication re: Mexican spotted owl field sampling. USFS Jemez Ranger District Staff Wildlife Biologist, Jemez Springs.

Johnson, Terry. 2006. Personal communication re: Peregrine falcon collisions with fences. Field notes from June/2006 site visit. USFS Jemez Ranger District Staff Wildlife Biologist, Jemez Springs.

Johnson, Terry and S. Williams. 2004. *The Peregrine Falcon in New Mexico – 2004*. Unpublished: New Mexico Game and Fish. Santa Fe, NM.

Jones, Allison. 2000. Effects of Cattle Grazing on North American Arid Ecosystems: A Quantitative Review. *Western North American Naturalist* 60(2). pp. 155-164

Kauffman, J. Boone; Krueger, W.C. 1984. Livestock impacts on riparian ecosystems and streamside management implications – a review. *Journal of Range Management*. 37(5): 430-438.

Kotliar, T. 2002. USGS bird surveys in Viveash and Cerro Grande burn areas. Jemez District files.

Leyba, Patrick. 2005. Personal communication. Santa Fe National Forest Road and Infrastructure Manager. Santa Fe National Forest: Santa Fe, NM.

McDonald, C. B. 2002. Email re Chiricahua dock. Jemez District files. Jemez Springs, NM

McInnis, M.A. and E.F. Stork. 1974. Distribution of Native Rio Grande Cutthroat Trout on the Santa Fe National Forest. Western Interstate Commission for Higher Education. Boulder, CO. 23 pp.

Meeuwig, M.H., J.B. Dunham, J.P. Hayes, G.L. Vineyard. 2004. Effect of constancy and cyclical thermal regimes on growth and feeding of juvenile cutthroat trout of variable sizes. *Ecology of Freshwater Fish* 13(3): 208-216.

Miner, J., J. Buckhouse, and J.A. Moore, 1992. Evaluation of Off-Stream Water Source to Reduce Impact of Winter Fed Range Cattle on Stream Water Quality. Oregon State University, Corvallis, OR.

Morrison J.L. 1985. The distribution of the meadow jumping mouse, *Zapus hudsonius luteus*, in the Jemez Mountains, New Mexico. A report submitted to the New Mexico Department of Game and Fish.

Morrison, J.L. 1988. Status of the meadow jumping mouse in selected areas, Jemez Mountains. Jemez Ranger District files, Jemez Springs, NM.

Morrison, Joan L. Undated. The meadow jumping mouse in New Mexico: Habitat preferences and management recommendations. Managing wildlife in the Southwest Symposium. Jemez Ranger District files, Jemez Springs, NM

New Mexico Department of Game and Fish. 1996-97. Jemez Mountain Elk Herd. Game Management Unit 6. Unpublished paper by R. J. Kirkpatrick. NMDG&F, Albuquerque, NM

New Mexico Department of Game and Fish. 2002. Elk Regional Management Information. Santa Fe, NM

New Mexico Game and Fish. 2002. Long-Range Management Plan for the Conservation of Rio Grande Cutthroat Trout. Santa Fe, NM.

New Mexico Department of Game and Fish. 2004. Biota information system of New Mexico (BISON). Web site: <http://nmnhp.unm.edu/bisonm/bisonquery.php>

New Mexico Endemic Salamander Team. 2000. Cooperative management plan for the Jemez Mountains salamander (*Plethodon neomexicanus*) on lands administered by the Forest Service.

New Mexico Endemic Salamander Team. 2002. Consultation with team on Jemez Mountain Salamander Management.

New Mexico Environment Department, Surface Water Quality Bureau. 2004. 2004 State of New Mexico Integrated Clean Water Act §303(d)/§305(b) Report.

New Mexico Environment Department, Surface Water Quality Bureau. 2005. State of New Mexico Standards for Interstate and Intrastate Surface Waters 20.6.4 NMAC (as amended through July 17, 2005).

Padilla, Derek. 2003. Personal communication re: Peralta Allotment management standards compliance. Jemez Ranger District Range Staff, Jemez Springs, NM

Padilla, Derek. 2005. East Jemez 5 Range Capacity analysis Methodology. Unpublished. Santa Fe National Forest: Jemez Springs, NM.

Painter, C. 2005. Personal communication. Chairperson, New Mexico Endemic Salamander Team, New Mexico Game & Fish Department: Santa Fe, NM.

Palmer D. A. 1986. Habitat selection, movements and activity of boreal and saw-whet owls. Thesis, Colorado State University, Fort Collins, CO. In: Heinrich R. et al. 1999. Boreal owl nesting and roosting habitat. Habitat Suitability Index Model, Version 5.

Platts, William S. 1983. Those vital streambanks. *Western Wildlands*. 3(9): 7-10.

Propst, D.L and M.A. McInnis. 1975. An Analysis of Streams Containing Native Rio Grande Cutthroat Trout, *Salmo clarki virginialis*, on the Santa Fe National Forest. Western Interstate Commission for Higher Education. Boulder, CO. 92 pp.

Raish, Carol; McSweeney, Alice M. 2003. Economic, Social, and Cultural Aspects of Livestock Ranching on the Española and Canjilon Ranger Districts of the Santa Fe and Carson National

Forests: A Pilot Study. Gen. Tech. Rep. RMRS-GTR-113. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 89 p.

Sauer, J.R., J.E. Hines, and J. Fallon. 2001. The North American Breeding Bird Survey Results and Analysis. Patuxent Wildlife Center: Laurel, MD. Online: <http://www.mpr-pwrc.usgs.gov/bbs>

Savinsky, R. 2002. Personal communication. New Mexico State Botanist, Santa Fe, NM.

Schiffmiller, Gary. 2005. personal communication. Environmental Scientist/Fisheries Biologist, New Mexico Environment Department, Surface Water Quality Bureau.

Smith, B.E. 2003. Conservation assessment for the northern leopard frog in the Black Hills National Forest, South Dakota and Wyoming. Department of Biology, Black Hills State University: Spearfish, SD.

Smith, Lamar; G. Ruyle; J. Maynard; S. Barker; W. Meyer; D. Stewart; B. Coulloudon; S. Williams; and J. Dyess. 2005. Principles of Obtaining and Interpreting Utilization Data on Southwest Rangelands. University of Arizona, College of Agriculture and Life Sciences: Report AZ1375. Available: <http://cals.arizona.edu/pubs/natresources/az1375.pdf>.

Tollefson, Jennifer E. 2006. *Poa pratensis*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis> [2006, December 18].

USDA Forest Service. 1987. Environmental Impact Statement, Santa Fe National Forest Plan. Santa Fe National Forest: Santa Fe, NM.

USDA Forest Service. 1993. Terrestrial Ecosystem Survey of the Santa Fe National Forest. Southwestern Region: Albuquerque, NM.

USDA Forest Service. 1996. Santa Fe National Forest Plan, as amended. Santa Fe National Forest: Santa Fe, NM.

USDA Forest Service. 1997. Birds of the Santa Fe National Forest. U.S. Government Printing Office: 1997-573-252/24077. Santa Fe National Forest: Santa Fe, NM.

USDA Forest Service. 1999. Regional Forester's sensitive species list. Southwestern Region: Albuquerque, NM.

USDA Forest Service. 2000. Forest Service Roadless Area Conservation Final Environmental Impact Statement Volume 2. p.113.

USDA Forest Service. 2002a. Dome Wilderness bird surveys. Jemez District files, Jemez Springs, NM.

USDA Forest Service. 2002. Jemez Mountains Geographic Management Unit: populations of Rio Grande cutthroat trout. Unpublished: prepared by Sean Ferrell, Forest Fisheries Biologist, Santa Fe National Forest.

USDA Forest Service. 2003. Santa Fe National Forest, Management Indicator Species Assessment, with Dec. 2004 update for the Rio Grande cutthroat trout. Santa Fe National Forest: Santa Fe, NM.

USDA Forest Service. 2003. Breeding bird surveys, Lake Fork Mesa and Sandoval Ridge. Unpublished. Jemez Ranger District files: Jemez Springs, NM

USDA Forest Service. 2004. Draft Environmental Impact Statement for the Invasive Plant Control on the Santa Fe National Forest. Santa Fe National Forest: Santa Fe, NM.

USDA Forest Service. 2004b. Federally Listed Threatened, Endangered, and Proposed Species (including designated and proposed critical habitat) found within National Forests in the USDA Forest Service Southwestern Region. January 6, 2004. Southwestern Region: Albuquerque, NM.

USDA Forest Service. 2004c. Biological Assessment for the Continued Implementation of the Land and Resource Management Plans for the Eleven National Forests and National Grasslands of the Southwestern Region. Region 3. Albuquerque, NM.

USDA Forest Service. 2005. Framework for Streamlining Informal Consultation for Livestock Grazing Activities. USDA Forest Service Southwestern Region. March 15, 2005. U.S. Region 3 Office, Albuquerque, NM

USDA Forest Service. 2005. Jemez Ranger District Threatened, Endangered and Sensitive Species maps and files. Jemez Springs, NM

USDI, Fish and Wildlife Service. 1993. Rule to list the Mexican spotted owl as a threatened species. Federal Register, Volume 58, Number 49. March 16, 1993. Rules and Regulations: 50 CFR Part 17. RIN 1018-AB 56. Washington DC: US Department of Interior, Fish and Wildlife Service: 14248-14271.

USDI, Fish and Wildlife Service. 1995. Recovery Plan for the Mexican Spotted Owl (*Strix occidentalis lucida*): Volumes I and II. Albuquerque, NM: US Department of Interior, Fish and Wildlife Service. Volume I, 172 p. and Volume II 145 p.

U.S. Environmental Protection Agency. 1995. National Water Quality Inventory, 1994 Report to Congress Executive Summary. Office of Water, Washington DC 20460.

Vavra, Martin, William A. Laycock and Rex D. Pieper. 1994. Ecological Implications of Livestock Herbivory in the West. Society for Range Management.

Ward, J.P., Jr. and W.M. Block. 1995. Mexican spotted owl prey ecology. Chapter 5, *In*: U.S. Fish and Wildlife Service. Mexican Spotted Owl Recovery Plan, Vol. II. U.S. Fish and Wildlife Service, Albuquerque, NM.

Yanicak, Steve. 2005. personal letter. Program Manager, New Mexico Environment Department, White Rock DOE Oversight Bureau.

APPENDIX 1: ABBREVIATIONS AND ACRONYMS

Abbreviation	Description or Definition
°C	Degrees Celsius
°F	Degrees Fahrenheit
ATV	All-terrain Vehicle
AUM	Animal Unit Month
BBS	Breeding bird survey
BISON	Biota Information of New Mexico
BLM	Bureau of Land Management
bs	Blue spruce
CFR	Code of Federal Regulations
cfu	Culture forming units
dbh	Diameter at breast height
df	Douglas fir
E. coli	Escherichia coli
EPA	Environmental Protection Agency
FR	Forest Road (or Forest System Road)
FSH	Forest Service Handbook
FSM	Forest Service Manual
GIS	Geographical Information System
HUC	Hydrologic Unit Code
INFRA	Infrastructure database
JMS	Jemez Mountain Salamander
Km	kilometer
MBF	Thousand board feet
MIS	Management Indicator Species
mL	Milliliter
MSO	Mexican spotted owl
NEPA	National Environmental Policy Act
NMGF	New Mexico Game and Fish Department
OHV	Off-highway Vehicle
P/J	Piñon-juniper
PAC	Protected activity center
PETS	Proposed, endangered, threatened, and sensitive species
pH	pH scale – expression of concentration of hydrogen ions
pp	Ponderosa pine
PSD	Prevention of significant deterioration
RGCT	Rio Grande cutthroat trout
RU	Recovery Units
SFNF	Santa Fe National Forest
tf	True fir (white fir and Douglas fir)
TES	Terrestrial Ecosystem Survey
TR	Technical report
WUI	Wildland urban interface
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFS	United States Forest Service