



File Code: 1950-1

Date: September 4, 2008

Dear Friends and Neighbors:

The *Proposed Action, Alternatives, and Preliminary Alternatives for 30-Day Comment for the El Pueblo Allotment* is now available for your review and comment. The allotment is located on the Pecos/Las Vegas Ranger District of the Santa Fe National Forest. The purpose of this project is to re-issue term grazing permits in compliance with the National Environmental Policy Act and Section 504 of the 1995 Rescissions Act in a manner such that Allotment resources meet or move towards objectives in the Santa Fe National Forest Plan (Forest Plan).

You are receiving this letter because of your past interest in grazing management on the Santa Fe National Forest, or because you are a neighbor or user of the area encompassed by the allotments.

As District Ranger of the Pecos/Las Vegas Ranger District, I am the responsible official for this proposal. We want to consider your comments before the Environmental Assessment is completed and a final decision is made. Comments must be postmarked or received within 30 days of the first day after publication of the legal notice in the *Albuquerque Journal*.

We encourage your participation in the planning process. We would appreciate your comments on the merits of the Proposed Action, as well as comments that address factual errors, misinformation, or information that has been omitted. To be most helpful, your comments should be within the scope of the proposal, have a direct relationship to the proposal, and include supporting reasons for the District Ranger's consideration (36 CFR 215.5). Accompanying this letter is a description of the proposed action and project maps.

Individuals and organizations desiring to comment must provide the following:

1. Name and current physical mailing address,
2. Title of the project (El Pueblo),
3. Comments on the proposed action, along with supporting reasons that we should consider in reaching a decision, and
4. Signature or other verification of identity upon request.

Only those who submit comments during the 30-Day comment period may be eligible to appeal the project decision. Identification of the individual or organization that authored the comment(s) is necessary for appeal eligibility.



The Decision Notice will be mailed to those who have commented during the public involvement process for this proposal, 30-Day comment period, and those who request the decision notice. For more information about this project, please contact Brian Davidson at (505) 438-7801. The enclosed documents for the El Pueblo Allotment will also be available at:

<http://www.fs.fed.us/r3/sfe/projects/projects/index.html>

Please submit your written comments to:

Steve Romero, District Ranger
Pecos/Las Vegas Ranger District
P.O. Drawer 429
Pecos, NM 87552

In addition, you may send your comments electronically to: comments-southwestern-santafe-pecos-lasvegas@fs.fed.us (.doc, .txt, .pdf, .html or .rtf only) or FAX to 505-757-2737.

The name and address of the person submitting electronic comments must be included. Hand-delivered comments may be delivered to the Pecos Ranger Station (18 State Route 63, Pecos) or the Las Vegas Ranger Station (1926 N. 7th Street, Las Vegas), between the hours of 8:00 am and 4:30 pm. If you would like to make your comments verbally, please call (505) 757-6121 to arrange an appointment. Comments submitted will be entered into the project record and available for public review.

Sincerely,

/s/ Steve Romero
STEVE ROMERO
District Ranger

Enclosures



United States
Department of
Agriculture

Forest Service



Santa Fe
National Forest,
Region 3

September 2008

PROPOSED ACTION, ALTERNATIVES, AND PRELIMINARY EFFECTS ANALYSIS FOR 30-DAY COMMENT FOR THE EL PUEBLO GRAZING ALLOTMENT

Project Number: 23631
Pecos/Las Vegas Ranger District
Santa Fe National Forest
San Miguel County, New Mexico

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CHAPTER 1 PURPOSE AND NEED FOR ACTION

INTRODUCTION

The Forest Service is preparing an Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. The Environmental Assessment will disclose the direct, indirect, and cumulative environmental effects that would result from the proposed action and alternatives. It also provides the supporting information for a determination to prepare either an Environmental Impact Statement or a Finding of No Significant Impact. Resource specialists are currently analyzing the proposed action and its alternative. An EA is expected to be complete by the end of the calendar year.

Additional documentation, including more detailed analyses of project-area resources, can be found in the project planning record located at the Santa Fe National Forest Supervisors Office.

PURPOSE AND NEED FOR THE PROPOSED ACTION

In compliance with the National Environmental Policy Act (NEPA) and 1995 Rescissions Act, the **purpose** of this project is to authorize livestock grazing on the El Pueblo Grazing Allotment because:

1. There is Congressional intent to allow grazing on suitable lands (Multiple Use and Sustained Yield Act of 1960, Forest and Rangeland Renewable Resource Planning Act of 1974, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976).
2. The NFS lands within the El Pueblo Allotment have been identified as suitable for domestic livestock grazing in 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).
3. It is Forest Service policy to contribute 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).

Under current grazing management the allotment is meeting or moving towards the Forest –wide goals and objectives (see page 3) in a desired timeframe. In order to continue towards these objectives, there is a need to:

- Improve range infrastructure to improve rotational grazing;
- Improve existing water developments to enhance livestock distribution;
- Improve upland range condition within existing key grazing areas.

THE PROPOSED ACTION

The Pecos/Las Vegas Ranger District, Santa Fe National Forest proposes to continue to permit 560 head cow/calf (8,870 AUMs) from March 1st to February 28th (year-long) under a ten year term grazing permit. A variety of new range facilities and reconstruction of existing range facilities is included in the proposed action to improve livestock distribution and the timing, duration and frequency to livestock use within specific areas of the allotment. The following range facilities are proposed:

- 5.6 miles of fence reconstruction (electric to conventional) to create functional pasture divisions,
- Extension of existing powerline on private land to the Deep Well,

- Reconstruction of existing pipeline and replacement of associated water troughs (from the Deep well to the Palo Amarillo and Pena pastures approximately 10 miles),
- Construct one earth tanks

The proposed action follows current guidance from Forest Service Handbook 2209.13, Chapter 90 (Grazing Permit Administration; Rangeland Management Decisionmaking). A detailed description of the proposed action is found in Chapter 2.

LOCATION, SETTING AND BACKGROUND

The El Pueblo Allotment comprises approximately 26,511 acres of National Forest System lands (NFS) on the Santa Fe National Forest, located in T. 12 & 13 N., R. W, San Miguel County, New Mexico and is approximately 17 air miles from Las Vegas, New Mexico. The allotment is administered by the Peco/Las Vegas Ranger District. The Forest Plan identifies the allotment as being in Management Areas: G (Wildlife-Range-Firewood); K (Sensitive Soils and Species); and M (Research Natural Areas). Domestic livestock grazing has occurred within the allotment for over 150 years. The allotment has been under Forest Service management since 1946. Prior to Forest Service ownership the allotment was administered by the Farm Security Administration. The allotment was transferred to the Forest Service with the objectives of conserving, maintaining, and enhancement of forest and forage resources while supporting local communities and resident's historical use to the land.

There are currently three permits issued on the allotment totaling 560 Cow/calf pairs yearlong. The grazing system is a deferred rotational system. The allotment has eight separate pastures plus two holding pastures. There are numerous existing range facilities within the allotment including 38 earthen tanks, one well, 27 mile of pipeline, 29 drinkers, one spring development, six storage tanks and approximately 24 miles of fence.

The allotment is located in the Pecos Valley Section of the Southwest Plateau and Plains Dry Steppe and Shrub Province of the Southern Shortgrass Prairie Ecoregion. The landscape is varied, with plains, hills, basins, and fans. Geologic formations consist of sedimentary and volcanic rocks. Precipitation on the allotment ranges from 12 to 16 inches. More than half of annual precipitation occurs during summer growing season but low amounts and erratic patterns result in xeric to subxeric sites (McNabb et al 2007). Vegetative community types consist largely of piñon/juniper overstory with short grass understory dominated by blue grama (65%) followed by open grasslands (35%).

The allotment falls entirely within the Tecolote Creek and Pecos River Watersheds (HUC 130600104 & 130600103). There is approximately four miles of perennial streams and 74 miles of intermittent drainages within the allotment. Arroyo Leguino and El Canon del Palo Amarillo are the major drainage features within the allotment. The allotment is bound by the Pecos River to the south and Tecolote Creek to the east. The Pecos River is the only fish bearing stream.

DESIRED CONDITIONS

An interdisciplinary team (IDT) has identified the existing and desired conditions for this allotment based on information contained in the Santa Fe National Forest Plan, historical and current range inventories and the Terrestrial Ecosystem Survey (TES) of the Santa Fe National Forest.

Rangeland inventory and analysis on the Santa Fe National Forest begins with identifying TES mapping units for the landscape. The TES map unit is the standard ecological unit that provides basic information for range management planning. TES provides the hierarchical framework of ecological units from which resource conditions (existing and natural conditions) can be assessed. Information on soils, climate, vegetation, geology, and landform is provided by TES.

In 2007, species composition, canopy cover and frequency data was collected on several areas within the allotment. This information is used to compare current vegetation against the Potential Natural Communities (PNC) for each TES map unit. PNC is the potential of a plant community as described in TES. It defines the range of variability for each TES map unit. PNC is used as a yardstick from which to determine the ecological status of existing vegetation, and as a baseline to establish the desired conditions for a landscape and/or allotment (Range Analysis and Management Guide 1997). The desired condition should represent full range of variation (seral stages) and biodiversity necessary for a sustainable ecosystem.

Role of the Forest Plan

The 1987 Santa Fe Forest Plan, as amended (Forest Plan) sets the goals and objectives for the management of the Santa Fe National Forest. Goals describe the desired resource condition sometime in the future and are the bases for project-level planning. The standards, guidelines, and management direction contained in the 1986 Forest Plan set parameters with which the project must take place. Approval of any management activity, such as livestock grazing, must be consistent with these parameters (16 U.S.C. 160(i)). The Forest Plan can be found at: <http://www.fs.fed.us/r3/sfe/projects/plansReports/index.html>

Grazing activities will be authorized in a manner such that the landscape meets or moves towards goals and objectives in the Forest Plan.

Forest-wide Goals related to this project:

- Emphasize high quality range forage (Forest Plan, p. 19);
- Have the permitted use be in balance with its capacity (Forest Plan, p. 19);
- Maintain [riparian] areas that are currently in good condition (Forest Plan, p. 20);
- Manage Forest activities and programs within the capability of the land while recognizing the value of maintaining the traditional cultures of northern New Mexico (Forest Plan, p. 22); and
- Protect the productivity and diversity of riparian-dependent resources (Forest Plan, p. 79).

Forest Plan Standard and Guidelines are permissions or limitations that apply to on-the-ground implementation of management activities. Forest-wide Standard and Guidelines related to grazing can be found on pages 66 – 68 of the Forest Plan. Additional Standards and Guidelines are also applied to specific Management Areas.

Management prescriptions are applied to geographical units on the ground, which are called Management Areas (MA). Each MA has a specific management direction that highlights some of the most important direction. The El Pueblo Allotment is located following Management Areas:

<u>Management Area</u>	<u>Acres</u>	<u>Emphasis</u>
MA G (Wildlife-Range-Firewood)	12,400	Emphasis in this area is on key wildlife habitat protection, habitat improvement, and forage and firewood production. Dispersed recreational opportunities consist of firewood and pinyon nut gathering, hunting, and recreational driving.
MA K (Sensitive Soils and Species)	13,652	The primary emphasis in this area is on protection of sensitive species, ecosystems, and fragile soils. Consistent with this theme, ORV travel will be prohibited, and recreation, grazing, and firewood activities will occur only when compatible with the primary emphasis.
MA M (Natural Research Areas)	700	These areas will be managed to provide opportunities for nondisruptive research and education. This management includes allowing natural processes to occur and the protection of natural features. Use restrictions will be imposed as necessary to keep areas in their natural or unmodified condition. There will be no harvest of timber or firewood, nor will this area be assigned any grazing capacity.

Desired Conditions

Desired conditions are desired characteristics and conditions expected because of prescribed management. They provide a snapshot of what the resource would look like when goals, objectives, standards, and guidelines are met. Desired conditions can apply to the present or future. As previously discussed, an interdisciplinary team identified the desired resource conditions based on the PNC as described in TES. The desired conditions for the El Pueblo allotment are listed below. A description of the PNC, existing conditions, and desired conditions for each full capacity TES unit can be found in Appendix B.

- Full capacity range sites should be within its range of natural variability, exhibit the biodiversity necessary for a sustainable ecosystem, and be in fully functioning range condition.
- Maintain or move herbaceous species composition and surface components, such as litter and basal vegetative percentages toward site potential.
- Forage species composition should exhibit a suite of species that are appropriate for the site based on the PNC description.
- Satisfactory range conditions with a mid to high similarity to PNC with an upward or static trend.
- Improve livestock distribution and follow rotation schedule to minimize overuse in certain areas. Do not exceed 40% utilization on forage species.
- Control or eliminate non-native and invasive plant populations within the allotment.

PUBLIC INVOLVEMENT

This project was initiated on November 19, 2007. Scoping letters were sent to 42 interested parties and adjacent land owners on March 17th, 2008 to invite comment on the proposed action. The District received five responses to the scoping letter. All comments received were reviewed by the District Ranger and the Interdisciplinary Team (IDT). Several of the responders expressed support on the proposed action, while others expressed specific concerns.

The IDT developed the preliminary alternatives and issues that will be addressed in the EA based on scoping comments received and internal and external issue. Issues identified during the scoping period did not support the need to formulate new alternatives to the proposed action. New alternatives and issues that are identified during the 30-Day Comment Period will be evaluated by the District Ranger and the IDT and used to enhance the project analysis by modifying the preliminary alternatives, developing new alternative and identify additional issues that may need to be addressed.

Per 36 CFR 215.5(a) the Responsible Official has the discretion in determining the most effective time to provide notice under 36 CFR 215.5(b). This project is available for meaningful public comment. The notification and request for comment for the scoping period resulted in five responses. All comments were evaluated and responded to collectively and individually by the IDT and District Ranger. Detailed responses to these comments can be found in the project record and are available by request. Some of the more meaningful comments to the Scoping comments are summarized below:

A concern was expressed about ecosystem health. The commenter felt that livestock grazing is not preserving the integrity of the ecosystem and protection and preservation should be the highest priority. **Response:** The Santa Fe National Forest Plan defines the direction for managing the Santa Fe National Forest. It provides for multiple use and sustained yield of goods and services from the Forest in a way that maximizes long-term net public benefits in an environmentally sound manner. Two of the planning principles in the National Forest Management Act

regulations states: 1) Recognition that the National Forests are ecosystems and their management for goods and services requires and awareness and consideration of the interrelationships among plants, animals, soil, water, air, and other environmental factors within such ecosystems; 2) Protection and, where appropriate, improvement of the quality of renewable resources (1987 SFNF Plan, pg. 1).

Concern was expressed about livestock grazing impacts to threatened and endangered species, sensitive species, migratory birds, and wetlands. The commenter requested the while doing the capability analysis and developing economic and environmental consequences that the Forest Service should consider threatened and endangered, and sensitive species, water quality, and overall species diversity. **Response:** The Santa Fe National Forest Plan defines the direction for managing the Santa Fe National Forest. The Forest Plan states; monitor management practices within occupied and potential Threatened or Endangered species habitat and evaluate impacts (pg 63), review all planned or permitted programs and activities to develop biological evaluations/assessments and determine needs for consultation or conference with the Fish and Wildlife Service and the New Mexico Dept. of Game and Fish (pg. 65), adjust riparian plant composition or structure through coordination with other uses or direct manipulation in order to achieve riparian standards (pg. 62). According to Forest Service Manual (FSM), Wildlife, Fish and Sensitive Plant Habitat Management (Amendment # 2600-91-8, Oct. 22, 1991) 2603-Policy-Serve the American people by maintaining diverse and productive wildlife, fish, and sensitive plant habitats as a integral part of managing National Forest ecosystems. This includes recovery of threatened or endangered species, maintenance of viable populations of all vertebrates and plants, and production of featured species commensurate with public land demand, multiple-use objectives, and resource allocation

A concern was expressed that the proposed action needs to move the landscape towards objectives consistent with Santa Fe National Forest Plan. **Response:** Monitoring of permitted grazing activities on the Santa Fe National Forest is guided by the Plan (pp. 175 – 185), FSH 2209.13_90, and Interagency Monitoring Technical References. Monitoring is included in the project-level decision. Monitoring can determine whether the project-level decision is being implemented as planned (implementation monitoring) and, if so, whether the objectives identified in the Forest Plan and Allotment Management Plan (sec. 94.1) are being achieved in a timely manner (effectiveness monitoring). Implementation and focused effectiveness monitoring are critical to determine when or if adaptive management changes should be made and to guide the direction that those changes take. As the project decision is implemented, monitoring should indicate whether actions are being implemented as planned and are meeting standards and design criteria (implementation monitoring), and whether those actions are effective in meeting or moving toward desired resource conditions (effectiveness monitoring). If monitoring indicates that desired conditions are not being met, other pre-determined management options (such as adaptive management) included in the project decision may be selected for implementation. If monitoring indicates that management is meeting standards, and is meeting or moving toward the desired conditions in an acceptable timeframe, the initial management options may continue. Adaptive management requires the interdisciplinary team and authorized officer to periodically evaluate monitoring results and to determine if other described management options are warranted. Adaptive management options that would be activated if the authorized activity is not achieving the anticipated objectives must be specified in the project-level decision. When monitoring indicates the need for implementation of adaptive management modifications disclosed in the project-level NEPA-based decision, those modifications can be implemented without further NEPA review. Examples of adaptive management would include reduction of permitted livestock.

A commenter expressed concern that the level of authorized livestock grazing on National Forest System lands needs to be based on resource conditions. They request that alternatives like reduction of livestock and alternative management requirements should be considered due to drought and climate change. **Response:** The Forest Service agrees, which is why adaptive management has been included as part of the proposed action. Adaptive management allows the Forest Service along with permittees to adjust their grazing management system based on ecological conditions of the allotment, available water, forage production, and condition of structural improvements. Less than normal levels of available water, forage production, and/or precipitation would result in a reduction of authorized grazing levels. Authorized livestock numbers have been reduced during past years such as 2002-2005 when precipitation levels and forage production were below normal. Authorized livestock numbers

are also dependent on monitoring results. End of the year monitoring results should show that no more than 40% of forage production has been utilized by cattle grazing.

DECISION FRAMEWORK

The District Ranger of the Pecos/Las Vegas Ranger District is the responsible official for selecting an alternative for the El Pueblo Grazing Allotment. Based on the environmental analysis, Forest Plan direction, and results of public involvement, the Deciding Official must decide whether to proceed with a specific action. If an action alternative is selected, the decision may include mitigation measures in addition to the Forest Plan Standard and Guidelines.

There is a two-part decision to be made for authorizing livestock grazing.

- Whether livestock grazing should be authorized on all, part, or none of the allotment.
- If the decision is to authorize some level of livestock grazing, then what management prescriptions will be applied (including standards, guidelines, grazing management, and monitoring) to ensure that desired condition objectives are met or that movement occurs toward those objectives in an acceptable timeframe.

CHAPTER 2 – ALTERNATIVES CONSIDERED

FORMALATION OF ALTERNATIVES

The IDT analyzed both internal comments and comments received from the public during the scoping period. No significant issues were identified during the scoping period for this Allotment. Analysis of alternatives requires consideration of a range of reasonable alternatives (40 CFR 1505.1). The range of reasonable alternative includes both alternatives that warrant detailed analysis, and alternatives that are considered by eliminated from detailed study. In cases where the design and configuration of the proposed action can mitigate resource concerns to acceptable levels, the proposed action may be the only viable action alternative. When there is a significant issue with the proposed action, an alternative to the proposed action shall be developed and analyzed in detail (FSH 1909.15, sec 14). At this time, no significant issues have been identified during the scoping period for this proposed action.

In addition to the proposed action, A “no action” alternative has been developed and analyzed in detail. “No action” is synonymous with “no grazing” and means that livestock grazing would not be authorized within the project area. This “no action” alternative provides point-of-reference for describing the environmental effects of the proposed action.

Descriptions of Alternatives Considered in Detail

The following is a description of alternatives analyzed in detail by the IDT. After an alternative has been selected and as the project is implemented, actual amounts of activities on the ground (measured in acres or miles) may vary. All changes would be evaluated to ensure that any effects are within the parameters of effects analyzed in this document and would be documented in the project record. Pertinent Forest Plan Standards and Guidelines designed to mitigate affects of alternative treatments are also listed. All acres and mileage listed are approximate. Maps for each alternative can be found at the end of this chapter.

Alternative 1 – No Action (No Grazing)

No new grazing permits would be issued for the allotment and livestock grazing would not be permitted on the allotment. Range facilities would be evaluated for wildlife, watershed, and soil protection needs. This alternative provides a baseline or reference point against which to describe environmental effects of the action alternatives. This alternative responds to the concerns of those who want no livestock grazing. Options for future management in this area would not be foreclosed.

Alternative 2 - Proposed Action

The following Proposed Action has been developed to meet the project’s purpose and need. The Proposed Action consists of four components: Permitted Livestock, Range Facilities, Adaptive Management, and Monitoring. The proposed action follows current guidance from Forest Service Handbook 2209.13, Chapter 90 (Grazing Permit Administration; Rangeland Management Decisionmaking).

The Pecos/Las Vegas Ranger District, Santa Fe National Forest proposes to continue to authorize livestock grazing on the El Pueblo Grazing Allotment under the following terms:

Permitted Livestock: The number of livestock “permitted to graze” would be authorized up to 8,870 AUMs¹ (560 AU’s from March 1st to February 28th) under a rotational grazing system. This is the number of AUMs that can be supported during times of favorable climate and resource conditions. The exact number of AUMs “authorized to graze”² on an annual basis would depend upon such things as the ecological condition of the allotment, available water, and forage, functional structural facilities, range readiness, and predicted forage production for the year. A utilization guideline of conservative use (40% forage utilization as measured at the end of the growing season) would be employed to maintain or improve rangeland vegetation and long term soil productivity.

Range Facilities: In consultation with the grazing permittee’s, several range facilities have been identified (Refer to Map) that will further enhance livestock management on the allotment. These range facilities are intended to improve livestock distribution. The following new range facilities have been identified for construction:

- 5.6 miles of fence reconstruction (electric to conventional) to create functional pasture divisions,
- Extension of existing powerline on private land to the Deep Well,
- Reconstruction of existing pipeline and replacement of associated water troughs (from the Deep well to the Palo Amarillo and Pena pastures approximately 10 miles),
- Construct one earth tank.

Adaptive Management: The Proposed Action is adaptive, allowing the Forest Service and the grazing permittees the ability to adjust the timing, intensity, frequency and duration of grazing, the grazing management system, and livestock numbers according to resource conditions. The exact number of AUMs authorized to graze on an annual basis would depend upon such things as the ecological condition of the allotment, available water, and forage production, condition of structural facilities, range readiness, and predicted forage production for the year. Anything less than the full permitted livestock numbers represents a condition in which capable acres and other integral components of the range management (such as water) are producing less than normal.

Monitoring: Monitoring would determine whether the project-level decision is being implemented as planned (implementation monitoring) and, if so, whether the objectives identified in the Forest Plan, Annual Operating Instructions (AOI) and Allotment Management Plan (AMP) are being achieved in a timely manner (effectiveness monitoring). Allotment monitoring would be open, cooperative, and inclusive process with the permittee’s. Implementation and effectiveness monitoring are critical to determine when or if adaptive management changes should be made and to guide the direction that those changes take.

If monitoring indicates that desired conditions are not being achieved, management would be modified in consultation with the permittee. Adjustments to the annual authorized livestock numbers (an increase or decrease) may occur during the grazing year, based on conditions and/or range inspections. An example of a situation that could call for adaptive management adjustments is drought conditions. If adjustments are needed, they are implemented through AOIs. This proposal meets the Forestwide standards and guidelines as well as those specific to the Management Areas in the Forest Plan. Monitoring protocols would follow the Interagency Monitoring Technical References (FSM 2206).

MITIGATION MEASURES

To mitigate resource impacts from the proposed action, the following measures will be implemented. The mitigation measures included here are required and limited to those for which the Forest Service has authority.

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

² Permitted livestock indicates the permitted livestock that are permitted by the Term Grazing Permit. Authorized livestock is the number of livestock that are authorized annually and billed for grazing on NFS lands.

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 all prescribed mitigation measures, no potentially significant adverse environmental impacts would be expected to occur.

Soil, Water and Vegetation – the objective is to mitigate soil, water, and vegetation impacts from cattle grazing and construction of range facilities.

- Cattle will not be moved onto an allotment or allotment pastures until range readiness and facility inspections indicate that appropriate conditions exist;
- Key herbaceous riparian vegetation, will have a 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 30 percent during the growing season or 40 percent during the dormant season;
- Stream bank instability attributable to grazing livestock will be less than ten percent 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. 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 in locations 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 accomplished to have no adverse effect on Threatened and Endangered species (USDA-FS 1996, pg 68). If any listed or proposed T&E or Forest Service 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 fences will meet wildlife standards that allow easy migration and passage. All fences will be built to wildlife specifications (USDA-FS 1996, pg 66 and 67):
 - 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 wildlife use (USDA-FS 1996, pg 66). New and reconstructed water developments will include wildlife access, cover, and escape considerations (USDA-FS 1996, pg 67).

- Cattleguards will be designed to prevent small animal entrapment.

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 to avoid concentrating 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.

MONITORING

The objective of monitoring is to evaluate the abilities of all parties involved in planning and implementing the grazing program.

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 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. 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 might also affect grazing patterns.

If deemed necessary, key area locations may be modified. Reconsideration of key area locations identified by the Forest Service and the permittees will adhere to 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.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

INTRODUCTION

This chapter summarizes the physical and biological, social and economic environments of the affected project area and the cause and effect relationship of implementing each alternative on that environment. It also presents the scientific and analytical basis for comparison of alternatives presented in the previous charts. Resource specialists analyze the magnitude of direct, indirect, and cumulative effects of the proposed activities on both short and long-term productivity. Only information necessary to understand the environmental consequences is included in this document. The project record contains all project-specific information, including specialist reports and results of the public participation. The project record is located at the Supervisor's Office. Information from the record is available upon request.

The following are definitions of terms used in discussing the environmental effects of proposed activities.

Affected environment (40 CFR 1502.15) is a brief description of the area(s) to be affected by the proposed activities. The description shall be no longer than is necessary to understand the effects of the alternatives. **Direct effects** (40 CFR 1508.8) are those occurring at the same time and place as the triggering action (e.g. Current authorized livestock grazing on riparian areas). **Indirect effects** (40 CFR 1508.8) are those caused by the action, but occur later, or at a distance from the triggering action (e.g. Sediment input into streams due to a loss of vegetative cover from grazing activities). **Cumulative effects** (40 CFR 1508.7) are the effects on the environment that results from incremental effect of the action added to the effects of other past, present, and reasonably foreseeable future actions, regardless of whether or not the agency or person undertakes them and regardless of land ownership on which other actions occur. An individual action when considered alone may not have a significant effect, but when its effects are considered in addition to effects of other past, present, and reasonably foreseeable future actions, the effects may be significant (e.g. The effects of catastrophic wildfire on a grazing allotment and the watershed as a whole).

The cumulative effects analysis for each alternative is evaluated separately for each resource and may have different spatial and temporal boundaries. Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined. The analysis of cumulative effects begins with consideration of the direct and indirect effects on the environment that are expected or likely to result from the alternative proposals for agency action. Agencies then look for present effects of past actions that are, in the judgment of the agency, relevant and useful because they have a significant cause-and effect relationship with the direct and indirect effects of the proposal for agency action and its alternatives.

The USDA-Forest Service uses the best available science and most reliable and timely data available. Accuracy from the Combined Data Systems, Geographical Information Systems (GIS), Natural Resource Information System, Forest Inventory, and Analysis Database, Infrastructures Database and other databases vary in accuracy. All attempts to verify and update this information have been made where possible.

BACKGROUND

Herbivory (grazing) is an influential and nearly universal process that is simply defined as the consumption of forage by herbivores (Valentine 2001). Herbivores are comprised of wild ungulates (hoofed animals, including ruminants, but also horses, elk and deer), domestic livestock, some small mammals, and insects. Some Herbivores are considered generalist, such as domestic livestock, graze a wide variety of plants, while others are considered specialist, such as deer and antelope, and are specific in what they consume.

Grazing has a variety of direct and indirect effects to plant communities in the southwest. Depending on the intensity, grazing affects species composition, species abundance, primary production, physical properties of soils, and other belowground attributes. The effects of livestock grazing can be positive or negative depending on duration, extent, and magnitude. The impact of grazing to southwestern ecosystems has a long history, which has a bearing on the existing conditions of New Mexico's grassland communities.

Native herbivores in New Mexico consisted on deer, antelope, elk, and bison. Most of the grassland communities in New Mexico were not subject to a long-evolutionary history of grazing. Elk populations were limited in only a few mountain ranges, and only comprised half of today's range. Large bison herd were historically documented only occupying the Great Plains region of the state. Very little evidence suggests that bison occupied the areas west of the Rio Grande Valley or the mountain ranges (Milchunas 2006).

The Spanish were the first Europeans to graze domesticated livestock in New Mexico beginning in the late 1500's. During both the Spanish Colonial and Mexican periods (1598 to 1846), ranching and farming activities occurred primarily in and around land grants and Puebloan settlements. Livestock grazing was moderate and was practiced more for subsistence rather than extensive economic markets. Sheep were grazed more extensively than cattle or horses in the early years. In the 1800s, the amount of sheep production increased as Spanish populations moved eastward into the plains around present-day Las Vegas, across the Sandi and Manzano Mountains and westward for the Rio Grand Valley. Although concentration of sheep and cattle near settlements created areas of overuse during colonial times, herds were generally small and there were vast amounts of rangelands that were not significantly grazed by sheep and cattle. In northern New Mexico, loss of land grant lands limits the grazing areas open to small, local communities, many of which are surrounded by National Forest (Raish 2004).

Large-scale commercial livestock ranching began in the mid 1800's and lasted until the turn of the century. Exceedingly large numbers of both sheep and cattle were grazed on rangelands in attempts to achieve maximum economic gain. At its peak in the late 1890's and estimated 9 million animal units were grazed in New Mexico. The native grasslands could not sustain these large numbers of animals and cattle populations crashed after severe drought in the summer of 1891 and 1892. The combination of drought and overgrazing led to soil cover loss from wind and water erosion. Fire suppression activities which began at the turn of the century in combination with reduced herbaceous plant cover due to overgrazing resulted in increases in woody shrubs and plants with low grazing preference across the landscape (Raish 2004)

The Forest Service began the surveying NFS lands and adjudicating individual permits to conform to range capacity in 1910. Through out the early part of the 20th century, the Forest Service began address degraded rangelands through grazing improvement programs and grazing permit reductions. Beginning in the 1920s and continuing throughout the 1960s, there was a continuously decline in the number of permitted numbers of livestock (Raish and McSweeney, 2003).

The El Pueblo allotment was once part of the Anton Chico Grant and was grazed by sheep, cattle, and horses. Grazing was heavy without any management of livestock. In 1939, range examiners estimated that a third of the blue grama cover had been lost to bare ground and inferior species. Erosion accelerated due to loss of ground cover and development of roads and trails.

In 1939, the Farm Security Administration (now Farmers Home Administration) purchased the north end of Anton Chico Grant. The Soil Conservation Service developed management plans that provided for the yearlong grazing of 380 cattle under a rotational grazing system. A livestock association for the El Pueblo allotment was established under the guidance of the Farm Security Administration. In 1947, administration and custody of the land was transferred to the Forest Service under the memorandum of understanding. This temporary agreement was replaced in 1952 with the passing of Public Law 419. This law authorized and directed the Secretary of Agriculture, with consent of the New Mexico Rural Rehabilitation Corporation, to convey, grant transfer, and quit claim to the United States for subsequent administration under the law and regulations applicable to national forest lands acquired under the Weeks Law.

GRAZING MANAGEMENT

The allotment encompasses approximately 26,752 acres, of which about 241 acres are private property. Of the approximate 26,511 acres on National Forest System lands, about 69 % (18,441 acres) are considered “capable” range. The existing grazing permit authorizes 560 cattle to graze from March 1st to February 28th. The current grazing strategy on the allotment is informal, deferred rotations that use natural barriers, fences, and herding, salting, and existing developments to manage livestock. The table below summarizes the use and facilities located on the El Pueblo Allotment.

<u>El Pueblo Allotment</u>	
Allotment Acres	26,752
NFS Lands	26,511
Number of Permits	
Season of Use	Yearlong 3/1 to 2/28
Number of Cattle	560
Animal Use Months (AUM)	8,870
Number of pastures	9
Grazing System	deferred rotation
<u>Range Facilities</u>	
Earth Tanks (each)	38
Wells (each)	2
Pipelines (miles)	17
Drinking Troughs (each)	19
Storage Tanks (each)	6
Spring Developments (each)	1
Fences (miles)	24

Based on the inspections and the monitoring conducted, less than one percent (approximately 257 acres) of the total grazed acres on the allotment is in “unsatisfactory range management status.” This term describes the situation where the existing vegetation is not desired and where short-term objectives are not being achieved. Rangeland is considered to be in “satisfactory range management status” when the existing vegetation is similar to the desired condition or the short-term objectives are being achieved to move the rangeland toward the desired condition. The existing condition of the allotment is described below.

The permittee’s on the El Pueblo Allotment have been proactive in assisting the Forest Service in monitoring resource conditions on the allotment over the last several years. Permittee’s have been monitoring forage production and forage use levels on the allotment. In 2003, permittee’s removed all permitted livestock during the summer from the allotment due to lack of forage and water production (drought conditions). The table shows the authorized use on the El Pueblo Allotment since 2000.

Grazing Year	Authorized Use*
2000	560
2001	560
2002	560
2003	364
2004	224
2005	224

Grazing Year	Authorized Use*
2006	307
2007	448
2008	448

Annual utilization monitoring is conducted on allotment Key areas and key species have been identified on the allotment and have been included in the AOI for several years. Key forage species for the El Pueblo allotment are blue grama, western wheatgrass, and crested wheatgrass. Grazing intensity guidelines developed by Holecheck and Galt (2000) for shortgrass-pinyon/juniper rangelands that are currently followed are described below.

Grazing intensity guide for shortgrass-pinyon/juniper rangeland in New Mexico (Holechek & Galt, 6/00, Rangelands).

Qualitative Grazing Intensity Category	Use of Forage by Weight (%)	Stubble Height Indicators of Grazing Intensity		
		Blue Grama	Western Wheatgrass	Crested Wheatgrass
		Average height of vegetation (inches)		
Conservative	31-40	2.0-2.5	4.0-5.0	4.0-5.0

Utilization monitoring conducted by the Forest Service between 2004 and 2007 showed conservative use levels (< 40% of annual forage production) across the majority of the allotment. This monitoring also indicated some localized overuse within some key areas. This overuse was exacerbated by a lack of proper livestock water distribution throughout the pasture or the duration of livestock in these areas being too long.

Currently the El Pueblo allotment encompasses nine pastures and two holding pastures. Historically livestock distribution was managed by use of electric fences (Ladrones and River Pastures). As electric fencing began to deteriorate on it was not repaired nor replaced with conventional barbed wire fence. Remnants of electric fencing are still visible on the allotment today. Although the electric fencing has been nonfunctional for several years, permittees on the allotment still refer to historical pastures as their current pastures. As a result, miscommunication between the agency and permittees regarding management of the allotment has occurred because the agency acknowledges only those pastures that are fully enclosed by fencing.

SOILS & WATERSHED

AFFECTED ENVIRONMENT

SOILS

Landscape and Geology: The El Pueblo grazing allotment is geographically distinct from the Santa Fe National Forest, situated southeast of the Sangre de Cristo Mountains. The allotment soils are derived from Paleozoic sedimentary parent material, which was originally seafloor (limestone) and near-shore (beach) deposits over 200 million years old. The beds have not been displaced from their original orientation and much of the landscape of the allotment has flat, open, low slope gradient. The allotment has a southerly aspect within a shortgrass prairie ecosystem of plains, hills, shallow basins, and fans. The terrain is flat-to-rolling, though intersected with remnants of younger sedimentary beds, which remain as hills. Much of the soil is inherently erosive sand or sandy loam. , but a predominantly summer distribution of thunderstorm delivery.

The area receives twelve to thirteen inches of precipitation per year, primarily as a result of summer thunderstorms (Western Regional Climate Center, 2008) with some winter snow. Dominant vegetation includes pinyon-juniper and oak. Ephemeral swales and some intermittent stream channels dissect the allotment but none are perennial except for the Pecos River flowing along the southern boundary of the allotment. True riparian vegetation is rare except along the Pecos River.

Soil Condition: Soil condition is primarily determined by evaluating surface soil properties. The soil surface is the critical area where organic matter accumulates, decomposes, and eventually become incorporated into soil. It is also the zone of maximum biological activity and nutrient release. The physical condition of this zone plays a significant role in soil stability, nutrient cycling, water infiltration and energy flows. The presence and distribution of the surface soil is critically important to productivity. The rating procedure evaluates soil quality based on an interpretation of factors that affect three primary soil functions. The primary soil functions evaluated are soil stability, soil hydrology, and nutrient cycling which are all interrelated. The soils hydrologic functions are the soils ability to store, and transmit water. Soil stability is the soils ability to resist erosion. Nutrient cycling is the ability of the soil to accept, hold and release nutrients (FSH 25 09 R3 SUPPLEMENT).

The following table displays the current soil condition ratings for the El Pueblo allotment. The satisfactory condition soils function properly, retain their inherent productivity, and are able to sustain high outputs. The unsatisfactory soils have a reduced ability to function properly. Unsatisfactory condition occurs here due to a combination of disturbance due to historic land management practices, roads, and inherent erosive properties. Impaired soils have reduced soil functions and have increased vulnerability to degradation. An impaired category indicates there is a need to investigate the cause and degree of decline in soil functions (FSH 2509).

ALLOTMENT	Satisfactory Soil Condition		Unsatisfactory Soil Condition		Impaired Soil Condition		TOTAL
	Acres	Percent	Acres	Percent	Acres	Percent	
El Pueblo	9,355	35	16,323	62	790	3	26,484

RIPARIAN, WETLANDS, STREAMS, WATER QUALITY

This allotment is located within the headwaters Pecos River and Tecolote Creek (1306000104 & 1306000103, 5th Code Watersheds) and drain into the lower Pecos river.

Riparian and Wetlands: Riparian areas are basic to the hydrologic function of watersheds. Ground cover promotes infiltration and conserves water, soil, and nutrients on-site. Influent soil moisture recharges ground water and base flows. Trees and shrubs regulate floods by dissipating flow energies, control water temperature by shading streams, improve channel structure by adding debris, and supply food to aquatic fauna. Watershed conditions upstream affect riparian areas by influencing the size, frequency, duration, and water quality of floods and base flows.

Riparian vegetation is identified in two intermittent drainages that are tributary to the Pecos River, near the western edge of the allotment. The edge of the Pecos River itself hosts a dense overstory of natives and non-native grasses, shrubs and trees including Russian olive and Tamarisk. Vegetation at the tributary channels includes juniper, rabbitbrush, Indian paintbrush, crested wheat grass, blue grama and sideoats grama (Riparian GIS query, formulated by Wayne Robbie, pers.communication, 2003). No wetlands are located on the allotment.

Streams and Floodplains: Intermittent stream channels and ephemeral swales cross this allotment, though only the Pecos River is perennial (four miles) and delineates the southern end of the allotment.

Floodplain is present all along the Pecos River., except where bedrock cliffs rise vertically. Most of this margin successfully withstands flood flows. However, functionality has been changed by the presence of livestock at the gate to the Pecos River between Twin Tanks and Bull Pastures. Cattle trampled the approach to the river (floodplain) and soil is compacted and vegetation is pedestalled in this location.

Flood-level flows readily carry sandy soil overland and along channels, and much of the soil lacks the protection of woody roots. The soil is readily available to be transported in the Pecos and, as sedimentation, it diminishes water quality.

Water Quality: Water quality has been assessed within the analysis area and the Pecos River has been determined to be impaired in this reach. According to the 2008 (draft) NMED SWQB report “Status of Water Quality in New Mexico: The Integrated 305(b) Assessment and 303(d) Listings Report” (NMED, 2006), sedimentation is occurring in this reach of the Pecos. It is listed as impaired for turbidity, for non-support of the beneficial use of “marginal coldwater aquatic life.” Probable causes include loss of riparian habitat, “recreational pollution sources,” and rangeland grazing. A pollutant load (TMDL) has been determined for this reach of the river. The forest has the opportunity and responsibility to monitor and control livestock access to the area as a Best Management Practice.

DIRECT AND INDIRECT EFFECTS ON SOILS AND WATERSHED

General Effects to Soil and Watershed: Impacts to soils and watershed (rangeland hydrology) vary from allotment to allotment depending on the type of livestock, livestock management, vegetative types, precipitation levels and other climatic and geological factors. The general direct impacts from livestock grazing include: reduction in vegetative cover and trampling. Depending on the intensity of livestock grazing, increases in overland water flow; reductions in soil water content; increase in erosion; and decreases in infiltration rates may occur (Gifford and Hawkins 1979).

The impacts of grazing on riparian areas, fish habitat and water quality are of particular concern in the southwest. Heavy grazing on riparian areas causes soil compaction, loss of vegetation and increased sedimentation. This can indirectly result in widening of stream channels, warmer water temperatures, increases in turbidity, and increases in nutrients and bacteria (Meehan 1991). Livestock grazing on public lands can also be a source of non-point pollution. While sediment is the major source of pollution from grazing activities, bacterial coliform levels are also a concern. This is not just isolated to the lands being grazed, but extends to areas downstream outside of the grazing allotments.

Grazing can also be beneficial to watersheds if managed at a light to conservative use level, as on the Grass Mountain allotment. The key to maintaining healthy hydrological conditions on rangelands is through practices that develop and maintain good plant cover. Perennial grassland communities have high basal areas and excellent soil binding properties and play a critical role in watershed stability (Holechek et al. 1989).

In order to evaluate extent of change due to the proposed action, certain resource variables can be measured and modeled. For example, erosion can be estimated as soil loss in tons per acre. Thus, in this allotment, soil map units were selected from the more likely areas of cattle concentration for each Alternative.

The key factors most likely to affect soil loss on allotments are grazing intensity and frequency. Utilization levels provide the best level of intensity. Grazing intensity is more directly associated with ungulate distribution patterns than overall stocking numbers.

Data from these sources were compared to standards in the Santa Fe National Forest Land and Resource Management Plan (1987). Watershed condition was analyzed strictly on the basis of the effects from grazing, relative to existing base conditions, and regardless of outside variables. Modeled soil loss was compared to the TEU soil loss tolerance levels in tons per acre. (Tolerance levels were set by Forest Service soil scientists during forest-wide mapping in the 1970’s and 1980’s. One ton of soil loss is approximately equal in weight to a uniform depth of 0.007 inches of soil over one acre).

It should be noted that any model-predicted runoff or erosion value by any model, will be within only plus or minus 50 percent of the true values. Erosion rates are highly variable, and most models can only predict a single

value. Replicated research has shown that observed values vary widely for identical plots, or the same plot from year to year. (Elliot et al, 1994, 1995).

Water quality is assessed by comparing existing conditions with desired conditions that are set by the States under the authority of the Clean Water Act (CWA, Sections, 303(d) and 305(b)). As delegated by the U.S. Environmental Protection Agency (EPA), the New Mexico Environment Department, and Surface Water Quality Bureau (NMED SWQB) is the regulating authority for water quality in New Mexico under the 2006-2008 impairment List. The general classifications used for surface water quality are “attaining” or “impaired” for all uses specified, and those not yet assessed. For impaired streams, the SWQB calculates allowable pollutant load (Total Maximum Daily Load, TMDL) based on certain formulas.

Alternative 1 – No Grazing: This alternative would result in beneficial effects to the soil and hydrology resources of the allotment. Soil condition and hydrologic improvement would be slowly visible and eventually measurable under this alternative. Improvement would be rapid at the site where livestock access the Pecos River directly.

Recovery would be facilitated by an increased abundance and species diversity of general vegetative cover and species diversity throughout the allotment. Riparian vegetation in the Pecos tributary channels would gain vigor and diversity. Stronger and deeper roots would filter more sediment and initiate the bank-building processes. This would result in decreased channel width-to-depth ratios (narrower and deeper), and it would increase streambank stability and sinuosity. Scour-resistant woody root systems would expand and invigorate, and help to withstand flood-level runoff events. Less sediment would be generated over the entire allotment, and lesser amounts would be transported through the stream system. Pecos River water quality would improve and potentially could qualify for de-listing. Existing willow populations would increase in extent and be represented in all age classes.

Soils that are impaired or unsatisfactory due to livestock grazing would improve over time to satisfactory condition. Density of ground cover and species diversity of upland and riparian native perennials would increase under this alternative. Soil functionality would be facilitated by increases in vegetation and litter to enhance the biotic component in these sandy soils. Soil compaction and erosion would decrease while infiltration would increase. However, improved change in soil condition class is a long-term process, which could take numerous decades. Eventually, improved vegetative cover would lead to improved hydrologic, nutrient cycling, stability and improved overall watershed condition.

Headcut migration has been a historic issue on this allotment. In the 1960’s and 1970’s contour furrows were constructed at Leguino Wash .to attempt to hold the soil in place. At the same time numerous stock tanks were developed for alternate water sources. Drainage over Forest System Road 85 is promoting scour where it gathers energy over bedrock, and intermittent channel road crossings are scoured by summer storms. This soil damage is not due to livestock use, but reflects the inherent vulnerability.

Alternative 2 – Proposed Action: On the El Pueblo allotment, up to 560 cow/calf pairs are allocated under an 11-pasture deferred rotation grazing system. Most acres have potential to be used. Thirty-five percent of the soil is in satisfactory condition, sixty-two percent of the soil is unsatisfactory and three percent is impaired.

As discussed, input variables to the WEPP model include type and amount of vegetative cover, slope, (determined from topographic map quads, TEU unit descriptions and GIS), soil characteristics, and 50-year storm precipitation (determined from a random number generator based on real climate data within the model). The WEPP predicted soil loss and sedimentation due to livestock grazing on TEU units 259 and 184 would be approximately 3.4 tons per acre per year. The soil loss tolerance for these TEU units ranges from 2.71 to 3.64 tons per acre per year.

Where soils are listed as unproductive, this was probably caused by historic over-use combined with their inherent geologic potential, and road development. Cattle use is likely where the unsatisfactory soils occur, but livestock

concentration mainly has good distribution due to the numerous stockwater developments. Under this alternative, headcutting would continue at a slower rate and may not heal, without mitigating actions.

Impaired soils are not likely to be used by livestock. Meanwhile, the vegetative community composition and percent cover in the upland areas accessible to grazing are slowly recovering from the long-term historic use, according to field inspection.

Frequency and timing of grazing is important. Alternating rest and use of a pasture annually and or seasonally can help riparian species recover from the prescribed intensity. Comparison of the maps for cattle use with soil condition reveals that use in the unproductive areas is unlikely, except for riparian corridors in the perennial upland areas.

CUMULATIVE EFFECTS ON SOILS AND WATERSHED

The area considered for cumulative effects (CEA) are the two 5th code hydrological units (Tecolote Creek and Pecos River). The entire El Pueblo allotment is contained by these two watersheds. This cumulative effects area was selected because the 5th code watersheds represents the extent in which permitted livestock grazing and other Forest Service activities result in modification of vegetation and soil properties that would cause impacts to these watersheds. This cumulative effects area covers approximately 335,072 acres (523 square miles). The CEA contains 80,556 acres of NFS lands and remaining acres in private, state, and other federal ownership (Bureau of Land Management). The effects of past, present and foreseeable actions are for the past ten years and those likely to occur in the next ten years. This timeframe would allow vegetation, soil conditions, and the watershed enough time to show change with the proposed management activities.

All permitted livestock grazing, wildfire, prescribed fire, timber harvesting, and roads other ground disturbing activities that would affect soil productivity and water quality conducted in the past and next ten years are the relevant federal actions that have a cause and effect relationship with the direct and indirect effects of permitting 560 head of cattle on the El Pueblo allotment.

The cumulative effects area contains portions of seven active Forest Service grazing allotments (Bull Creek, Fisher, San Geronimo, San Luis, Tecolote, Tres Hermanos, and Valle Grande). Within the CEA on NFS lands there is approximately 27,443 “full capacity” acres allocated to livestock grazing and approximately 59,322 “no capacity” acres. Soil conditions with the CEA consist of 54,558 acres of satisfactory, 9,457 acres unsatisfactory and 22,750 acres of impaired soils.

A total 934 head of livestock are permitted to graze on NFS lands within the cumulative effects area including the El Pueblo allotment. Grazing on the other allotments occurs primarily for 4 ½ months during the summer season (Forest Service INFRA Database). Monitoring on these allotments indicates light to moderate livestock use overall. No adverse impacts to riparian or upland rangelands have been identified from permitted livestock grazing within the cumulative effects area. The permitting of 560 head of cattle over the next ten years under conservative use guidelines and adaptive management on the El Pueblo allotment would not incrementally add to the effects of permitted grazing on these allotments.

Other activities that have occurred in the past ten years within the CEA have included; approximately 1,165 acres of prescribed fire, 170 acres of timber removal, and 160 acres of thinning, and . Monitoring and other observation have indicated that mostly dissipated (Forest Service FACTS Database).

In 1970's, the 12,700 acre Cat and Dog Fire occurred within the CEA. This was a significant stand replacement fire. Vegetation within this burn area has fully reestablished and any effects to the watersheds have dissipated. In the last ten years, there has been approximately 170 acres of wildfires, none of which have resulted in any significant effects to the watershed. The short-term effect of stand replacing fires can result in loss of soil productivity due of increase erosion rates. However, in wildfire areas and to a lesser extent timber harvest and

thinning areas, the amount of herbaceous and shrub vegetation increases significantly over the long-term, which has a beneficial effect on soil and watershed conditions.

Roads have an impact on watersheds and water quality. The cumulative effects area has approximately 409 miles of Forest Service roads (Forest Service INFRA Database). The Santa Fe National Forest is currently working on a Travel Management Plan. It is expected that road densities would decline as proposed road closure are implemented within the CEA. This would result in an improvement and cumulatively beneficial effect in overall watershed conditions within the watersheds.

There are 329 miles of intermittent and perennial streams within the cumulative effects area. The New Mexico Environmental Department has listed the Pecos River as an impaired stream due to possible sedimentation and siltation. Probable sources of impairment include livestock grazing and flow alterations (<http://www.nmenv.state.nm.us/swqb/303d-305b>). The livestock grazing that would be contributing to impairment is primarily associated with grazing occurring on private land, light to conservative livestock grazing on NFS lands along with BMPs (Best Management Practices) and adaptive management strategies would not contribute to further impairment of the Pecos River.

At this time there are no other Forest Service activities planned. Future management activities may include timber removal, pinyon-juniper thinning, prescribed fire, hazard fuel reduction, and road reconstruction. Activities on private land that contribute to ground and vegetation disturbance consist of livestock grazing, housing developments, recreational OHV use. The extent of these activities on private lands can not be fully quantified at this time.

In conclusion, the activities proposed in this project would not incrementally add to the effects of past present and foreseeable activities. Adherence to standard and guidelines, best management practices and mitigation measures will minimize any detrimental effects to long term soil productivity or water quality. State, private and BLM lands accounts for approximately 76 percent of the CEA and likely will account for the majority of impacts to watershed resources.

AIR QUALITY

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 El Pueblo Allotment is within a Class II air quality management area that is in attainment of all air quality requirements.

DIRECT AND INDIRECT EFFECTS ON AIR QUALITY

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.

VEGETATION

AFFECTED ENVIRONMENT

The allotment is located in the Pecos Valley Section of the Southwest Plateau and Plains Dry Steppe and Shrub Province of the Southern Shortgrass Prairie Ecoregion. The topography is gentle to moderately sloping. The elevation ranges from 7,042 feet in the northwestern corner on top of Starvation Peak down to 5,400 feet by Tecolote Creek in the southern corner of the allotment.

The landscape is varied, with plains, hills, basins, and fans. Geologic formations consist of sedimentary and volcanic rocks. Some areas of the allotment have unstable (impaired) soils and there is some evidence of rill and sheet erosion. Annual precipitation on the allotment ranges from 12 to 16 inches. More than half of annual precipitation occurs during the summer growing season but low amounts and erratic patterns result in xeric to subxeric sites (McNabb et al 2007). Vegetative community types consist largely of piñon/juniper overstory with short grass understory dominated by blue grama (65%) followed by open grasslands (35%).

The Santa Fe National Forest Terrestrial Ecosystem Survey (TES) provides a critical link for inventorying rangeland vegetation. The TES maps units provide the basic information for natural resource planning, management and monitoring. Each TES map unit is provided with a narrative description of the potential natural community. TES map units are also used to determine which lands will contribute to the forage base for livestock grazing based on the capability of each TES unit.

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.

Capable acres comprise about 70% of the allotment. Of the full capability areas, 18,182 acres (99%) are considered in satisfactory range management status and 257 acres (>1%) are in unsatisfactory range management status. Depending on spring and summer precipitation and site productivity, estimated available forage ranges from 6,884,333 lbs to 10,591,282 lbs on full and non-capable range sites. Current permitted forage needs is approximately 5,241,600 lbs. The El Pueblo allotment is dominated by warm season grass species where production does not commence until the summer rains of June, July, and August.

Pasture	Acres	Fully Capable Acres	Non Capable Acres	Total Forage High (lbs)	Total Forage Low (lbs)	Available Forage High (lbs)	Available Forage Low (lbs)	AU High	Au Low
Bull	1856	1421	435	1164727	757073	4795688	3117197	452	294
Horse	498	322	174	319113	207424	104617	68001	143	93
Leguino/Twin Tanks	5901	2839	3062	3693878	2401021	1510815	982030	1096	712
Palo Amarillo	4620	3036	1584	3402599	2211690	1142337	742519	1465	952
Pena	1190	1053	137	1129873	734417	393314	255654	504	328
Quintana	1393	989	404	653999	425099	213495	138771	274	178
River/Ladrones	4525	4625	0	2593412	1685718	1545904	1004838	1982	1288
Sombodora	1081	1081	0	782265	508472	283794	184466	364	236
Sombodora	1435	1435	0	1291178	839266	516471	335706	662	430
Allotment Totals	22,726	17,011	5,814	15,234,557	9,902,462	10,591,282	6,884,333	7,047	4,580

Within the unsatisfactory range sites are increasing densities of species such as snake weed, ring muhly and three - awn which are gradually displacing the desired species such as sideoats grama, blue grama, blue stem, and western wheatgrass. Uneven distribution of livestock contributes to over utilization which can lead to lower vigor and composition of desired plants in some areas, especially around waters. Livestock tend not to fully utilize the entire capable range sites due to the inadequacy of the electric fence separating the Ladrones (former), River, Twin Tanks (former), Leguino and Erosion (former) pastures of the allotment. The former pastures listed no longer function as pastures due to the inadequacy of the electric fences. The pipeline and associated water troughs that extends from the Deep Well to the Palo Amarillo and Pena pastures is not functioning. This range facility is essential to maintaining proper livestock distribution. Due to conditions of some of the existing range infrastructure, the permittees can not fully implement a formal deferred grazing strategy because the current infrastructure is not adequate. Over time, the lack of fully implementing a grazing strategy (with the required infrastructure) could cause a shift towards less desirable plant communities, such as snakeweed, ring muhly and three - awn. In addition to the above mentioned species, densities of piñón, juniper, and cholla are outside their range of natural variability. This has been attributed to past land practices and changes in climatic conditions and fire regimes. Future management options are being considered to address this issue.

DIRECT AND INDIRECT EFFECTS ON VEGETATION

No Grazing (Alternative 1): When the term grazing permit expires, livestock would be removed from the allotment. No new permits would be issued. All range facilities would revert to the Forest Service and be evaluated for their value for the protection to soil, wildlife, and watersheds. Allotment boundary fences would not be removed as they would be needed to prevent unauthorized use from cattle on neighboring areas.

Herbaceous understory would not be utilized by domestic livestock, but would continue to be grazed by deer, elk, and antelope. In areas where biodiversity and plant densities that are similar to the site potential there would be little improvement in the current condition.

The direct effects of removing livestock grazing on the El Pueblo allotment would result in increases in cool season species composition and declines in blue grama. Several studies (see Milchunas 2006 and Lauenroth et al 1994) have shown that areas excluded from grazing have resulted in declines in ground cover, declines in blue grama and increases in cool season species. In relic areas and enclosures where livestock grazing does not occur there is sometimes large differences in the areas species richness and composition and sometimes there is not, depending on past disturbance factors, micro climates and the productivity of the site. The short term effects would be an increase in the herbaceous canopy cover, slight declines in the amount of bare ground and increase frequency of grazing sensitive species such as New Mexico feathergrass and sideoats grama. The long-term effects of not grazing would be a loss of some grazing dependent grass species would start to decline, such as blue grama (Milchunas 2006).

Removing livestock as permits expire would not affect pinyon-juniper overstory. With respect to riparian vegetation, less than 1/10 acre of riparian vegetation is accessed by livestock through water gaps along the Pecos River. These water gaps can receive significant use by livestock which has resulted in loss of riparian vegetation. Over time, these areas would increase in vegetative densities. The removal of livestock from the allotment may result in increase trespass livestock on the allotment because no one would maintain fences and report trespass.

Proposed Action (Alternative 2): The proposed action would permit up to 560 AU or 8,870 AUMs year long. Annual authorized use would be based on resource conditions. If drought conditions exists and forage production is below potential, then adjustments in the amount of authorized livestock would be made.

The direct effects of livestock grazing on the El Pueblo allotment have been occurring for over 150 years. The duration, frequency and timing of livestock grazing has fluctuated over the years with varying degrees of effects on the composition, structure and health of the plant communities within the allotment. The current condition of the herbaceous plant community based on data collected last year and going back fifty years indicates that livestock have altered the diversity and productivity of the allotment. Maintaining consistent conservative use levels and controlling the timing and duration of use would result in improving species abundance and diversity in key areas on the allotment.

Cattle concentration around water troughs and earth tanks causes a loss of ground cover and an increase in bare ground. Herbaceous ground cover and canopy cover is lost due to constant trampling. Concentration areas are more susceptible to encroachment by noxious weeds and undesirable species. Other range facilities such as corrals and holding pens experience effects similar to those of water developments but to a lesser degree since they are used less frequently.

Maintenance and repairs on the existing pipeline would cause ground disturbance and a depletion of vegetation as the pipeline would need to be exposed. Soil and vegetation would be temporarily removed from the site. However, as vegetation begins to grow over the pipeline grazing would resume which would increase the occurrence of grazing dependent grasses.

Implementation of the proposed fence reconstruction, pipeline, and associated water troughs will improve livestock distribution which would result more even utilization throughout most of the pastures. By improving distribution (through construction of fences and pipeline), vegetative conditions in capable areas currently designated as unsatisfactory would improve as use would be alleviated in these areas. Furthermore, the reconstruction of the pipeline will assist in maintaining proper distribution by providing a permanent water source, thus improving range conditions. With respect to riparian vegetation, livestock do not graze on more than one percent of the 30 acres of riparian area due to barriers. Water gaps would be used for only short periods, because upland waters would be functioning. Therefore, vegetative conditions would improve because use would be limited and deferred through the Annual Operating Instructions.

CUMULATIVE EFFECTS ON VEGETATION

The area selected for cumulative effects analysis is the 25,752 acre El Pueblo allotment including 241 acres of private land. The allotment is isolated from other NFS lands and is surrounded by private land. The time-frame in which cumulative effects will be considered are for the past ten years and those likely to occur in the next ten years, since this is the amount of time new Term Grazing Permits are issued, and Allotment Management Plans are typically implemented.

All vegetative management activities and range facilities that have an effect on the conditions of grassland communities on the El Pueblo allotment are relevant federal actions that have a cause and effect relationship with the direct and indirect effects of livestock grazing on the allotment.

In the past ten years no vegetative management, such as pinyon-juniper thinning or prescribed fire have occurred on the allotment. Noxious weed removal has occurred by hand pulling of small localized concentrations.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

AFFECTED ENVIRONMENT

This section evaluates the effects of the project to federally threatened and endangered species (T&E), regionally sensitive species, management indicator species (MIS) (USDA, April 2006), migratory birds (USFWS 2002), other species, and their habitats on the El Pueblo allotment.

Federally Listed Species

Six species/ one critical habitat were excluded from further analysis for the following reasons:

- Holy Ghost Ipomopsis (*Ipomopsis sancti-spiritus*)-Endangered- Suitable habitat for this species does not exist in the project area.
- Southwestern willow flycatcher (*Empidonax traillii extimus*), Endangered - Suitable habitat for this species does not exist in the project area.
- Black-footed ferret (*Mustela nigripes*), Endangered - The black-footed ferret has been extirpated from the project area without feasibility for reintroduction.
- Rio Grande silvery minnow (*Hybognathus amarus*), Endangered - Suitable habitat for this species does not exist in the project area.
- Arkansas River Shiner (*Notropis girardi*), Threatened - Suitable habitat for this species does not exist in the project area.
- Mexican Spotted Owl (MSO)-(*Strix occidentalis lucida*)-Threatened- Suitable habitat for this species does not exist in the project area.
- Mexican Spotted Owl Critical Habitat- Critical habitat for this species does not exist in the project area.

Regional Sensitive Species: The following table displays sensitive species from the Forest Service, Region 3, Regional Forester’s Sensitive Species List 2007 that occur or are likely to occur on the allotment. Species are identified as occurring or are likely to occur on the allotment. Species were eliminated from evaluation based upon: lack of potential habitat: area not included in historic or current range of the species; or extirpation of the species without current feasibility for reintroduction.

Common Name	Occurrence	Habitat	Comments
Burrowing owl	Unknown	Potential	Burrowing owls have not been observed within the El Pueblo allotment yet habitat occurs on the allotment. See discussion below
American Bald Eagle	Unknown	Yes	Bald eagles have not been detected on the allotment, yet their habitat is present along the Pecos River. Livestock on occasion occupy small water gaps adjacent to the Pecos River but they do not remove snags or large trees that are important

Common Name	Occurrence	Habitat	Comments
Gray Vireo	Unknown	Potential	habitat features for the eagle. Gray vireos are not known to occur but potential habitat occurs on the El Pueblo allotment. See discussion below
Pale Townsend’s big-eared bat	Unknown	Yes	Pale Townsend’s big-eared bats are not known to occur but habitat occurs on the El Pueblo allotment. See discussion below
New Mexico banner tailed kangaroo rat	Unknown	Potential	Gunnison’s prairie dogs have not been observed within the El Pueblo allotment yet habitat occurs on the allotment. See discussion below
Gunnison’s prairie dog	Unknown	Potential	New Mexico banner tailed kangaroo rats have not been observed within the El Pueblo allotment yet habitat occurs on the allotment. See discussion below.
Sensitive Plant Species			
Greene Milkweed	Detected	Yes	Greene milkweed is known to occur within the Mesa de los Ladrones Research Natural area. Livestock do not occupy the Mesa de los Ladrones area because it is located on a mesa top where travel to the top of the mesa is restricted due to fencing and steep slopes. No further discussion.

Burrowing Owl: In New Mexico, burrowing owls inhabit grasslands, open shrubland and woodland at lower to middle elevations (2800 - 7500 ft). These owls occupy non-riparian habitats exclusively or nearly so during the breeding season. Burrowing owls using grasslands of the North American Great Plains and Southwest for breeding and/or wintering usually respond positively to grazing. Arthropods (beetles, grasshoppers, and crickets) form the majority of their diet (Nature Serve 2007). They use abandoned burrows of ground squirrels, prairie dogs and other burrowing mammals for nest sites.

Burrowing owls have not been detected on the allotment yet their habitat (grasslands, open shrublands) is present. Burrows have not been detected that would provide nesting for the owl yet foraging areas such as grasslands are present. Grazing occurs within some owl foraging habitat (such as grasslands) yet forage consumption is conservative with overuse in some key areas. Forage consumption is considered conservative in most areas but the allotment has experienced heavier use on approximately 250 acres. Overall grazing within the allotment has not reduced the owl’s habitat.

Gray Vireo: The Gray Vireo is a small, gray songbird, found in the dry foothills and bajadas west of the Great Plains in New Mexico, and is associated with juniper, piñon pine, and oak. The distribution of the species is extremely patchy, and eighty percent of known sites are found in twelve main areas in the state. The species arrives in New Mexico in April for breeding, and breeds through August, before migrating to its wintering grounds in September (NMGF 2007).

The Gray Vireo is a scrub-foraging inhabitant of some of the hottest, most arid regions of the southwestern United States and adjacent parts of northwestern Mexico. In New Mexico it occurs in chaparral-juniper and dwarf conifer forests, as well as sites with oak and mixed piñon (Phillips et al. 1964, Barlow et al. 1970, Hubbard 1970, Barlow 1978).

Breeding habitat in northern and northwestern parts of New Mexico is found at elevations from 5,500-7,200 feet in broad-bottomed canyons (flat or gently sloped valleys), below or near ridge-top/rock outcrop/cliff head wall of canyon, or gently sloped bowls in canyon-juniper woodlands (NatureServe 2006 and NMDGF 2006). The vireo is most often associated with juniper trees, piñon pine or oak with a wide variety of shrubs and grasses (NMDGF 2006 and NMDGF 2007). Habitat usually contains a mixture of open savannas and slightly more closed-canopy woodland areas. Trees are generally mature ranging from 12-25 feet in height (NatureServe 2006).

It has a relatively limited distribution and low abundance in the semi-arid shrublands of southwest uplands. It has been found in western Santa Fe County and in San Juan and Rio Arriba counties in appropriate habitat.

Gray vireos are regular brown-headed cowbird hosts (NMDGF 2006). However, both sexes of vireo will chase off a cowbird, but if the nest is parasitized the parents will normally abandon the nest and try again elsewhere. Gray vireos also may show decoy aggressive behavior and build decoy nests to avoid predators and brood-parasitism (NMDGF 2006). Contrary to previous notions, there is often little net loss in host reproductive success over an entire breeding season. The extent of parasitism varies with local land-use practices, habitat quality, presence of cattle, and the abundance, breeding behavior and conservation status of different host species. Some of the variation in parasitism rates is due to unknown factors. (Audubon 2008). Although cowbird brood parasitism has been identified as possible cause of declines in gray vireo population in California and Arizona, it is unclear whether brood-parasitism is having population-level consequences in New Mexico (NMDGF 2006).

Gray vireos have not been detected on the allotment yet habitat (shrublands, oak, and piñon-juniper) is present. The current grazing strategy would not remove juniper, piñon pine, and oak where the sparrows nest and forage. Grazing occurs within some sparrow foraging habitat (such as grasslands) yet forage consumption is conservative, however, overuse in some key areas would reduce small amounts of the vireo's habitat.

Pale Townsend's Big-Eared Bat: The Pale Townsend's big-eared bat occurs in a variety of xeric to mesic habitats, including desert scrub, deciduous and coniferous forests (including spruce-fir, mixed conifer, and oak woodlands). They have shown preference for edge habitats between streams and mountain slopes. It is frequently associated with caves and abandoned mines for day roosts and hibernacula but will also use abandoned buildings and crevices on rock cliffs for refuge. They are known to glean insects from vegetation and to forage within tree canopies (Perkins and Schommer 1992 and Nowak 1994). Bats are known to forage on some species of insects that occupy riparian vegetation (NMGF 2007).

Pale Townsend's big-eared bats have not been detected on the allotment yet their habitat (ponderosa pine coniferous forest, oak woodlands) is present. Perennial water and intermittent water is available; which would provide habitat for some species of insects. Grazing occurs within some bat foraging habitat, such as along the Pecos River and around water tanks. Forage consumption is conservative with overuse in some key areas but utilization has not reduced insect habitat.

New Mexico banner-tailed kangaroo rat: The banner-tailed kangaroo rats live in desert grasslands with scattered shrubs. Commonly found in dry, gravelly and clayey soils that support blue grama, yucca, mesquite, cholla, threeawn, snakeweed, sandbur, and mixed small annuals vegetation (Best 1988, BISON-M 2006, Nature Serve 2006). The rat tends to avoid areas where the basal cover of grass is low and shrub density is high (Waser and Ayers 2003, BISON-M 2006). Primarily feeds on seeds and green vegetation. Stores seed in the den, and rely on these caches during periods of low seed availability in winter and spring (Nature Serve 2006). Dens are large mounds of soil, averaging 12 feet wide and 8-16 inches in height. There are 3-12 burrow openings in each mound. Home ranges average 0.1-0.2 acres and activities are confined to small area near mounds, usually within about 515 feet (Best 1988, Nature Serve 2006).

Kangaroo rats have not been detected on the allotment yet their habitat (grasslands) is present. The current grazing strategy would not remove dens where the rats nest, yet trampling of the dens is possible. Grazing occurs within

some rat foraging/denning habitat (such as grasslands) yet forage consumption is generally conservative with overuse in some key areas. Overall, grazing has not reduced the kangaroo rat's habitat in the allotment.

Gunnison's Prairie Dog: The Gunnison's prairie dog inhabits shortgrass and midgrass prairies and grass/shrub habitats. The mixed shrub habitat type occurs at lower elevations below the mesas at less than 6,700 feet. The juniper habitat type is dominated by one-seed juniper with an occasional piñon pine and alligator juniper. Shrubs scattered through this type include big sagebrush, broom snakeweed and rubber rabbitbrush. Grasses include blue grama, crested wheatgrass, red three-awn, cheatgrass, sixweeks fescue, Indian ricegrass, and squirreltail grass. This prairie dog occurs in northern and western NM where the black-tailed prairie dogs do not occur. They occur in low valleys but are also common in parks and meadows in the montane forests up to at least 10,000'. They form small, loosely organized towns—often colonies consist of only 2-3 animals. They feed extensively on grasses, forbs, and sedges, but also eat insects. Breeding season is March and April.

Prairie dogs are known to occur on the Santa Fe National Forest in San Miguel County. (BISON-M 2006). Prairie dogs have not been detected on the allotment yet their habitat (grasslands) is present. The current grazing strategy would not remove prairie dog towns, yet trampling of the dirt mounds (towns) is possible. Grazing occurs within some prairie dog foraging/denning habitat (such as grasslands) yet forage consumption is generally conservative with overuse in some key areas. Overall, grazing has not reduced the prairie dog's habitat in the allotment.

DIRECT AND INDIRECT EFFECTS ON THREATENED, ENDANGERED AND SENSITIVE SPECIES

Alternative 1 (No Grazing)

Burrowing Owl: Eliminating grazing would not affect individual burrowing owls because the absence of cows would not disturb them. Alternative 1 would not reduce the amount of owl habitat because no reduction in large tree/snag density or nest cavities would occur. There would be an incremental increase in the amount of ground cover for prey because there would be no livestock on the allotment. These effects would result in a “no impact” determination.

American Bald Eagle: Eliminating grazing would not affect individual bald eagles because the absence of livestock would not disturb them. Alternative 1 would not reduce the amount of eagle habitat because no reduction in large tree or snag density would occur. Livestock would not occupy the Pecos River and associated riparian habitat which would not remove prey base habitat because cows would not be present on the allotment. These effects would result in a “no impact” determination.

Gray Vireo: Eliminating grazing would not affect individual Gray vireos because the absence of cows would not disturb them. Alternative 1 would not reduce the amount of vireo habitat because no reduction in nesting trees or grasses would occur. There would be an incremental increase in the amount of ground cover for the vireo because there would be no cows on the allotment. These effects would result in a “no impact” determination.

Pale Townsend's Big-Eared Bat: Eliminating grazing would not affect individual bats because the absence of livestock would not disturb them. Alternative 1 would not reduce the amount of bat habitat because no reduction in roosting or nesting habitat such as caves, rock outcrops, and abandoned buildings would occur. There would be an incremental increase in the amount of ground cover for prey such as insects because there would be no cows on the allotment. These effects would result in a “no impact” determination.

New Mexico Kangaroo Rat: Eliminating grazing would not affect individual kangaroo rats because the absence of cows would not disturb them. Alternative 1 would not reduce the amount of kangaroo rat habitat because no reduction in grasses or dens and burrows would occur. There would be an incremental increase in the amount of ground cover for the rat because there would be no livestock on the allotment. These effects would result in a “no impact” determination.

Gunnison’s Prairie Dog: Eliminating grazing would not affect individual prairie dogs because the absence of cows would not disturb them. Alternative 1 would not reduce the amount of prairie dog habitat because no reduction in grasses or burrows would occur. There would be an incremental increase in the amount of ground cover for the prairie dog because there would be no livestock on the allotment. These effects would result in a “no impact” determination.

Alternative 2 - Proposed Action

Burrowing Owl: Grazing at conservative levels would not reduce the amount of owl nesting habitat because no reduction in burrows would occur. Grazing at proposed levels would maintain forage used by the owl’s prey. Alternative 2 would not reduce the amount of owl habitat because no overall reduction in nesting burrows would occur. A few burrows may be trampled on during fence construction, the reconstruction of an existing pipelines and water troughs, and the construction of two earth tanks. During field reconnaissance visits, burrowing owls and their burrows have not been observed at the proposed locations for the tanks, trough/pipeline, and fence. Further, implementing a formal rotational grazing system, constructing a fence, an earthen tank, and providing additional water sources to manage the movement of livestock would incrementally improve ground cover of prey species by forcing the cows to graze more evenly across the allotment. Livestock would remove grass where they graze, resulting in a very minimal decrease of prey base habitat from when cattle leave the pasture until the following rotation when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be moved to a different pasture or removed when utilization standards were met. Generally, burrowing owls respond positively to grazing when residual vegetative cover maintains prey habitat (NatureServe 2007). Therefore, re-authorizing grazing permits may impact individual owls, but is not likely to result in a trend toward federal listing or loss of viability.

Gray Vireo: Grazing at conservative levels would not reduce the amount of vireo nesting habitat because no reduction in clumps of trees would occur. Grazing at proposed levels would maintain forage for the vireo. Alternative 2 would not greatly reduce the amount of vireo habitat because no overall reduction in trees would occur, although a few incidental trees would be removed during fence construction. A few foraging areas may be trampled on during fence construction, the reconstruction of an existing pipeline and water troughs, and the construction of two earth tanks. Based on field reconnaissance, gray vireo habitat does not occur at the proposed locations for the fence, earth tanks, pipelines, and water troughs. Implementing a formal rotational grazing system, constructing a fence, an earthen tank, and providing additional water sources to manage the movement of livestock would incrementally improve ground cover for the Gray vireo by forcing the cows to graze more evenly across the allotment. Cows would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the pasture until the following rotation when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be moved to a different pasture or removed when utilization standards were met. Therefore, re-authorizing grazing permits may impact individual Gray vireo’s, but is not likely to result in a trend toward federal listing or loss of viability.

Pale Townsend’s Big-Eared Bat: Roost disturbance is the primary threat to this species. Livestock grazing would not remove nesting or roosting habitat such as mines, caves and rock outcrops. Grazing on this allotment would not exceed 40% utilization and would not remove large quantities of riparian prey base habitat since cows are limited to river grazing by small water gaps. Implementing a formal rotational grazing system, constructing a fence, an earthen tank, and providing additional water sources to manage the movement of livestock would incrementally improve habitat for insects near water tanks and riparian areas by forcing the cows to graze more evenly across the allotment. Proposed livestock grazing would be at a conservative level and would not remove large quantities of prey base habitat that are necessary for insects that the bats feed upon. Therefore, re-authorizing grazing permits may impact individual bats, but is not likely to result in a trend toward federal listing or loss of viability.

New Mexico Kangaroo Rat: Grazing at conservative levels would not reduce the amount of kangaroo rat habitat because no reduction in burrows or dens would occur. Grazing at proposed levels would maintain forage used by kangaroo rat. Alternative 2 would not reduce the amount of rat habitat because no overall reduction in burrows would occur. A few burrows may be trampled on during fence construction, the reconstruction of an existing pipeline, water troughs, and the construction of two earth tanks. Based on field reconnaissance kangaroo rats and their burrows have not been detected at the proposed locations for the water tanks, fence, pipelines or water troughs. Further, implementing a formal rotational grazing system, constructing a fence, an earthen tank, and providing additional water sources to manage the movement of livestock would incrementally improve ground cover for the kangaroo rat by forcing the cows to graze more evenly across the allotment. Livestock would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the pasture until the following rotation when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be moved to a different pasture or removed when utilization standards were met. Therefore, re-authorizing grazing permits may impact individual kangaroo rats, but is not likely to result in a trend toward federal listing or loss of viability.

Gunnison's Prairie Dog: Grazing at conservative levels would not reduce the amount of prairie dog habitat because no reduction in burrows would occur. Grazing at proposed levels would maintain forage used by the prairie dog. Alternative 2 would not reduce the amount of prairie dog habitat because no overall reduction in burrows would occur. A few burrows may be trampled on during fence construction, the reconstruction of an existing pipeline, water troughs, and the construction of two earth tanks. Based on field reconnaissance prairie dogs and their burrows have not been detected at the locations where the proposed fence, pipeline, water troughs, or tanks are proposed to be installed. Further, implementing a formal rotational grazing system, constructing a fence, an earthen tank, and providing additional water sources to manage the movement of livestock would incrementally improve ground cover for the prairie dog by forcing the cows to graze more evenly across the allotment. Livestock would remove grass where they graze, resulting in a very minimal decrease of habitat from when cattle leave the pasture until the following rotation when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cattle would be moved to a different pasture or removed when utilization standards were met. Therefore, re-authorizing grazing permits may impact individual prairie dogs, but is not likely to result in a trend toward federal listing or loss of viability.

CUMULATIVE EFFECTS ON THREATENED, ENDANGERED AND SENSITIVE SPECIES

The cumulative effects area (CEA) for each species habitat is listed in the table below. The temporal boundary of this analysis is from 10 years ago to the projects listed on the Santa Fe National Forest's Schedule of Proposed Actions or other projects in official planning status. The reason for the temporal boundary is that activities that occur in the allotment will remove moderate to conservative amounts of vegetation. This vegetation will recover on an annual basis, so cumulative effects are relatively short-lived and going back 10 years would capture extraordinary changes. Other than on-going permitted grazing, road maintenance, maintenance of range facilities, collection of fire wood and dispersed recreational activities, there have been no vegetative management activities on NFS lands within the CEA as described below. Past, present and foreseeable activities on NFS lands and private land having the potential to affect sensitive species habitat include: wildfire, piñon-juniper thinning, dispersed recreation, livestock grazing, and drought and is described below.

Sensitive Species Habitat within the allotment- CE boundary/Size of area	Activities having potential to affect species habitat.	Direct/Indirect effects of other activities that would add to grazing effect to habitat on the El Pueblo Allotment.
<p>Burrowing owl: El Pueblo allotment and adjacent private properties with prairie dog burrows. Approximately 35,000 acres.</p> <p>American Bald Eagle: The ½ mile of River bank of the Pecos River running on the boundary of the allotment. Livestock occupy approximately 1/2 mile or less along the Pecos River.</p>	<p>Wildfire removing grasses and piñon juniper trees. One time occurrence.</p>	<p>Removal of foraging areas such as tall grasses/trees that small rodents/birds occupy. Area would not provide suitable foraging habitat for the owl, Gray vireo, prairie dog, Baird’s sparrow, bat, and the banner tailed kangaroo rat in the short term. Area would also not provide nesting/roosting habitat for the bald eagle, Gray vireo, Baird’s sparrow, and the Pale Townsend’s big-eared bat until larger trees grow back. Foraging habitat would recover the year after a fire.</p>
<p>Baird’s sparrow: El Pueblo allotment and adjacent private properties. Approximately 35,000 acres.</p> <p>Pale Townsend’s big-eared bat: El Pueblo allotment and adjacent private properties with free standing water. Approximately 35,000 acres.</p>	<p>Thinning of piñon and juniper trees. Prescribed burning. Activity occurring once every 10 years.</p>	<p>Removal of small diameter piñon-juniper trees. Would not remove nesting/ roosting habitat. Prescribed burning would remove senescent grasses. Result of prescribed burning would not remove foraging/nesting habitat. Area would not provide suitable foraging habitat for the owl, Gray vireo, prairie dog, Baird’s sparrow, bat, and the banner tailed kangaroo rat in the short term. Foraging habitat would recover the year after a prescribed burn.</p>
<p>New Mexico banner tailed kangaroo rat: El Pueblo allotment and adjacent private properties. Approximately 35,000 acres.</p> <p>Greene Milkweed: Mesa de los Ladrones Resource Natural Area~ approximately 800 acres.</p> <p>Gray Vireo: El Pueblo allotment and adjacent private properties with grass/shrubby habitats. Approximately 35,000 acres.</p>	<p>Dispersed camping. Annual activity occurring for up to 8 months.</p>	<p>Localized area denuded of vegetation, minimizing cover for rodents/birds/fish that burrowing owls and bald eagles consume. A reduction in foraging habitat would minimize food availability for burrowing owls, eagles, Baird’s sparrow, bats, kangaroo rat, and the prairie dog. Disturbance to owls, bald eagles, Baird’s sparrows, kangaroo rats, Gray vireos, and prairie dogs by campers occupying these species’ habitats. Burrowing owls, bald eagles, Baird’s sparrows, kangaroo rats, Gray vireos, and prairie dogs would be forced to occupy other areas of suitable habitat.</p>
<p>Gunnison’s prairie dog: El Pueblo allotment and adjacent private properties. Approximately 35,000 acres.</p>	<p>Drought. One time occurrence or series of months to years of occurrence.</p>	<p>Lack of tall grasses which provides habitat for rodents/small birds/insects. Reduces food source for owls, bald eagles, Baird’s sparrows, bats, kangaroo rats, Gray vireos, and prairie dogs.</p>
	<p>Grazing by livestock. Annual activity occurring for up to year-round.</p>	<p>Minimal to moderate reduction in forage due to cows grazing on allotment. May reduce foraging habitat moderately for the owls, bald eagles, Baird’s sparrows, bats, kangaroo rats, Gray vireos, and prairie dogs.</p>

MANAGEMENT INDICATOR SPECIES (MIS)

AFFECTED ENVIRONMENT

The Land and Resource Management Plan for the Santa Fe National Forest, adopted in 1987, identified 8 Management Indicator Species (MIS). These species are Bighorn sheep, Rocky mountain elk, Mexican spotted owl, Merriam's turkey, Rio Grande cutthroat trout, Hairy woodpecker, Piñon Jay and the Mourning Dove.

The reason these species were selected as MIS species is described in the Environmental Impact Statement, Santa Fe National Forest Plan, 1987. The objective was to select species that would indicate possible wildlife effects of changing plant communities and associated seral habitats. These species were selected for their association with plant communities or seral stages which management activities are expected to affect. Other factors considered in the selection of these species were monitoring feasibility, migratory habits and habitat versatility. (LMP EIS page 96).

This document considered the Management Indicator Species (MIS) list (Final Environmental Impact Statement, Santa Fe National Forest, 1987, 146-148). Management Indicator Species designated in the Santa Fe National Forest Plan EIS, that have the probability of occurring on the El Pueblo allotment are; Rocky Mountain elk, Merriam's turkey, piñon jay, and mourning dove.

The Rocky Mountain bighorn sheep, Mexican spotted owl, and the hairy woodpecker were eliminated from evaluation in this document based upon lack of potential habitat within the analysis area. The Rocky Mountain elk was eliminated from this analysis because New Mexico Game and Fish considers Rowe Mesa and El Pueblo de-emphasis areas and analysis of effects are not relevant. Information pertinent to the management indicator species that have the probability of occurring within the allotment is described as follows:

Merriam's Turkey: Merriam's turkeys are an indicator of ponderosa pine, which is an essential component of its permanent habitat, while surface water is a range requirement. A good healthy ponderosa pine understory provides the turkey cover, as well as, forage. Turkeys forage in grasslands, brush communities, deciduous trees and in ponderosa pine. Turkey habitat is common throughout the forest, encompassing about 1.3 million acres (USDA 2006). Approximately 9,400 acres of foraging habitat are available for the turkey on the allotment. Reconnaissance surveys of the allotment indicate that foraging habitat is present for the turkey within various habitat types. Surveys conducted by the USGS between 1968 and 1998 indicate an increasing population of wild turkeys within New Mexico (USGS 2004). Turkey habitat is abundant in the mid-elevation portions of the Santa Fe National Forest.

Piñon Jay: Piñon jays nest mainly in stands of piñon-juniper. It needs open woodlands for nesting and an adequate supply of seeds and nuts. Approximately 17,300 acres of habitat as previously described are available for the piñon jay on the allotment. The habitat trend for piñon jay is ranked as stable on the Forest. Very little change has occurred in the habitat for this species since implementation of the Forest Plan until recently when widespread piñon mortality has occurred. The trend for the Santa Fe National Forest is ranked as stable to downward, based on the State trend; and the breeding survey routes located near the Forest (USGS 2004).

Mourning Dove: Mourning doves are present, primarily in lower elevations near water, in the allotments in most forest types from spring through fall. Across the forest, its habitat is abundant, encompassing about 990,000 acres (USDA 2006). Approximately 26,750 acres of habitat as previously described are available for the mourning dove on the allotment. The habitat trend for the mourning dove is considered stable to increasing across the forest (USDA 2006). The population may fluctuate from year to year based on a variety of environmental factors. The mourning dove population is ranked as common for the forest based on the amount of habitat available, hunter success statistics, breeding bird surveys and the professional opinion of local biologists.

DIRECT AND INDIRECT EFFECTS ON MANAGEMENT INDICATOR SPECIES

Alternative 1- No Grazing

Merriam's Turkey: Under Alternative 1, the risk that livestock would deplete forage enough to reduce the turkey population and habitat would be eliminated. There would be no change in the number of nesting and roosting trees. The amount of forage would likely increase, maintaining the current forest wide trends for increasing turkey populations or habitat.

Piñon jay: The risk that livestock would remove grasses that would eventually reduce the piñon jay foraging habitat would be eliminated. There would be no change in the number of nesting and roosting trees. The amount of forage would likely increase, maintaining the current forest wide trends for the piñon jay populations or habitat.

Mourning Dove: The risk that livestock would deplete forage enough to reduce the dove population and habitat would be eliminated. There would be no change in the amount of cover since no trees or grasses would be removed. The amount of grasses that provide seeds for the dove would likely increase over time, maintaining the current forest wide trends for increasing dove populations or habitat.

Alternative 2- Proposed Action

Merriam's Turkey: Alternative 2 would improve the quality of turkey habitat on this allotment by constructing a fence, reconstruction of an existing pipeline, installing water troughs, and the construction of two earth tanks which would help to improve the distribution of livestock throughout the allotment. This would improve ground cover and turkey foraging areas by forcing cows to graze more evenly across the allotment and reducing grazing pressure. Alternative 2 would not change the quality or quantity of turkey roosting/nesting habitat. Though the construction of a fence would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat, which are important components for the turkey. Because cattle would not be allowed to use more than 40% of the forage grazing would be conservative and would not reduce the amount foraging habitat for turkey. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cows would be removed or moved to a different pasture when utilization standards were met. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 2 would disturb or displace turkeys during the construction of a fence, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

Mourning Dove: Alternative 2 would improve the quality of dove habitat on this allotment by constructing a fence, reconstruction of an existing pipeline, installing water troughs, and the construction of two earth tanks which would help to improve the distribution of livestock throughout the allotment. This would improve ground cover and foraging areas for the dove by forcing cows to graze more evenly across the allotment and reducing grazing pressure. Alternative 2 would not change the quality or quantity of dove roosting habitat. Though the construction of a fence would remove a few incidental trees, there would be more than enough remaining trees to serve as roosting habitat which are important components for the dove. Because cattle would not be allowed to use more than 40% of the forage grazing would be conservative and would not reduce the amount foraging habitat for dove. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cows would be moved to a different pasture or removed when utilization standards were met. Because this alternative would not greatly change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 2 would disturb or displace doves during the construction of a fence, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

Piñon jay: Alternative 2 would improve the quality of piñon jay habitat on this allotment by constructing a fence, reconstruction of an existing pipeline, installing water troughs, and the construction of two earth tanks which would help to improve the distribution of livestock throughout the allotment. This would improve ground cover and foraging areas for the jay by forcing cows to graze more evenly across the allotment and reducing grazing pressure. Alternative 2 would not change the quality or quantity of piñon jay roosting/nesting habitat. Though the construction of a fence would remove a few incidental trees, there would be more than enough remaining trees to serve as nesting and roosting habitat, which are important components for the jay. Because cattle would not be allowed to use more than 40% of the forage grazing would be conservative and would not reduce the amount foraging habitat for jays. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cows would be moved to a different pasture or removed when utilization standards were met. Because this alternative would not change habitat or populations on the allotment, it would not change forestwide trends.

Alternative 2 would disturb or displace piñon jays during the construction of a fence, but this would only last the duration of the construction activities, no more than 1 month, and would be in the immediate vicinity of construction only.

CUMULATIVE EFFECTS ON MANAGEMENT INDICATOR SPECIES

Alternative 2 would remove moderate amounts of vegetation while cattle are grazing in these areas, and also for a month or two afterwards until the vegetation has time to grow back. The cumulative effects would apply to the following species' habitats because they have are known to occur in the El Pueblo allotment: mourning dove and the Merriam's turkey.

The temporal boundary of this analysis is from 10 years ago to the projects listed on the Santa Fe National Forest's Schedule of Proposed Actions or other projects in official planning status. The reason for the temporal boundary is that activities that occur in the allotment will remove moderate to conservative amounts of vegetation. This vegetation will recover on an annual basis, so cumulative effects are relatively short-lived, and going back 10 years would capture changes. The geographical area is listed below for each species.

Management Indicator Species known to occur on allotment - CE boundary/Size of area	Activities having potential to affect species	Direct/Indirect Effect of Action
<p>Merriam’s Turkey</p> <p>Middle and Upper Pecos Canyon. Approximate 30 mile radius.</p>	<p>Stand replacing fire. One time occurrence.</p>	<p>Removal of roosting/nesting trees, foraging areas. Area would not provide suitable habitat for the turkey in the short term. Foraging habitat would recover the year after a fire.</p>
	<p>Thinning of piñon and juniper trees. Prescribed burning. Activity occurring once every 10 years.</p>	<p>Removal of small diameter piñon-juniper trees. Would not remove nesting/ roosting/foraging habitat. Prescribed burning would remove senescent grasses. Result of prescribed burning would remove foraging habitat in the short term. Foraging habitat would recover the year after a fire.</p>
	<p>Drought. One time occurrence or series of months to years of occurrence.</p>	<p>Lack of tall grasses which provides habitat for insects. Reduces food source for turkeys.</p>
	<p>Dispersed camping and hunter camps with stock and hunting. Annual activity occurring for up to 8 months.</p>	<p>Loss of vegetation, minimizing cover for insects that turkeys consume. A reduction in foraging habitat would minimize food availability for turkeys. Disturbance to turkeys by campers occupying turkey habitat. Turkeys would be forced to occupy other areas of suitable habitat. Direct harvest of turkey by hunters. Turkey numbers slightly reduced till following year when turkey poults are born.</p>
<p>Mourning Dove</p> <p>El Pueblo allotment and adjacent private properties with free standing water. Approximately 35,000 acres.</p>	<p>Wildfire removing gasses and piñon juniper trees. One time occurrence.</p>	<p>Removal of foraging/nesting/roosting areas. Area would not provide suitable habitat for dove in the short term. Foraging habitat would recover the year after a fire.</p>
	<p>Thinning of piñon and juniper trees. Prescribed burning. Activity occurring once every 10 years.</p>	<p>Removal of small diameter piñon-juniper trees. Would not remove nesting habitat yet may remove several acres of roosting habitat. Prescribed burning would remove senescent grasses. Result of prescribed burning would remove foraging habitat in the short term. Foraging habitat would recover the year after a fire.</p>
	<p>Dispersed camping. Dove hunting. Annual activity occurring for up to 8 months</p>	<p>Denuded vegetation, minimizing forage for insects that doves eat. A reduction in foraging habitat would minimize food availability for the dove. Disturbance to doves by campers occupying areas near water holes. Doves would be forced to occupy other areas of suitable habitat. Direct harvest of doves by hunters. Dove numbers slightly reduced till following year when dove chicks are born.</p>
	<p>Grazing by livestock. Annual</p>	<p>Conservative to moderate reduction in forage</p>

Management Indicator Species known to occur on allotment - CE boundary/Size of area	Activities having potential to affect species	Direct/Indirect Effect of Action
	activity occurring yearlong.	due to livestock grazing on allotment. Minimally reduces foraging habitat and food source for dove.

MIGRATORY BIRDS

AFFECTED ENVIRONMENT

On January 10, 2001, President Clinton signed Executive Order 13186 placing emphasis on conservation of migratory birds. The Forest Service, Southwestern Region, analyzes effects in the following manner: (1) effects to “Highest Priority” species as identified by New Mexico Partners in Flight, (2) effects to Important Bird Areas (IBAs), and (3) effects to important overwintering areas.

Species of Concern: New Mexico Partners in Flight considers eight risk factors in identifying conservation priority species: Global Abundance, NM Breeding Abundance, Global Breeding Distribution, and 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, and specific effects to highest priority species for the main habitat types found in the project area.

New Mexico Partners in Flight lists priority species of concern by vegetation type. I reviewed all species of concern for vegetation types found in this project area mixed conifer, ponderosa pine, high elevation riparian, aspen, and spruce-fir displays the species that may occur in or near the project area.

High priority migratory birds that may occur within the allotment

Vegetation type	Species	Habitat
Ponderosa pine	Flammulated Owl	Open ponderosa pine forest; Douglas- or white fir and blue spruce; aspen or larger shrub clearings
Ponderosa pine	Grace’s Warbler	Ponderosa pine sometimes with an oak component
Piñon-Juniper	Bendire's Thrasher	Relatively open juniper savanna, with large junipers or chollas; often in areas of degraded grasslands
Piñon-Juniper	Gray Flycatcher	Mid-age to mature P-J with open canopy, 60% or less, shrub cover; often with isolated ponderosa pine

Red-headed woodpecker, yellow-billed cuckoo, white tailed ptarmigan, loggerhead shrike or other priority species of concern were not considered, because they have not been detected, not found in the analysis area, do not have adequate habitat, or their habitat is not affected by grazing.

DIRECT, INDIRECT, AND CUMMULATIVE EFFECTS ON MIGRATORY BIRD SPECIES

Alternative 1 (No Grazing)

Implementation of Alternative 1 would not allow for domestic livestock grazing on the allotment. If livestock were not allowed to graze on the allotment there would be an increase in diversity of vegetative species such as grasses and forbs and would improve habitat for migratory birds. This alternative would maintain numbers of live trees and snags within the analysis area. Improving habitat for migratory birds by eliminating livestock grazing would help to follow the recommended conservation strategies for the flammulated owl, Grace’s warbler, Bendire’s thrasher and the Gray flycatcher within the ponderosa pine and piñon-juniper woodland habitat types.

Alternative 2 (Proposed Action)

Implementation of Alternative 2 would improve range conditions by constructing a fence, reconstruction of an existing pipeline, installing water troughs, and the construction of two earth tanks which would help to improve the distribution of livestock throughout the allotment. The construction of fences would remove a few incidental trees, but there would be more than enough remaining to serve as habitat for the flammulated owl, Grace's warbler, Bendire's thrasher and the Gray flycatcher. Important habitat large trees for nesting and roosting would remain. Cows would remove grass where they graze, resulting in a very minimal decrease of habitat from when cows move to a different pasture until the following rotation when the grass grows back. There would not be a complete lack of cover, because grasses and forbs continue to grow during the growing season and because cows would be moved to a different pasture or removed when utilization standards were met.

The current ponderosa pine and piñon-juniper habitats would not be reduced. The proposed grazing activity would follow the recommended conservation strategies such as improving or maintaining good habitat for migratory birds within the ponderosa pine and piñon-juniper habitats.

Important Bird Areas: There is no designated Important Bird Area (IBA) affected by the project. The IBA on the Santa Fe National Forest are the Chama River Gorge and the Caja del Rio including the Santa Fe River Canyon below the Caja del Rio on both BLM and FS lands. There is no association or important link between the bird communities within the two allotments and these IBAs. Therefore, no IBA is affected by the project.

Overwintering Areas: Many important over wintering areas are large wetlands. Important overwintering areas recognized on the Forest include: the Pecos River, the Rio Chama and Rio Grande corridor. Since these areas are not within the allotment, there will be no effects to overwintering areas.

RECREATION

AFFECTED ENVIRONMENT

The allotment is within the southern portion of the Pecos-Las Vegas Ranger District which receives light recreational use compared to other portions of the district. The allotment has two primary ingress and egress opportunities for vehicular access, County Road B28A runs directly north and south through the allotment and Forest Road (FR) 45 creates a loop off the county road with additional user created roads throughout. County road B28A is occasionally accessible by low clearance vehicles and FR 45, secondary roads are inaccessible by low clearance vehicles, and all roads are impassable during bad weather conditions. There is dispersed camping throughout the allotment, camping primarily occurs in the southern portion of the allotment near the archeological hacienda site and the Pecos River. There is also a small network of user-created off-road OHV trails along fence lines and range improvements; however, these are not sanctioned or maintained by the Forest Service. There have been no Special Use recreational activities approved in the project area in the last 3 years.

Recreational activities in the project area can be categorized into distinct activity uses such as off highway vehicles (OHV), hiking, equestrian users, and hunting.

OHV Use: Travel Management Maps (02/07) show user created trails throughout the allotment area on and off county road B28A. OHV (50"+) tracks were observed during 2008 field season Travel Management recon to county road B28A, Forest Road 45 and secondary roads starting from the southern terminus of county road B28A and extending north on county road B28A approximately 4.5 miles. Secondary roads eventually meet back to county road B28A and FR 45, completing multiple loops.

In addition to OHV use, it is a regular occurrence on existing county road B28A system road and secondary non-system roads off FR45 in the project area. OHV use has been observed primarily on county road B28A and FR 45.

Hiking Use: The allotment does not contain system trails within. The mentioned non-system roads and additional secondary roads provide hiking opportunities. Hiking use is expected to be light (less than 100 hikers per year) due to the lack of system trails.

Equestrian Use: The allotment lends itself for equestrian use because of its open areas and rolling hills. The Forest Service has no data of this use, however, estimations based on observations from Pecos/Las Vegas Ranger District personnel show that this area receives low use by equestrian users compared to other areas of the district.

Hunting Use: The project area experiences a moderate amount of hunting activities such as hunting for birds, deer, and fur bearing animals. The area does, however, experience dispersed camping from groups usually occurring during hunting season.

Action(s)	Date of Action	Comments
OHV Use	Ongoing	OHV (<50") tracks were observed during the 2008 field season recon addressing Travel Management Rule in the allotment area off FR45. These trails tend to be used by OHV (50"+) users, showing moderate use with a few areas of deeper ruts in wet areas. These OHV roads are primarily used in the late spring, summer, and fall and are often the same trails that could be used by cattle for travel throughout the allotment.
Hiking Use	Ongoing	Hiking occurs throughout the project area. This area receives occasional hikers, but most likely is visited by less than 100 persons per year. Hiking trails in this area receive very light recreational use compared to other areas on the district due to the aspect of the area and its limited acknowledgment of it being public land.
Equestrian Use	Ongoing	Equestrian users tend to use the entire project area using cattle trails and existing roads. The amount of this type of use is low throughout the year.
Hunting Use	Ongoing	The El Pueblo allotment area is within Game Management Unit 44. Big game hunting occurs on the allotment primarily during the fall season.

DIRECT AND INDIRECT EFFECTS ON RECREATION

The proposed action to continue livestock grazing under current management would not affect OHV use, hiking, equestrian use, hunting, or recreational special uses because these uses have continued concurrently with the presence of cattle for years. The encounters between livestock and humans have been low in this allotment because of its large size and the small numbers permitted. Further, the uses tend to be separate. For instance, OHV use does not tend to occur where cattle are likely to graze. The hiking that occurs in this allotment tends to be on cattle trails and existing roads, minimum conflicts of the two activities exist. Equestrian use primarily occurs while checking on cattle improvements, cattle and/or gathering of cattle. Equestrian use and cattle grazing rarely

pose conflicts between the two. Hunting may overlap with the cattle season, but the District has not received any complaints from permittees or hunters.

In sum, no measurable direct and indirect effects to roadless area characteristics or recreation are expected.

CUMULATIVE EFFECTS ON RECREATION

Since current management is expected to result in very little direct or indirect effects to recreational use of the proposed project area, therefore no cumulative effects from the proposed action.

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APPENDIX B – TEU POTENTIAL AND DESIRED CONDITIONS

El Pueblo Allotment TEU - 2				
Designated Area - TES Unit 2-Blue grama, Sideoats grama grassland located on an elevated plain of the El Pueblo Allotment with a slope of 2%. Key Species:				
	Vegetation			Soils (Ground Cover %)
Potential	<u>Grasses</u> 9 species 31% c. cover	<u>Forbs</u> 6 species 0.7% c. cover	<u>Shrubs</u> 5 species 22% c. cover	Bare soil 35 Rock 10 Litter 40
	Bogr 20% Bocu 4% Agcr 4%	Caoc 0.5% Erme 0.2%	Chna 20% Gusa 1% Hyri 1%	Vegetation 25
Desired Condition	<u>Grasses</u> 8-9 species 20-50% c. cover	<u>Forbs</u> 4-6 species 0.1-3% c. cover	<u>Shrubs</u> 4-5species 20-25% c. cover	Bare soil 25-40 Rock 5-15 Litter 30-45
	Bogr 15-30% Bocu 1-7% Agcr 1-4%	Erme 0.1-3% Caoc 0.1-3%	Gusa 1-5% Chna 10-25% Hyri 0.1-3%	Vegetation 20-35
Existing Condition	<u>Grasses</u>	<u>Forbs</u>	<u>Shrubs</u>	Bare soil Rock Litter Vegetation
Rangeland Management Status	Satisfactory with mid to high similarity and static trends.			
Rangeland Capacity Rating	Full Capability			
Soil Condition Rating	N/A			
Objectives	Maintain or improve existing conditions while grazing cattle.			
Monitoring	Continued monitoring of the frequency and ground cover plots at the long term sites will determine trend.			

El Pueblo Allotment TEU – 184				
Designated Area - TES Unit 184-Blue grama, Sideoats grama grassland located on an elevated plain of the El Pueblo Allotment with a slope of 6%. Key Species:				
	Vegetation			Soils (Ground Cover %)
Potential	<u>Grasses</u> 13 species 27.4% c. cover Bogr 20% Bocu 4%	<u>Forbs</u> 4 species 1.5% c. cover Caoc 1% Erme 0.5%	<u>Shrubs</u> 6 species 5% c. cover Quun 5%	Bare soi 35 Rock 5 Litter 40 Vegetation 30
Desired Condition	<u>Grasses</u> 6-12 species 20-50% c.cover Bogr 15-55% Lyph 5-20% Bocu 0-7%	<u>Forbs</u> 1-5 species 0.1-3% c. cover Erme 0.1-3%	<u>Shrubs</u> 2-6 species 0-7% c. cover Gusa 0-10% Arfr 0-5% Quun 0-6%	Bare soil 8-4 Rock 0-10 Litter 5-45 Vegetation 25-50
Existing Condition	<u>Grasses</u> 6-8 species 40 -80% c. cover Bogr 19-51% Lyph 9-14%	<u>Forbs</u>	<u>Shrubs</u> 2 species 5 % c. cover Gusa 0-8% Arfr 0-1%	Bare soil 18 Rock 0 Litter 6 Vegetation 48
Rangeland Management Status	Satisfactory with mid to high similarity and static trends.			
Rangeland Capacity Rating	Full Capability			
Soil Condition Rating	N/A			
Objectives	Maintain or improve existing conditions while grazing cattle.			
Monitoring	Continued monitoring of the frequency and ground cover plots at the long term sites will determine trend.			

El Pueblo Allotment TES - 185				
Designated Area - TES Unit 185- Blue grama grassland located on elevated plains on the El Pueblo Allotment with a 8% slope.				
	Vegetation			Soils (Ground Cover %)
Potential	<u>Grasses</u> 13 species 21.9% c. cover Bogr 15% Bocu 4%	<u>Forbs</u> 4 species 1.5 % c. cover Caoc 1% Erme 0.5%	<u>Shrubs</u> 5 species 5% c. cover Quun 5%	Bare soil 25 Rock 55 Litter 25 Vegetation 20
Desired Condition	<u>Grasses</u> 5-12 species 15-35% c. cover Bogr 10-20% Bocu 0-10%	<u>Forbs</u> 0-5 species 0.1-5% c. cover Caoc 0.1-5% Erme 0.1-5%	<u>Shrubs</u> 2-7 species 0-10% c. cover Gusa 0-10% Quun 0-7%	Bare soil 20-40 Rock 30-60 Litter 25-40 Vegetation1 5-30
Existing Condition	<u>Grasses</u>	<u>Forbs</u>	<u>Shrubs</u>	Bare soil Rock Litter Vegetation
Rangeland Management Status				
Rangeland Capacity Rating	Full Capability			
Soil Condition Rating	N/A			
Objectives				
Monitoring	Continued monitoring of the frequency and ground cover plots at the long term sites will determine trend.			

El Pueblo Allotment TEU - 258				
Designated Area - TES Unit 258- Blue grama, Sideoats grama grassland located on an elevated plain on the El Pueblo Allotment with a slope of 2%.				
	Vegetation			Soils (Ground Cover %)
Potential	<u>Grasses</u> 13 species 45% c. cover Bogr 25% Bocu 6% Boer 4%	<u>Forbs</u> 4 species 2% c. cover Hyri 1% Caoc 0.5% Erme 0.5%	<u>Shrubs</u> 5 species 3% c. cover Gusa 1% Eula 1% Opsp 1%	Bare soil 50 Rock 0 Litter 10 Vegetation 40
Desired Condition	<u>Grasses</u> 4-7 species 40-75% c.cover Bogr 30-60% Bocu 0-10% Spcr 0.1-10%	<u>Forbs</u> 2-7 species 0-5% c. cover Erme 0.1- 5%	<u>Shrubs</u> 0-7 species 3-6% c.cover Gusa 0-10%	Bare soil 25-55 Rock 0-10 Litter 0-10 Vegetation 40-80
Existing Condition	<u>Grasses</u> 4-7 species 75-76% c.cover Bogr 50-58% Bocu 0-2.1% Spcr 1-14.5%	<u>Forbs</u>	<u>Shrubs</u> 1 specie 3-6% c.cover Gusa 3-6%	Bare soil 30 Rock 0 Litter 9 Vegetation 76
Rangeland Management Status	Satisfactory with mid to high similarity and static trends.			
Rangeland Capacity Rating	Full Capability			
Soil Condition Rating	N/A			
Objectives	Maintain of improve existing conditions while grazing cattle.			
Monitoring	Continued monitoring of the frequency and ground cover plots at the long term sites will determine trend.			

El Pueblo Allotment TEU - 259				
Designated Area - TES Unit 259- Blue grama, Sideoats grama grassland located on an elevated plain on the El Pueblo Allotment with a slope of 8%.				
	Vegetation			Soils (Ground Cover %)
Potential	<u>Grasses</u>	<u>Forbs</u>	<u>Shrubs</u>	Bare soil 35
	13 species	4 species	4 species	Rock 20
	27.3% c. cover	1% c. cover	5% c. cover	Litter 40
	Bogr 15% Bocu 3% Stne 8%	Casti 0.5% Erme 0.5%	Quun 5%	Vegetation 25
Desired Condition	<u>Grasses</u>	<u>Forbs</u>	<u>Shrubs</u>	Bare soil 25-55
	11-13 species	3-4 species	2-4 species	Rock 15-25
	25-30% c. cover	1-5% c. cover	3-6% c. cover	Litter 0-10
	Bogr 12-20% Bocu 2-10% Stne 5-10%	Erme 0.1- 5% Casti 0.1-3%	Quun 1-10%	Vegetation 40-80
Existing Condition	<u>Grasses</u>	<u>Forbs</u>	<u>Shrubs</u>	Bare soil
				Rock
				Litter
				Vegetation
Rangeland Management Status	Satisfactory with mid to high similarity and static trends.			
Rangeland Capacity Rating	Full Capability			
Soil Condition Rating	N/A			
Objectives	Maintain of improve existing conditions while grazing cattle.			
Monitoring	Continued monitoring of the frequency and ground cover plots at the long term sites will determine trend.			

El Pueblo Allotment TEU - 280				
Designated Area - TEU Unit 280- Blue grama grassland located on the El Pueblo Allotment with a 6% slope.				
	Vegetation			Soils (Ground Cover %)
Potential	<u>Grasses</u> 13 species 25.3% c.cover Bogr 15% Bocu 3% Stne 5%	<u>Forbs</u> 4 species 1% c. cover Casti 0.5% Erme 0.5%	<u>Shrubs</u> 4 species 5% c. cover Quun 5%	Bare soil 50 Rock 10 Litter 10 Vegetation 35
Desired Condition	<u>Grasses</u> 5-8 species 20-70% c. cover Bogr 15-55% Lyph 0-10% Ardi 0-10%	<u>Forbs</u> 2-6 species 0-7% c. cover Erme 0.1-5%	<u>Shrubs</u> 0-5 Species 0-10% Gusa 0-10%	Bare soil 5-60 Rock 0-15 Litter 5-20 Vegetation 30-70
Existing Condition	<u>Grasses</u> 5-8 species 65% c. cover Bogr 49% Ardi 5% Lyph 3.78%	<u>Forbs</u>	<u>Shrubs</u> 1 specie <0.1 % c. cover Gusa 0.12%	Bare soil 6.7 Rock 0 Litter 17.3 Vegetation 65
Rangeland Management Status	Satisfactory with mid similarity and static trends.			
Rangeland Capacity Rating	Full Capability			
Soil Condition Rating	N/A			
Objectives	Maintain or improve existing conditions while grazing cattle.			
Monitoring	Continued monitoring of the frequency and ground cover plots at the long term sites will determine trend.			

El Pueblo Allotment TEU - 281				
Designated Area - TES Unit 281- Blue grama grassland located on an elevated plain on the El Pueblo Allotment with a 4 % slope.				
	Vegetation			Soils (Ground Cover %)
Potential	<u>Grasses</u> 12 species 41% c. cover Bogr 25% Bocu 6% Stne 5%	<u>Forbs</u> 4 species 0.7% c. cover Caoc 0.5% Erme 0.2%	<u>Shrubs</u> 3 species <0.1% c. cover Gusa <0.1% Yugl <0.1%	Bare soil 50 Rock 10 Litter 10 Vegetation 35
Desired Condition	<u>Grasses</u> 5-10 species 25-50% c. cover Bogr 20-30% Bocu 5-10%	<u>Forbs</u> 2-5 species 0-2% c. cover Erme 0-5%	<u>Shrubs</u> 1-3 species 0-10% c. cover Gusa 0-5% Yugl 0-5%	Bare soil 30-55 Rock 0-10 Litter 5-20 Vegetation 30-50
Existing Condition	<u>Grasses</u> 8 species 41% c. cover Bogr 24.77% Bocu 7.7%	<u>Forbs</u>	<u>Shrubs</u> 1 specie 5.8% c. cover Gusa 5.8%	Bare soil 31.7 Rock 0 Litter 15.8 Vegetation 42.5
Rangeland Management Status				
Rangeland Capacity Rating	Full Capability			
Soil Condition Rating	N/A			
Objectives	Maintain or improve existing conditions while grazing cattle.			
Monitoring	Continued monitoring of the frequency and ground cover plots at the long term sites will determine trend.			