



United States
Department of
Agriculture

Forest Service



Santa Fe
National Forest,
Region 3

July 2009

DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT CHICOMA GRAZING ALLOTMENT

Project Number: 13167
Española Ranger District
Santa Fe National Forest
Rio Arriba County, New Mexico

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Table of Contents

DECISION	1
REASONS FOR THE DECISION	3
OTHER ALTERNATIVES CONSIDERED.	3
FUTURE REVIEW OF THE DECISION	4
PUBLIC INVOLVEMENT	4
FINDING OF NO SIGNIFICANT IMPACT	4
FINDINGS RELATED TO OTHER LAWS	6
ADMINSTRATIVE REVIEW OR APPEAL	6
IMPLEMENTATION DATE	7
SIGNATURE AND DATE	7
APPENDIX A - MITIGATION MEASURES	9
APPENDIX B – PROPOSED RANGE FACILITIES	11
APPENDIX C – MONITORING	13

DECISION

INTRODUCTION

The Environmental Assessment (EA) for the Cerro Pedernal grazing allotments, which include the Polvadera, Chicoma, Mesa del Medio and Youngsville grazing allotments was prepared by an Interdisciplinary (ID) team. The EA discusses the reasons for taking action on these grazing allotments, which includes whether or not to continue cattle grazing as described in the proposed action moving the area towards the desired conditions. The EA discusses environmental effects of permitted grazing activities on the Chicoma grazing allotment.

The EA is available for public review at the Española Ranger District Office located and at the Santa Fe National Forest website <http://www.fs.fed.us/r3/sfe/projects/index.html>

DECISION

Based upon my review of the analysis in the EA, I have decided to approve the adaptive management grazing strategy described under alternative 2 of the EA. The selected alternative, mitigation requirements, and monitoring protocol is identical to what is described in the EA. This decision will permit managed livestock grazing on the Chicoma grazing allotment. The action consists of three components authorization of permitted livestock, new range facilities, adaptive management. The three components are described below.

Permitted Livestock: The proposed permitted cattle use would be authorized up to a maximum of 143 cow/calf pairs and 9 bulls from June 1 to October 31 under a one herd, six pasture deferred rotation grazing system.

To maintain or improve the condition of rangeland vegetation and long term soil productivity, grazing utilization would not exceed 40 percent forage utilization as measured at the end of the growing season in the uplands and 30 percent in riparian areas.

Range Facilities: The proposed range facilities listed below are mandatory for implementation under the Allotment Management Plan (AMP) unless otherwise indicated in appendix B of this document (EA, appendix D). Specific water developments have been identified as critical to the proposed action, some water developments will be implemented only if monitoring of livestock use patterns indicates a need to further improve animal distribution with the location of watering facilities.

Proposed Range Facilities	
Proposed Range Facilities	
Allotment Boundary Fence Construction (mi)	1.5
Drift Fences (mi)	0.74
Holding pasture fence (mi)	0.9
Spring development (ea)	1
New holding corral (ea)	1
Watershed Improvements	
Exclosure Fences (mi)	0.5
Windrow/Headcut treatments (ea)	4

Range facilities will be constructed under a cost share agreement with allotment permittee's (FSM 2241.31). The Forest Service, depending on budget and available funding, would provide the materials and supplies, and the grazing permittee's would construct and maintain the range facilities. The Forest Service will negotiate additional assistance, if funding and resources are available, such as transportation of materials and labor. Grazing exclosures and Forest Service Administrative units would be constructed and maintained by the Forest Service

(FSH 2244.03 SFNF Supplement). Permittee's are encouraged to pursue funding sources, such as NRCS Equip grants or NMED 319 grants to facilitating funding of the proposed range facilities.

Adaptive Management: Adaptive management focuses on the results of the short-term and long-term resource monitoring, as opposed to selecting one specific course of action that will not be deviated from over time. Adaptive management allows for adjustments in timing, intensity, frequency and duration of grazing, the grazing management system, and livestock numbers according to resource conditions and allows for the flexibility necessary to meet utilization guidelines and long-term desired conditions

The exact number of livestock authorized¹ to graze on an annual basis would depend on such things as resource condition of the allotment, available water, annual forage production, condition of structural facilities, and range readiness. 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 livestock waters, are producing less than required to support full permitted livestock numbers. Adjustments to the Annual Operating Instructions (AOI) which specifies the timing, intensity, frequency, and duration of cattle grazing may occur during the grazing year, based on conditions and range inspections by the District Range Staff and grazing permittees.

This decision will be incorporated into an Allotment Management Plan (AMP), scheduled to take affect during the 2010 livestock grazing season. Grazing permits, and their associated AMP and AOI, will be issued as implementing actions. The decision is expected to remain in effect until new information or changed conditions warrant a new analysis of the allotments. The selected alternative includes numerous design criteria intended to maintain or enhance watershed, riparian habitats and upland vegetation conditions. It also includes short-term and long-term monitoring requirements designed to measure the effectiveness of the actions on achieving or moving toward improving livestock management and the desired conditions. Monitoring is a critical component of adaptive management.

Monitoring can determine whether this decision is being implemented as planned (implementation monitoring) and, if so, whether the objectives identified in the Santa Fe Forest Plan and Allotment Management Plan are being achieved in a timely manner (effectiveness monitoring). Allotment monitoring will be an open, cooperative, and inclusive process conducted with the permittee's and other interested parties where feasible. 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 (FSH 2209.13 95). A detailed monitoring plan is outlined in appendix C of this document.

If significant progress toward desired condition is not made, then future adaptive management options may include but are not limited to the following:

- Where appropriate and feasible develop additional livestock waters (appendix D)
- If appropriate and feasible construct new interior fences to create additional pastures
- Requiring a range rider to actively herd livestock into upland areas and away from riparian areas
- Resting specific pastures for one or two growing seasons to allow for plant recovery
- Variable stocking rates and entry dates based on availability of forage and water

In any given pasture, two to three years, after the installation of proposed range facilities designed to improve livestock distribution (such as trick tanks), if utilization levels are still exceeding recommended use in upland key

¹ **Permitted** livestock indicates the 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.

areas (40 percent) and riparian areas (30 percent) then adjustments in the entry dates, the duration of livestock use and/or the number of annually authorized livestock may be necessary.

REASONS FOR THE DECISION

The selected alternative best meets the project purpose and need and achieves desired conditions (EA p 9 - 11) and will meet annual grazing utilization guidelines in the following ways.

- The alternative is consistent with the 1987 Santa Fe National Forest Plan management direction, emphasis (Forest Plan, p 17 - 22), Forestwide standard, guidelines (Forest Plan, 50 - 97), standards, and guidelines for Management Areas A, B, E, G, I, and L.
- The alternative best achieves Forest Service Policy (FSM 2202.1 & 2203.1) and the mission of the Santa Fe National Forest Plan (Forest Plan pp. 1 & 17) to manage for multiple use and sustained yield and to contribute to a viable rural economy.
- The livestock grazing will be managed at conservative grazing intensities that will maintain or promote improvement in upland and riparian vegetative conditions and will provide residual herbaceous vegetation for the improvement of soil productivity, riparian habitats and watershed health (EA pp. 34-56, EA appendix F, PR 58, 94).
- The permitted numbers reflect the range of variability that affects capacity on the allotments and the proposal provides a framework that allows for timely adjustments in authorized use in response to changes in grazing capacity.
- The alternative will provide an adaptive management framework that is designed to control the timing, intensity, frequency, and duration of grazing and will allow the Forest and grazing permittees to adapt permitted livestock management to changing resource conditions (EA pp. 18, 19).
- The alternative provides for the construction and repair of infrastructure to improve livestock distribution, which will maintain or increase vegetative cover, promote litter accumulation and protect soils and riparian vegetation. Proposed improvements will control livestock distribution and will provide a mechanism to increase pasture deferment and management flexibility.
- The alternative provides a basis for sharing responsibility for successful implementation of this decision with the permittees.

OTHER ALTERNATIVES CONSIDERED.

In addition to the selected alternative, I considered one other alternative (no action), summarized below. A comparison of the effects of these alternatives is found in chapter 2 of the EA.

Alternative 1: No Action (No Grazing). Under this alternative, grazing would not be permitted and use of the allotments by domestic livestock would be discontinued. The permittees would be given one year from the date of the decision to remove livestock from the allotments. Range facilities would be evaluated for wildlife, watershed, and soil protection needs. Improvements contributing to resource protection or enhancement, such as water developments important for wildlife, would be maintained where feasible using other program funds. Periodic inspection of structural improvements would be used to determine whether maintenance or removal is needed. Removal or maintenance of improvements would be authorized by a separate decision. Where possible, maintenance of allotment boundary fences would be reassigned to adjacent permittees with the understanding that livestock are to be kept off of the allotment.

While this alternative would meet the natural resource objectives defined for the allotments, it would not be consistent with Forest Service Policy (FSM 2202.1) and the Forest Service Mission (Forest Plan, appendix F) to manage for multiple use and sustained yield and to contribute to a viable rural economy.

FUTURE REVIEW OF THE DECISION

In accordance with Forest Service Handbook direction [FSH 1909.15(18) and 2209.13(96)], an interdisciplinary review of the decision will occur within next 10 years. If this review indicates that management is meeting objectives and achieving desired condition, the initial management activities will be allowed to continue. If monitoring demonstrates that objectives are not being met and management options beyond the scope of the analysis are warranted, or if new information demonstrates significant effects not previously considered, a new proposed action will be developed and further analysis under NEPA will occur.

PUBLIC INVOLVEMENT

The NEPA process for this project was formally initiated on March 30, 2007 with distribution of a scoping letter to forty individuals, organizations, agencies, and interested tribes. Responses were received from seven separate parties. On August 4, 2008, a legal notice was published in Albuquerque Journal announcing that the proposed action for the Cerro Pedernal Allotments was available for the 30 day notice and comment period pursuant to 36 CFR 215. The proposed action was mailed to interested parties and grazing permittee's. The District received fifteen responses to the proposed action during the formal 30-Day comment period. The project was first published in the October - December 2005 quarterly edition of the Santa Fe National Forest Schedule of proposed actions (SOPA) as the Four Grazing Allotments Management Strategy. The project first appeared under its current name and has been published continuously since the March - June 2007 edition of the SOPA.

In accordance with the Public Rangelands Improvement Act (P.L. 95-514, 43 U.S.C. 1752), the Española District Ranger, and staff met and consulted with permittee's on numerous occasions concerning the Cerro Pedernal NEPA analysis (PR 21, 42, 69). In addition, the NEPA process and status was discussed with the permittee's for the Chicoma grazing allotment during the Annual Operation Instruction meetings since 2007.

Appendix E of the EA contains a summary of the responses to the public comments.

FINDING OF NO SIGNIFICANT IMPACT

After considering the context and intensity of the environmental effects described in the EA, I have determined that these actions will not have a significant effect on the quality of the human environment as defined in the Council on Environmental Quality implementing regulations at 40 CFR 1508.27. Thus, an environmental impact statement will not be prepared. I base my finding on the following:

Context: The action is a site-specific action that by itself does not have international, national, region wide or statewide importance. Effects are limited to the locale of Chicoma grazing allotment.

Intensity: The following discussion is organized around the ten significance criteria described in the National Environmental Policy Act (NEPA) regulations at 40 CFR 1508.27.

1. Both beneficial and adverse impacts were considered in the analysis (EA pp. 33-78). Grazing as proposed will result in removal of renewable herbaceous and some woody vegetation, but will be limited to light to conservative levels (0 - 40% utilization) in order to allow for the retention of litter and plant stubble to provide soil cover and wildlife habitat. Adverse effects have been reduced or eliminated through project design and mitigation measures (EA pp. 18-20, 24, 25). Regular pasture deferments and rotations along with conservative grazing intensities are predicted to maintain or improve long-term soil and watershed condition (EA pp. 39 - 41).

2. No significant effects on public health and safety were identified. The scope of the grazing authorization is limited to the implementation of managed livestock grazing and the installation and maintenance of structural range facilities. These actions are not expected to present significant hazards to workers or the public.
3. The project will not adversely affect parks, prime farm lands, wetlands, wild and scenic rivers, or other resources considered to have unique characteristics. None of these features are found in the allotment.
4. The effects on the quality of the human environment are not likely to be highly controversial. The environmental analysis process has documented the expected environmental effects of the proposed action and no action alternatives. These effects have been disclosed in chapter 3 of the EA and the selected action has been designed and mitigated to address the various issues raised. The analysis represents the judgment and expertise of resource management professionals who have applied their knowledge to similar projects and resources in the past. The management practices proposed are commonly-used resource management practices described in agency directives, prescribed in the Forest Plan and used by other land management agencies. The intensity of grazing and management practices proposed are consistent with the best available science and current direction. While some members of the public are opposed to permitted grazing on public lands, others view the Forest Service as too restrictive in its management; this action is not highly controversial within the context of the National Environmental Policy Act.
5. The effects analysis (EA pp. 33-78) indicates the effects are not uncertain, and do not involve unique or unknown risk. The Forest Service has considerable experience with the types of activities to be implemented. The effects described in the EA are based on the judgment of experienced resource management professionals using the best available information.
6. The decision to reissue grazing permits for the allotment does not establish a precedent for future actions with significant effects. Future actions will be evaluated through the NEPA process and will stand on their own as to environmental effects and project feasibility.
7. The cumulative impacts of the action on soils, vegetation, and terrestrial and aquatic wildlife resources were considered and disclosed in the EA in chapter 3 and in a variety of specialist reports. The direct and indirect effects of the proposal are expected to be minor in the short term and beneficial or neutral over the long term. None of the effects are considered significant for reasons described herein. No past or future actions have been identified that will combine with the effects of the proposed action to cause cumulatively significant effects.
8. The action will have no significant adverse effect on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. The action will also not cause loss or destruction of significant scientific, cultural, or historical resources (EA pp. 73-76, PR 84). Mitigation measures included as part of the selected alternative are designed to preclude adverse effects to these resources (EA pp. 24, 25). The proposed action includes provisions to survey for and avoid sensitive heritage sites prior to any ground-disturbing activities (PR 84). A Heritage Resources Evaluation report was prepared and submitted to the State Historic Preservation Office (SHPO) with a determination of no adverse effect to cultural resources. Concurrence from SHPO was received on May 13, 2009 (PR 84).
9. No formal consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act was required because there are no known occurrence of listed species (PR 62) and there is no critical habitat for listed species on the allotment. Management practices have been incorporated into the proposed actions that are sufficient to avoid effects to listed species habitat.

10. This selected alternative is in full compliance with all federal, state and local law requirements imposed for environmental protection. Best Management Practices (Mitigation Measures) to protect water quality are included in the selected alternative (EA pp. 11, 12, 18-25).

FINDINGS RELATED TO OTHER LAWS

National Forest Management Act: The Santa Fe National Forest Plan was adopted on July 1987 and has been amended several times. The 2005 Forest Service planning regulations state that projects must be consistent with the plan (36 CFR 219.8 (e)). The Youngsville allotment falls within Management Areas A, B, G, L and Q. The Forest Plan identifies Management Areas A, B, E, G, I, L and Q as suitable for grazing (Forest Plan, pp. 98, 102, 117, 121, 136, 148, 163) and is consistent with Forest Plan goal and objectives. Light to conservative utilization, prescribed mitigation measures and adaptive management strategies will meet the Forest Plan goals for range, wildlife, soil, water and riparian resources. There are no identified effects to Management Indicator Species or sensitive species that will affect their Forest-wide populations or long-term viability (EA, pp. 60-66). Other NFMA consistency findings relate to the management of suitable timberlands. The project area does not contain any suitable timberlands; therefore, the other NFMA consistency requirements do not apply.

My conclusions regarding the effects of the proposed action are based on a thorough review of the relevant scientific information and consideration of responsible opposing views; and the acknowledgement of incomplete or unavailable information, scientific uncertainty, and risk. Proposed grazing management was developed using data obtained and interpreted according to accepted monitoring practices for identifying rangeland condition and capacity (PR 22-25, 32-34, 79-83 and 94). The proposal incorporates adaptive management actions necessary to adjust stocking to remain within capacity (EA pp. 18, 19). Grazing intensity levels are consistent with existing scientific literature regarding proper utilization levels (EA, appendix F). The effects analysis for listed, sensitive and management indicator species is based on the most recent survey and distribution information (PR 61, 62, 66, and 68). Soil and riparian monitoring and effects analyses were conducted in accordance with accepted Forest Service monitoring techniques (PR 63-65, 77 and 78) and are based on site-specific data collected within the project area. Based on the documentation in the record, I conclude the best available science was considered in developing and analyzing the proposal.

Multiple Use Sustained Yield Act: The selected alternative will not impair land productivity and is therefore consistent with this law.

Endangered Species Act: No formal consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act was required because there are no known occurrences of listed species (PR 62) and there is no critical habitat for listed species on the allotment. Management practices have been incorporated into the proposed actions that are sufficient to avoid effects to listed species habitat.

National Historic Preservation Act: A Heritage Resource Investigation was completed with a finding of no adverse effect on cultural resources. Concurrence from SHPO was received on May 13, 2009 (PR 84)

Executive Order 13186 (Migratory Birds): There are no identified effects on migratory birds, Birds of Conservation Concern and Important Bird Areas (EA, pp. 58-60 and PR 60).

Executive Order 12898 (Environmental Justice): This decision does not impose disproportionately high adverse human health or environmental effects on minority or low-income populations (EA pp. 76-78).

ADMINISTRATIVE REVIEW OR APPEAL

This decision is subject to appeal in accordance with regulations at 36 CFR 215. Individuals or organizations that provided comments or otherwise expressed interest in the proposed action during the August 2008 comment period may appeal. A notice of appeal must be in writing and clearly state that it is a Notice of Appeal being filed

in pursuant to 36 CFR 215. Appeals must be filed (regular mail, email, fax, hand-delivery, or express delivery) with the Appeals Deciding Officer, Daniel J Jirón, Forest Supervisor, Santa Fe National Forest, P.O. Box 1689, Santa Fe, New Mexico, fax: (505) 438-5390, email: appeals-southwestern-santafe@fs.fed.us (email message, .doc, rtf or .txt formats only). If hand-delivered, the appeal must be received at the above address during business hours (Monday-Friday 8:00 am to 4:30 pm), excluding holidays.

Appeals, including attachments, must be in writing, consistent with 36 CFR 215.14 and filed (postmarked) within 45 days of the date of legal notice of this decision in the *Albuquerque Journal*. This publication date is the exclusive means for calculating the time to file an appeal. Those wishing to appeal this decision should not rely on dates or timeframes provided by any other source.

The allotment permittee may choose to appeal the decision under the regulations listed at 36 CFR 251, Subpart C or 36 CFR 215, but not both. An appeal by the permittee under the 36 CFR 251 regulations must be filed simultaneously with the Santa Fe National Forest Supervisor Daniel J. Jirón (address above) and the Espanola District Ranger, Sanford Hurlocker, P.O. Box 3307, Española, New Mexico 87533 within 45 days of the date of publication of legal notice in the *Albuquerque Journal*.

For additional information concerning this decision or the Forest Service appeal process, contact Sandy Hurlocker, Española District Ranger at (505) 753-7331 or Donald Serrano, District Range Staff (505) 753-7331.

IMPLEMENTATION DATE

If no appeals are filed within the 45-day filing period, implementation of the decision may occur on, but not before, five business day from the close of the appeal filing period. When appeals are filed, implementation may occur on, but not before, the 15th business day following the date of the last appeal disposition. Implementation means actually issuing the new permit or accomplishing any ground disturbing actions. Field preparation work needed to implement this decision may proceed immediately.

SIGNATURE AND DATE



SANFORD HURLOCKER
Española District Ranger

29 July 09

Date

APPENDIX A - MITIGATION MEASURES

To mitigate resource impacts, the proposed action will be subject to the following required mitigation measures. The mitigation measures included here are limited to those for which the Forest Service has authority. These mitigation measures have been used on previous projects and are considered effective in reducing environmental impacts. Compliance with the prescribed mitigation measures, applicable Forest Plan standards and guidelines, and project design criteria is mandatory. No potentially significant adverse environmental effects would be expected to occur with full implementation of mitigation measures.

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

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

- Non-game entrance and escape ramps will be provided on water developments intended for livestock or wildlife use. New and reconstructed range water developments will include wildlife access, cover, and escape considerations (Forest Plan 1987, Amendment #6, pg 66 to 67).
- In Rio Grande cutthroat trout occupied streams (Chihuahueros, Cañones, and Polvadera) grazing will not occur until July 15.
- To protect birds and bats from injury or death, drinker tank/trough braces will not extend above the tank/trough or have other above tank impediments.
- Construction and maintenance of range facilities will be evaluated and executed to have no adverse effect on threatened and endangered species (Forest Plan 1987, Amendment #6, pg 68).
- If any listed or proposed Threatened, Endangered, 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 fence construction/reconstruction will meet wildlife standards to allow easy migration and passage (Forest Plan, amendment #6, pg 67), applicable to barbed wire four horizontal strands, height – 40 to 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.

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

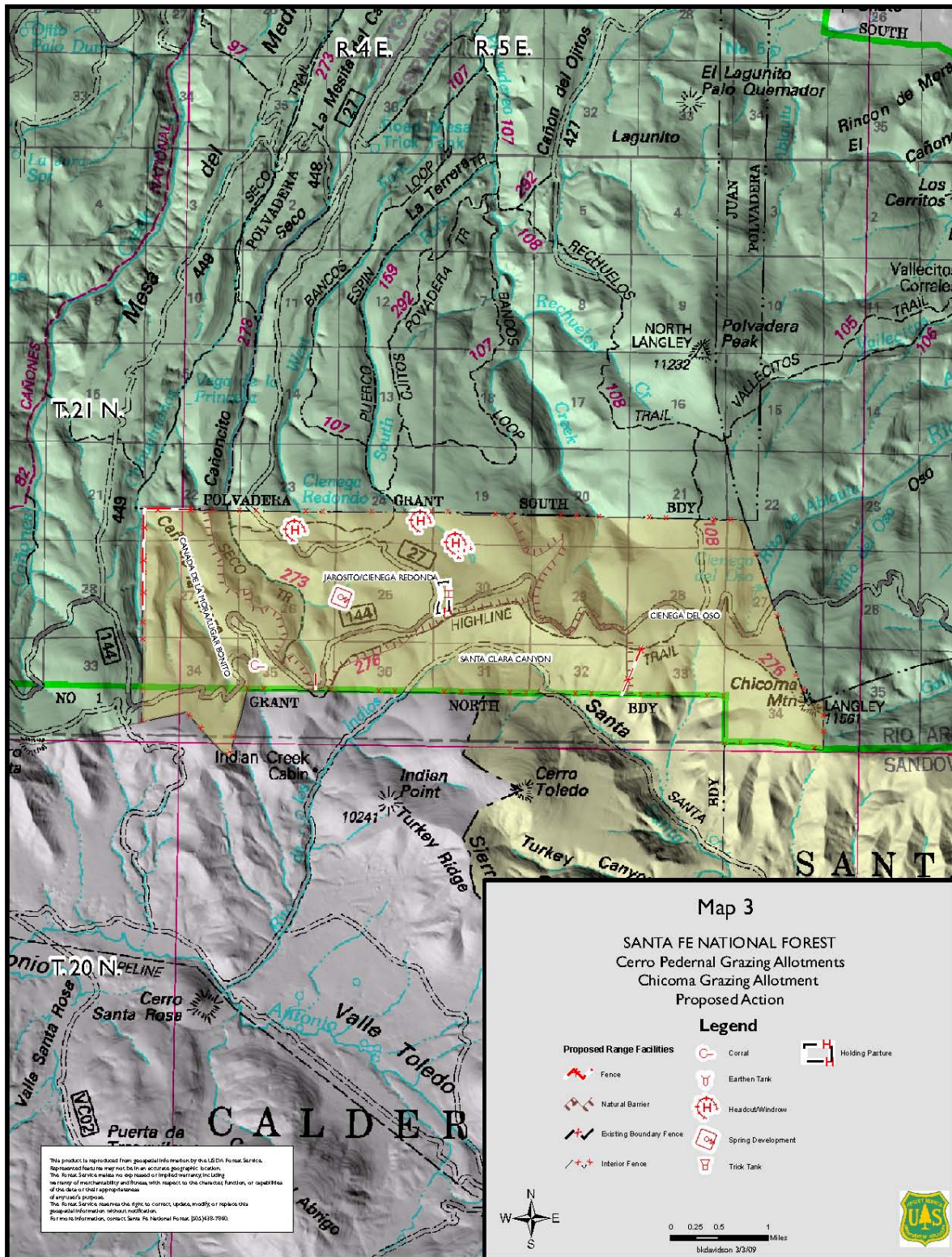
- Range facilities will be located to avoid concentrations of cattle on identified heritage resource sites. No ground disturbing activities will be conducted within known site boundaries.
- No salting will occur within or immediately adjacent to site boundaries.
- If any unrecorded sites are discovered 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 monitor 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 facilities not covered will require additional heritage resource survey and/or clearance prior to construction.

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

Within Management Area L, native or natural materials such as local rock, logs, and indigenous plant species will be used in the construction of range facilities (Forest Plan 1987, amendment #6, pg 147).

APPENDIX B – PROPOSED RANGE FACILITIES



NAME	PASTURE	ACTION	LOCATION	TIMELINE	RESPONSIBILITY
Agua Fierro Spring	Jarosito	New Construction	T21N R4E Sec 25	Discretionary base on monitoring	US Forest Service
Oso/Santa Clara Drift fence	Santa Clara	New Construction	T21N R4E Sec 28, 32, 33	Mandatory within 4 years of implementing AMP	US Forest Service
Mora/Santa Clara Drift fence	Santa Clara	New Construction	T21N R4E Sec 35	Mandatory within 4 years of implementing AMP	US Forest Service
Holding Corral	Mora	New Construction	T21N R4E Sec 35		Permittee's
Chicama/MDM Allotment Boundary Fence	Mora	New Construction	T21N R4E Sec 22& 27	Mandatory within 2 years of implementing AMP	US Forest Service
Spring Development	Redonda	New Construction	T21N R4E Sec 25	Discretionary based on monitoring	Permittee's
Holding Pasture	Redonda	New Construction	T21 N R5E Sec 30		Permittee's

APPENDIX C – MONITORING

Monitoring can determine whether this decision is being implemented as planned (implementation monitoring) and, if so, whether the objectives identified in the Santa Fe Forest Plan and Allotment Management Plan are being achieved in a timely manner (effectiveness monitoring). Allotment monitoring will be an open, cooperative, and inclusive process conducted with the permittee's and other interested parties where feasible. 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 (FSH 2209.13 95). The frequencies of monitoring outlined below are recommended guidelines and are dependent on funding and available resources.

The types of monitoring listed are representative; monitoring methods may also change under adaptive management and should not be limited to the monitoring methods proposed here.

Fish

Resource Management Objective: Sustain the viability of and prevent the need for listing the Rio Grande cutthroat trout in the Chihuahueros, Polvadera, and Cañones Creeks and their fish-bearing tributaries within ten years (2019) pursuant to the long-range Rio Grande cutthroat trout conservation management plan and conservation agreement, and the Forest Plan.

Monitoring: To establish whether there is a change in fisheries habitat within the reference site (Chihuahueros enclosure) and two monumented sites each in Chihuahueros, Polvadera and Cañones:

- Bank instability - less than 10 percent for the stream length in areas where stream gradient is less than 4 percent.
- Pool volume - meets or exceeds 30 percent of the stream length (in sections where stream order is 3 or greater).
- Average residual pool depth - meets or exceeds 1.0 foot.
- Large woody debris - meets or exceeds 30 pieces per mile as determined by methods established in Regional protocol; meadow sections are excluded.
- Riffle sediment content - less than 20 percent of the total substrate composition.
- Rosgen stream type classification - moving towards or meeting historic natural conditions.

Stream habitat inventories should occur every 10 years. In addition, fish populations should be monitored at the same locations described above within three to five years after the grazing decision is implemented, then every decade thereafter through methods such as three-pass depletion electro-shocking and/or snorkeling.

Water Quality

Resource Management Objective: Meet water quality standards established by the Clean Water Act, administered by the New Mexico Environment Department to meet designated uses in all perennial drainages. Listed streams should meet these standards by 2018; non-listed streams should be maintained in this condition to prevent listing.

Monitoring: Evaluate whether 303(d) listed streams are meeting standards, monitor stream attributes within one year of implementation of the grazing decision and every three years thereafter at reference points on

Chihuahueros, Polvadera and Cañones Creeks. The attributes to be measured include but are not limited to: temperature (using a thermograph, for example), stream bottom deposits (by conducting pebble counts, for example), and turbidity (by use of a probe, for example).

Vegetation

Management Objective: Meet native forage vegetation and ground cover components as published in the Terrestrial Ecosystem Survey on those map units that support grazing within ten years of implementing the grazing decision.

Monitoring: Ensure that the above resource management objective is being met across the four allotments and in designated key and special emphasis areas. Monitoring protocol will follow the Interagency Technical Reference 1734-4 and 1734-3 (<http://www.blm.gov/nstc/library/techref.htm>) and the New Mexico State University Range Improvement Task Force - Rapid Assessment Methodology (http://www.cahe.nmsu.edu/pubs/_ritf/RITF-76.pdf). A monitoring protocol will be developed during the implementation of the AMP in cooperation with the grazing permittee's, Forest Service, New Mexico Game and Fish Department and the Valles Caldera National Preserve to assess Elk utilization and impacts.

Utilization monitoring will focus on two components, upland key areas, and special emphasis areas (riparian and wet meadows). These monitoring areas may only comprise a small percentage of the pasture or allotment but because of their relative importance, utilization monitoring in these areas will, in most cases, determine if allowable use standards are met throughout the allotment. Key areas have been identified for all four allotments (Table 2) and have been used in utilization monitoring for several years. In addition, special emphasis areas have also been identified for monitoring that will assist in evaluating the effects of livestock grazing in critical areas such as riparian and wet meadows (Table 3). Figure 1 displays the location of the current key areas and special emphasis area.

Upland Range Sites

An upland **Key Use Area** is a portion of range which, because of its location, grazing or browsing value, and/or use, serves as an indicative sample of range conditions, trend, or degree of seasonal use (Smith et al 2005). It guides the general management of the entire area of which it is part.

Changes in management actions (installation or removal of range facilities, season of use, number of animals, etc) can alter grazing patterns within a pasture and the degree to which a previously selected key area is representative of the current years planned use. Likewise, non-grazing management related changes in land use may also affect grazing patterns. All key area locations identified by the Forest Service and the permittee's need to be reconsidered using the following guidelines:

- They are between 0.25 and 1.0 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 end of growing season 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.
- Key areas should receive substantial use, but should not be areas of heavy concentration.

The objectives of the guidelines developed for uplands are to enhance the health and long-term productivity of native species, improve, and maintain plant root structure to enhance soil stability, and manage for species diversity and multiple age classes of native vegetation. Vegetation will be managed to inhibit or decrease all

non-native species where possible or in a manner to maintain vigor of the native plant species to resist further encroachment of non-native species where the non-natives are already established (i.e. Kentucky bluegrass).

Allowable use and stubble height guidelines: Utilization guidelines will correspond to conservative grazing intensity as identified by Holechek, et al (2000) as described in Table 4. Utilization and residual measurement will be conducted at the end of the growing season and after livestock have been removed from the pasture.

Riparian and Wet Meadows

A *Special Emphasis Area* is similar to a key area but includes areas that are representative of sensitive habitats associated with water such as riparian areas and wet meadows.

The objectives of the guidelines developed for the wet meadows and riparian areas are to improve and maintain the health, long-term productivity, competitiveness, and diversity of the native wetland species; enhance plant root structure to improve the stability of the streambanks; and provide a structural diversity of well-suited native species to dissipate energy during periods of over-bank flows. Normally this will mean increasing the occurrence of sedges and other aquatic graminoid species within these areas and decreasing the amount of Kentucky bluegrass and other low growing species.

Allowable use and stubble height guidelines: Within the riparian areas, the stubble height remaining after livestock have been removed, should not average below 4 inches along streambanks or 30 percent use on key herbaceous riparian vegetation not immediately adjacent to the streambanks. Key riparian browse vegetation (willows) will not exceed 50 percent of current annual twig growth with reach of livestock.

If the condition of the vegetative resource does not meet forest plan objectives, the guidelines described here will assist in improving plant vigor, provide streambank protection, and aid deposition of sediments to rebuild degraded streambanks and increase the stability of the system over time (Elmore 1988, Clary and Webster 1989, Meyers 1989).

Table 1 - Vegetative Monitoring Attributes and Methods

Attribute	Sample Method(s)	Location
Uplands		
Herbaceous and Woody Utilization (Implementation monitoring)	Stubble height, clipping of paired plots, height -weight curves or gages, ocular estimate, Cole browse method, Rapid Assessment Method – Range Improvement Task Force (NMSU)	Key Areas
Plant Frequency, Ground cover and vegetative composition (Effectiveness monitoring)	Daubenmire or Nested Frequency and Dry-weight Rank	Key Areas
Forage Production	clip and weigh or comparative yield method	Key Areas
Riparian and Wet Meadows		
Utilization guidelines for riparian areas (Implementation monitoring)	Stubble height, clipping of paired plots, height -weight curves or gages, ocular estimate, Cole browse method, Rapid Assessment Method – Range Improvement Task Force (NMSU)	Fish Bearing Reaches

Attribute	Sample Method(s)	Location
Plant Frequency, Ground cover and vegetative composition (Effectiveness monitoring)	Daubenmire or Nested Frequency and Dry-weight Rank	Special Emphasis Areas

Table 2 - Key Areas for Grazing Utilization Monitoring

Allotment	Monitoring Area	Key Area Name	Key Species	Allowable Use
Chicoma	Upland	Rincon del la Mora	Arizona Fescue (Fear), Carex (Carex), Sheep Fescue (Feov)	40%
Chicoma	Upland	Santa Clara	Tufted Hair Grass (Deca), upland CAREX, Timothy (PHLEU)	40%
Chicoma	Upland	Jarosito	Arizona Fescue (Fear), upland CAREX, Sheep Fescue (Feov)	40%
Chicoma	Upland	La Virgin	Thurbers Fescue (Feth), Timber Oatgrass (Dain), Arizona Fescue (Fear)	40%

Table 3 – Special Emphasis Areas for Grazing Utilization Monitoring

Allotment	Monitoring Area	Special Emphasis Area	Key Species	Allowable Use
Chicoma	Wet Meadow	Cienega Redonda	Tufted Hair Grass (Deca), Watersedge (Caaq), Shrubby Cinquefoil (Pofr)	40%

Table 4 - Grazing intensity guide

Qualitative Grazing Intensity Category	Use of Forage by Percentage (%)	Stubble Height Indicators of Grazing Intensity						
		Arizona Fescue	Western Wheatgrass	Blue grama (bunchgrass sites)	Blue grama (Sod-bound site)	Intermediate Wheatgrass	Mountain Muhly	Timber Oatgrass
		----- Average height of vegetation (inches)-----						
Light to non-use	0-30	8+	7+	2.5+	1.2+	10+	5+	8+
Conservative	31-40	6-7	4-5	2-5	1.2-1	8-10	4-5	6-7
Moderate	41-50	5-6	3-4	1.5-2	1-0.75	6-8	3-4	5-6
Heavy	51-60	4-5	2-3	1-1.5	0.75-0.50	4-6	2-3	4-5
Severe	>60	<4	<2	<1	<0.5	<4	<2	<4

Note: As utilization monitoring is completed on these allotments, new stubbles height indicators of grazing intensity will be developed for key species not listed in this table.

Figure 1 - Key and Special Emphasis Monitoring Areas

