

**ENVIRONMENTAL ASSESSMENT
ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP)
MACHO/GALLO WATERSHED GEOGRAPHIC PRIORITY AREA (GPA)**

Introduction

This environmental assessment (EA) is being prepared by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) to comply with the requirements of the National Environmental Policy Act of 1969 and implementing regulations at 40 CFR Parts 1500 – 1508. The EA will assist NRCS in determining whether the proposed action will have a significant impact on the quality of the human environment and therefore requires preparation of an Environmental Impact Statement.

Need For Proposed Action

There is a need in the Macho and Gallo watersheds to improve the native plant community by controlling the juniper population. The purpose of meeting this need is to improve soil conditions, reduce erosion by wind and water, increase quality of runoff water and ground water recharge. Food and habitat for wildlife and livestock will also be improved.

Background

The geographic priority area is located in Northwest Lincoln County in the Pecos-Canadian Plains major land resource area CP-3 (see attached map). The area is approximately 1633 square miles or 1,045,000 acres in size, and the primary land type is rangeland. The NRCS ecological site descriptions describe this area as grassland at the lower elevation, and a pinyon/juniper/grassland association at the higher elevation. Most of the efforts in this GPA are concentrated in the 4500' to 6000' elevation range with average precipitation being from 12 to 16 inches. Two major drainages, the Macho and the Gallo cut through the area and feed into the Pecos River. Approximately half of this area (520,000 ac.) is heavily populated with juniper trees. Historic photos and records show this population of trees to have significantly increased during the last 60 years. This is believed to be from several causes, but predominantly from fire prevention and change in atmospheric conditions during this time period

The area supports a ranching economy through livestock grazing and recreation derived from wildlife. The invasion of brush affects the stability of the agriculture economy by reducing herbaceous vegetation for livestock and wildlife, and by reducing precipitation effectiveness. The ecological health of these grassland sites are also severely reduced by the invasion of these trees depending on the degree of infestation. Water is a limited resource in the arid Southwest. Water yield tends to decrease as woody cover increases. Brush management can be used to increase water yield by restoration of the natural vegetation composition.

Alternatives

Alternative 1 No Action.

Alternative 2 Proposed Action: Use the EQIP appropriations to assist agriculture producers within the GPA to apply conservation measures to land under their control. These conservation measures will include brush management (mechanical, chemical, and fire), prescribed grazing (grazing management), and upland wildlife habitat management. Also facilitating practices such

as fencing, watering facilities (pipelines, troughs, storage tanks, and wells), and earthen erosion control structures are needed to implement management. Approximately 30,000 acres could be impacted under this action..

Alternatives Considered But Not Studied In Detail

One considered alternative was to use biological control as a tool to manage juniper invasion on the area, however there are no known biological agents rendering this alternative as infeasible.

Scoping Of Issues for Unique and Protected Resources in the Area

NRCS conducted a review of the area to identify unique and protected resources and other special issues of concern. Members of the public had an opportunity to provide comments and identify concerns during a meeting on November 16, 1999 of the Chaves and Carrizozo Soil and Water Conservation Districts along with the Local Workgroup. This group is responsible for recommending proposed EQIP actions. No controversy about the need for action or the actions themselves was raised during these meetings. NRCS or other Federal and State agencies identified no issues of concern during the meetings.

Threatened and Endangered Species of Concern: A record search shows the Mexican Spotted Owl (Federal Endangered list), and the Gray Vireo (NM Threatened list), are species that can frequent the area. Research by way of the U.S. Fish and Wildlife Service and the NM Department of Game and Fish websites, on these two species shows that the proposed actions of the GPA will have no impact on the Gray Vireo. *Distribution and Habitat Associations* of the Gray Vireo both limit the possibility of impact on the species. Mexican spotted owl may be affected by removal of trees and consultation with US FWS will be done prior to implementation.

Cultural Resources and Historic Properties: NRCS completed a search of cultural resources records and the density of such sites is low in the GPA. Nonetheless, to ensure that unidentified sites are not adversely affected, site-specific field surveys will be done and consultation will be conducted with the New Mexico State Historic Preservation Officer (SHPO) before NRCS will implement any ground disturbing activities.

Riparian No Actions are planned in riparian areas.

Wetlands: No actions are planned in wetland areas.

Prime Farmland: The area contains no prime farmland.

Impacts and Effects of Alternatives

Alternative 1. No Action

Landowners and other agencies will continue to apply ranch conservation measures minimally without NRCS participation. Rangelands with low ecological site indexes will persist and continue to deteriorate. Brush densities will remain and increase at high levels. Rangeland health will continue to decline. Ground water recharge will remain below its potential, runoff water will decrease in quality, soil conditions will degrade, and food and habitat for wildlife and livestock will continue to decline. Rangelands will continue to support plant communities with low water use efficiency.

Alternative 2. Proposed Action:

There are approximately 520,000 acres of rangeland in the area with potential to benefit from the application of conservation systems that would include brush management, prescribed grazing, upland wildlife habitat management, and facilitating practices. NRCS expects to carry out brush management on only 2 percent of this acreage, or 12,000 acres or 1 percent of the total area. Prescribed grazing and upland wildlife habitat management would be carried out on an additional 20,000 acres. NRCS, using research information, conservatively estimates two inches of annual precipitation could be captured for recharge following brush management. This equates to approximately 2000 acre-feet. Do to the limited amount of EQIP funds available the size of the area and the extent of conservation systems applied to improve forage production and aquifer recharge is limited.

This alternative included brush management (mechanical, chemical, and fire) to reduce juniper invasion on shallow, loamy, shallow limestone, sandy plains, sandy, and swale rangesites. Brush management will be done to restore natural grassland plant communities and to reduce competition for space, moisture, and sunlight between plants. It will improve forage accessibility, quality, and quantity for wildlife and livestock. Brush targeted is new growth (<50 years old) and is from 6" to 12' in height and should not affect any animals of concern.

Mechanical brush management is accomplished by using a crawler tractor or a front-end loader to individually grub trees. Mechanical brush management will disturb soils in areas where trees are removed . It will disturb 10 to 70 percent of the soil surface. Soil disturbance is extensive in heavy infested sites, and more so in sandier soils Large pits are created where the root mass is removed. Erosion rates will increase slightly following treatment, but over a period of two to five years perennial grasses will stabilize the area.

Water quality will be impacted, for a short period following the use of mechanical brush management. Disturbed areas will contribute sediment to overland flow. This will persist for up to one to two years following treatment. Vegetation will stabilize the site Brush control will improve precipitation efficiency. The plant community dominated by woody vegetation (high water use plants) will be restored to a plant community dominated by grasses (low water use plants). This change in the plant communities will allow more precipitation to be available for ground water recharge..

Mechanical brush control will impact air quality. Diesel smoke and dust will be a problem for a short period of time during the implementation period.

Brush management will be done with habitat for wildlife (mule deer) in mind. Areas along draws, rock out-crops, steep slopes and ridge tops will be avoided. Travel lanes will be left to provide for movement of wildlife between habitat types.

Chemical brush control would be done by aerial application or hand application of herbicide. Chemicals would be applied prior to the expected effective precipitation period. Precipitation will carry the chemical into the soil. The chemical is then taken up by the target species. It will take two or three growing seasons to completely kill the target species. Application of the herbicide will be done according to the label thus keeping effects of the chemicals within levels determined by the Environmental Protection Agency to be acceptable.

Application of herbicides does not disturb the soil therefore there will be no increase in erosion. Water quality will not be affected. The affects on water quantity are the same as previously discussed under mechanical control. The chemicals being used are in a pellet form or applied directly to the ground in small amounts. There will be no chemical drift associated with the practice. Air quality will not be affected. The herbicide rate used will be that needed to control the target species. Non-target species should show little impact from the chemical. With GPS capabilities, areas with high ecological site indexes will be avoided. Chemical brush management will be planned and carried out in a manner to enhance wildlife habitat. Areas along draws, rock out-crops, and ridges and hilltops would not be treated. Travel lanes will be left along the draws to provide for movement of wildlife between habitat types. The brush management plan will include creation of edge effect.

Fire has long been a component of the rangeland ecosystems of the Southwest. Prescribed burns are different than wildfires, since they are applied under vary specific climatic conditions and at specific times of the year in order to provide effective control of brush with minimal impacts on desired vegetation. Burning will temporarily significantly reduce the infiltration rate and increase the sediment yield of a site. This is due to the loss of protective cover, which dissipates raindrop energy and obstructs runoff. Depending on the intensity of the rainfall event following the burn these impacts can be minimal or severe. These impacts will be short lived (one to two growing seasons) as the vegetation on the site recovers. Fire is an excellent tool for managing wildlife habitat. Because fires seldom burn the entire area a mosaic effect is created. This will greatly increase edge effect and create a stratified plant community.

Once the brush is removed facilitating practices such as livestock pipelines, livestock water storage tanks, livestock drinkers, and fences may be constructed to implement prescribed grazing.

(A pipeline, with it's associated drinkers and storage tanks, when installed, a trench will be excavated to install the pipeline.?) The excavated trench will then be covered. This excavated area will be 1 to 6 feet wide and could be several miles in length. The excavation will be done either with a trencher, a crawler tractor, or a maintainer.

The soil surface will be disturbed along the pipeline route. Soil erosion will increase slightly, but the area will grass over within one or two growing seasons. (Ground disturbance for an average pipeline one mile in length would be 4/10 of an acre)

Construction of livestock pipelines will have little effect on water quality or quantity.

Construction of livestock pipelines, will impact air quality during construction. Diesel smoke and dust will be a problem for a short period of time during the implementation period.

Construction of livestock pipelines will have a positive effect on plant communities. Grazing distribution and harvest efficiency can be improved for livestock and wildlife. (Combine the three previous paragraphs.

Pipelines construction will provide a permanent and readily available supply of water for livestock and wildlife year round including mule deer, antelope, and small game birds.

Storage tanks and drinkers when installed will disturb the soil surface only directly under and immediately adjacent to (within 10') of the structure. These will average 200 square feet of exposed soil during construction and afterward due to livestock and wildlife traffic. Air quality and soil erosion will be affected very slightly by dust on these small areas.

Construction of storage tanks and drinkers will have a positive effect on plant communities. Grazing distribution and harvest efficiency can be improved for livestock and wildlife

Storage tanks and drinkers construction will provide a permanent and readily available supply of water for livestock and wildlife year round including mule deer, antelope, and small game birds. Combine the three previous paragraphs.

If fencing is installed, a right of way will be cleared using a crawler tractor. Right of ways could be cut by clearing woody plant species along a course 10 to 15 feet wide, and could be several miles in length. Others may simply be driven posts without the clearing of right-of-way. Fencing will be used to control the duration and season of use for a pasture by livestock.

The soil surface will be disturbed during construction of the right of way. Soil erosion will increase slightly, but the area will grass over in one or two growing seasons. (Ground disturbance for average fence installation one mile in length would be 1.4 acres)

Fence construction would have little effect on water quality or quantity and air quality.

The construction of fences would have a positive effect on plant communities. Fences would provide managers the capability to control the length of time a pasture is grazed as well as the time of year it is grazed. Plant vigor would be improved.

The construction of fences would have a positive effect on livestock and wildlife. Fences would provide managers the capability to better meet the nutritional needs of their livestock through planned grazing. Pastures could be deferred to better meet the needs of wildlife. Combine all fence paragraphs.

Earthen erosion control structures including small dams, diversions, dikes, and pit tanks entail moving soil to divert or to temporarily impound water. Soil erosion could increase slightly for a very short period of time during construction. This would be offset immediately upon completion of these structures by the slowing the overland water flow and the re-vegetation on these areas. Diesel smoke and dust would be a concern for a very short time during construction also.

Prescribed grazing is the planned harvest of vegetation with grazing animals. Grazing is managed with the intent to achieve improved health and vigor of selected plants. It is used to achieve a stable and desired plant community and provide and maintain food, cover, and shelter for livestock and wildlife. Prescribed grazing wood promotes economic stability o OK

Upland wildlife habitat management is the creation, maintenance, and enhancement of areas, for food, cover, and water for wildlife. Mechanical brush management would be planned and carried out in a manner to create and enhance the habitat for mule deer. Areas along draws, rock out-crop, and ridges and hilltops would not be grubbed. Travel lanes will remain to provide for movement of wildlife between habitat types.

Land uses will not change as a result of implementing this alternative. Cash flow may increase for individuals, but investment requirements will increase with improvements. Management knowledge will need to increase. Risk of investment loss is moderate. Profitability may remain static. Overall, client and community well being will be improved as rangelands are restored to a more productive state.

Estimated total cost for implementation of these alternatives is \$1,150,000 for a five-year program. The estimated EQIP appropriations would be \$750,000

Table 1 - Alternative 2 Cumulative Effects

Practice	Amount with EQIP funding alone	Total amount (including other agency and landowner)
Brush management	12,000 acres	14,000 acres
Livestock Pipeline	25,000 feet	35,000 feet
Troughs & Tanks	25 no.	30 no.
Fencing	20,000 feet	22,000 feet
Earthen Erosion Structures	5 no.	10 no.
Wildlife Habitat Management	35,000 acres	45,000 acres
Prescribed grazing	35,000 acres	45,000 acres

Table 2 Comparison Table

Practice or Effect	Alternative 1	Alternative 2	Difference
Brush management	500 acres	14,000 acres	13500 acres
Livestock Pipeline	5,000 feet	35,000 feet	30,000 feet
Troughs & Tanks	5 no.	30 no.	25 no.
Fencing	2,000 feet	22,000 feet	2000 feet
Earthen Erosion Structures	2 no.	10 no.	8 no.
Wildlife Habitat Management	0 acres	45,000 acres	45,000 acres
Prescribed grazing	0 acres	45,000 acres	45,000 acres
Water Savings	0	2333 acre feet	2333 acre feet

Persons and Agencies Consulted

Chaves Soil and Water Conservation District Board (blank meeting show date)
 Carrizozo Soil and Water Conservation District Board (blank meeting show date)
 Local work group and attendees of (blank meeting show date) where this proposal was discussed and formulated.

References

NRCS Field Office Technical Guide, Section III, Quality Criteria.

NRCS Field Office Technical Guide, Section IV, Standards and Specifications.

NRCS Field Office Technical Guide, Section V, Conservation Effects.

U.S. Fish & Wildlife Service, Threatened and Endangered species list for NM.

New Mexico Fish and Game, BISON report

Improving Rainfall Effectiveness On Rangeland, Texas Agricultural Extension Service, The Texas A&M University System, Allan McGinty, Thomas L. Thurow and Charles A. Taylor, Jr.

How an Increase or Reduction In Juniper Cover Alters Rangeland Hydrology, Texas Agricultural Extension Service, The Texas A&M University System, and Thomas L. Thurow and Justin W. Hester.

New Mexico Brush Inventory, New Mexico Department of Agriculture, Gary L. Garrison, Dr.
Kirk C. McDaniel.

**Finding of No Significant Impact
For the Implementation of EQIP in the
Macho/Gallo Watershed GPA**

INTRODUCTION

The Macho/Gallo Watershed Geographic Priority Area (GPA) is a federally assisted action under the Environment Quality Incentives Program (EQIP), with assistance from the Natural Resources Conservation Service (NRCS). An environmental assessment (EA) was undertaken in connection with the development of the proposed action. This assessment was conducted in consultation with local, state, and federal agencies. Data developed during the assessment is available upon request from:

U.S. Department of Agriculture
Natural Resources Conservation Service
Roswell Field Office
Roswell, New Mexico

The Environmental Assessment is attached for reference.

Determination of Significance

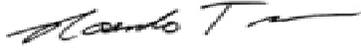
Table 1 *Determination of Significance of Proposed Action*

Context	Intensity	Reason for Non-Significance
Ground water recharge– 1% of total GPA potential yield (2333 acre feet)	Water recharge diminishing each year for the life of the project (50years)	Dependent on available precipitation and continued management for the project life.
Native plant community (juniper control) – Invasion of young trees (<50years old)	1% of GPA will be treated (12,000 acres)	Dependent on follow-up management during project life and beyond
Public health and safety (air quality)– smoke	Temporary smoke from burning (4 days / year). 500acres /year	Rural and remote locations, proximity to rural community, and acreage involved is <.05%
Cultural resources – 110 sites recorded in GPA	Very low density in the area shown in records search	Sites will be avoided if encountered

Other considerations related to context and intensity are discussed as follows. All agriculture operations in the area very similar and the producers will be given the opportunity to participate depending upon individual need. No other issues or concerns have been expressed at any public meeting so controversy is small. These actions have all been performed in the past with known and acceptable results. Endangered species have been addressed in the EA and projects may effect but are not likely to adversely affect species considered. No national, state, or local laws will be violated by this action.

Finding of No Significant Impact

This finding is based on the evidence presented in the EA of impacts and alternatives for this GPA. Based on the assessment and the reasons given in *Table 1* above. I find the alternatives analyzed in the EA will have no significant impact on the quality of the human environment. Therefore an environmental impact statement will not be prepared.



ROSENDO TREVINO
State Conservationist

December 20, 2001

Date

