

ENVIRONMENTAL ASSESSMENT
UPPER TULAROSA BASIN WATERSHED TREATMENT GPA
EQIP 2001

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 the Environmental Impact Statement.

NEED FOR PROPOSED ACTION

The purpose and need in the Upper Tularosa Basin GPA is to improve the native plant community, improve soil conditions, increase the quality of runoff water and increase water infiltration.

BACKGROUND

The Upper Tularosa Basin Watershed Treatment Area is located in the western part of Lincoln County and the eastern part of Socorro County, New Mexico in the Canadian-Pecos Plains and Valleys (CP-3) and Southern Desert Basins, Plains and Mountains (SD-2) (see attached map). The area is approximately 566,000 acres and the primary land use is rangeland. The NRCS ecological site descriptions describe this area as southern desert shrub in the lower elevations of the southern part, grasslands and pinon-juniper savannah in the middle elevations of 5000' to 7000', and pinon and ponderosa pine woodlands above 7000'. The average annual precipitation in the area averages 12 to 20 inches and the majority of the efforts in the GPA proposal are in the 14 to 18 inch precipitation zone which contains the areas impacted most heavily by increases in woody plants. Historic photos and records as well as commentary from long time residents point to a dramatic increase in woody vegetation of all types, primarily juniper invasion on deep loamy soils. This increase affects approximately 50 % of the area.

The area supports a ranching economy based on livestock grazing and recreation income from wildlife. The invasion of woody plants affects the stability of the agriculture economy through competition for moisture and space with desirable herbaceous forage species. The increase in woody plants also reduces the available herbaceous litter for ground cover, which leads to accelerated soil erosion from both wind and water. As the runoff increases, water available for groundwater recharge also decreases. Brush management to control this woody plant invasion is needed to restore the ecological health of the plant community and reduce soil erosion.

ALTERNATIVES

Alternative 1: No Action

Alternative 2: Proposed Action: Use NRCS Environmental Quality Incentives Program (EQIP) authorities to assist agriculture producers within the GPA to apply conservation measures on land under their control. These conservation measures will include brush management (mechanical, chemical, and prescribed fire), prescribed grazing, and upland wildlife habitat management. Also included will be facilitating practices such as fencing, water facilities such as wells, pipelines, storage tanks and troughs, as well as earthen erosion control structures to implement management. Approximately 7500 acres will be impacted under this action.

ALTERNATIVES CONSIDERED BUT NOT STUDIED IN DETAIL

One alternative considered was the use of biological control as a tool to manage juniper and other woody plant invasion in the area. However, there are no feasible biological control agents known for the target species. This alternative will not be considered further.

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 of the GPA Local Workgroup on November 16, 1999 at the Carrizozo Field Office of NRCS. This group is responsible for recommending and developing proposed EQIP actions. No controversy about the need for action or the actions themselves was raised during these meetings, and no resources or issues of concern were identified during this meeting or by NRCS or other Federal, State, or Tribal agencies but those discussed in this EA.

Threatened and Endangered Species and Species of Concern: A record search shows the Mexican Spotted Owl (Federal Endangered list), and the Bald Eagle and Gray Vireo (US Fish & Wildlife Service and NM Dept. Of Game and Fish) are species that can potentially be found in the area. General Habitat Associations in relation to the Bald Eagle are significantly different from areas being treated under the GPA. Distribution and Habitat Associations of the Gray Vireo both limit the possibility of impact on this species. (See attached list of potential Threatened and endangered species in the area). Mexican Spotted Owls may be affected by removal of trees and consultation with the US Fish and Wildlife Service will be done prior to implementation.

Cultural Resources and Historical 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. Food Security Act Requirements will be followed if wetlands are encountered.

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 index numbers will persist and continue to deteriorate. Woody plant densities will persist and increase at steady levels. Rangeland health will continue to decline. Ground water recharge will remain below its potential and runoff will increase. Runoff water will decrease in quality, soil conditions will degrade, and food and cover for wildlife and domestic livestock will continue to decline. Rangelands will continue to support plant communities with low water use efficiency.

Alternative 2: Proposed Action

There are approximately 280,000 acres of rangeland in the area with potential to benefit from the application of conservation systems that would include brush management, prescribed grazing, wildlife upland habitat management and facilitating practices. NRCS expects to carry out conservation practices such as brush management, water facility development, and erosion control structures on only about 6500 acres which is about 2.3% of the area with potential to benefit from the practices. Prescribed grazing and upland wildlife habitat management will be carried out on an additional 15,000 acres. NRCS, using research information, conservatively estimates two inches of annual precipitation can be captured for recharge following brush management. This equates to approximately 1100 acre feet. Due 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 prescribed fire) on loamy, swale, and sandy range sites. Brush management will be done to restore natural grassland plant communities and to reduce competition for moisture, space and sunlight between plants. It will improve forage accessibility, quality, and quantity for wildlife and domestic livestock. Woody species targeted for removal new growth of juniper less than fifty years old and is from 6" to 12' in height..

Mechanical brush management is accomplished by using a crawler tractor or front-end loader to individually remove trees. Mechanical brush management will disturb soils in areas where shrubs are removed. It will disturb 10 to 50 percent of the soil surface temporarily. Soil disturbance can be extensive in heavily infested areas and on sandy sites. Pits are created where the root mass is removed and erosion rates may increase slightly following treatment. However, over a period of two to five years, perennial grasses and forbs will stabilize the area.

Water quality will be impacted for a short time following the implementation of mechanical brush management. Disturbed areas will contribute sediment to overland flow. This will persist for one to two years following treatment until new herbaceous vegetation will stabilize the site. Brush management 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 management will temporarily impact air quality. Dust and diesel smoke may be a problem for a short period of time during the implementation period.

Brush management will be done with habitat for wildlife (mule deer and antelope) in mind. Areas along draws, shallow soils on rocky outcrops, steep slopes, and ridge tops will be avoided. Travel lanes will be left to provide for movement of wildlife between habitat types.

Chemical brush management will be done by aerial or hand application of herbicide. Chemicals will be applied prior to the period for expected effective precipitation. Precipitation carries the chemical into the soil where it is then taken up by the target species. It will take two to three growing seasons for the chemical to completely kill the target species. Applications of chemicals will be done according to the label instructions to keep the effects of the chemicals within levels determined to be acceptable to the Environmental Protection Agency.

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

Fire has long been a critical component of the natural plant communities of the Southwest. Prescribed burns are different than wildfires since they are applied under very specific climatic conditions and at specified times of the year in order to provide the desired effects in control of woody species with minimal impacts on desirable vegetation. Burning will temporarily significantly reduce the infiltration rate for moisture and increase the runoff and sediment yield for a site. This is due to the temporary loss of cover, which intercepts and dissipates raindrop energy and slows 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 for 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, thus creating a mosaic . This greatly increases edge and creates a more stratified plant community.

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

Livestock pipelines with associated drinking and storage tanks when installed will create minimal soil disturbance at the point of installation. A trench will be excavated to install the pipeline and will then be covered. The area disturbed will be one to six feet wide and could be several miles in length. The excavation will be done either with a trencher, a machine laying ripper tooth pulled by a crawler tractor or a road grader. The soil surface will be disturbed along the pipeline route. Soil erosion will increase slightly, but the area will recover and revegetate within one to two growing seasons. Ground disturbance for an average pipeline will be approximately one-half acre for each mile of pipeline installed. 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. Pipeline 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 troughs 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 tank and trough construction will provide a permanent and readily available supply of water for domestic livestock and wildlife year round including mule deer, antelope, and small game birds.

If fencing is installed, a right of way may need to be cleared using a crawler tractor. Rights of way could be cut by clearing woody plants along the route of the fence 10 to 15 feet in width and could be several miles in length. Others may be built by simply driving posts in existing terrain without the need for clearing of rights-of-way. Fencing will be

used to control the duration and season of use of a pasture by livestock. The soil surface will be disturbed during construction of the right of way for a fence. Soil erosion will increase slightly, but the area will revegetate in one to two growing seasons. (Ground disturbance will be approximately 1.4 acres for average installation of one mile of fence). Fence construction would have little effect on water quality or quantity and on air quality. The construction of fences would have a positive effect on plant communities. Fences would provide managers the opportunity 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 will provide managers the opportunity to better meet the nutritional needs of their livestock through planned grazing. Pastures could be deferred to better meet the nutritional needs of wildlife.

Earthen erosion control structures including small dams, ponds, diversions, and grade stabilization structures entail moving soil to divert or store surface runoff water. Soil erosion could increase slightly for a short period of time during construction. This would be offset immediately upon completion of these structures by the slowing of overland water flow and revegetation of these areas. Water quality and quantity would be improved by slowing of overland flow of sediment and regulation of channel flows. Diesel smoke and dust would be a concern for a short period of time during construction.

Prescribed grazing is the planned harvesting of forage 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 promotes economic stability for the ranching community.

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 habitat for mule deer. Areas along draws, rock out-crop, ridges, and hilltops would not be disturbed. 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 producer and community stability and well being will be improved as rangelands are restored to a more productive state

Estimated total cost for implementation of these alternatives is \$170,000 for the last year of the program. The estimated EQIP appropriations would be \$110,000.

TABLE 1 – ALTERNATIVE 2 CUMULATIVE EFFECTS

PRACTICE	AMOUNT WITH EQIP FUNDING ALONE	TOTAL AMOUNT (including other agency and landowner)
Brush Management	2100 acres	2500 acres
Livestock Pipeline	22000 feet	30000 feet
Troughs and Tanks	10 no.	15no.
Fencing	5000 feet	6000 feet
Earthen Structures	3 no.	5 no.
Wildlife Habitat Management	20000 acres	40000 acres
Prescribed Grazing	20000 acres	40000 acres

TABLE 2 COMPARISON OF ALTERNATIVES

Effects on Needs

Needs	Alternative 1	Alternative 2	Difference
Brush Management	200 acres	2500 acres	2300 acres
Livestock Pipeline	5000 feet	30000 feet	25000 feet
Troughs & Tanks	3 no.	15 no.	12 no.
Fencing	0 feet	6000 feet	6000 feet
Earthen Structures	0 no.	5 no.	5 no.
Wildlife Habitat Mgt.	0 acres	40000 acres	40000 acres
Prescribed Grazing	0 acres	40000 acres	40000 acres
Water Savings	0 acres	1100 acre feet	1100 acre feet

PERSONS AND AGENCIES CONSULTED

Lincoln County Local Work Group meetings with list of participants and invited agencies are attached

REFERENCES:

NRCS Field Office Technical Guide, Section III, Quality Criteria

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

U. S. Fish and Wildlife Service, Threatened and Endangered species list for New Mexico

New Mexico Game and Fish Department, 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, Thomas L. Thurow and Justin W. Hester.

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

**FINDING OF NO SIGNIFICANT IMPACT
FOR THE IMPLEMENTATION OF EQIP IN THE
UPPER TULAROSA BASIN WATERSHED TREATMENT GPA**

INTRODUCTION

The Upper Tularosa Basin Watershed Geographic Priority Area (GPA) is a federally assisted action under the Environmental Quality Incentives Program (EQIP), with assistance from the Natural Resource 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
Carrizozo Field Office
Carrizozo, New Mexico

DETERMINATION OF SIGNIFICANCE

Table 1. - Determination of Significance of Proposed Action.

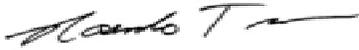
CONTEXT	INTENSITY	REASON FOR NON-SIGNIFICANCE
Ground water recharge-1% of total GPA potential yield (1100 acre feet)	Water recharge diminishing each year for the life of the project (50 years)	Dependent on available precipitation and continued management for the project life
Native plant community (juniper control) – Less than 1% of the GPA will be treated (2500 acres)	Change of vegetation for 20 to 50 years	Overall Ecological Site Condition throughout the GPA will remain the same
Public health and safety (air quality)-smoke and dust	Temporary smoke and dust from mechanical brush management (50 days/yr) 400 acres/yr.	Rural and remote locations, proximity to rural community and acreage involved is <.05%

Other considerations related to context and intensity are discussed as follows. All agriculture operations in the area are 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 there is likely no effect on species considered and no further consultation is necessary. Due to use of the program in the past the precedent for future actions will not occur. Based on findings in the EA, cumulative effects will not be significant. Although there are sites listed on the National Register of Historic Places and

cultural resources within the GPA boundaries, no practices will be installed that will affect them and all practices installed with EQIP assistance that are considered undertakings will undergo a records check and Section 106 Consultation with SHPO. 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 environmental assessment of impacts and alternatives for this GPA. Based on the assessment and the reasons given 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