

Chapter 1 – Purpose and Need

Document Structure

This Environmental Assessment has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. It discloses the direct, indirect, and cumulative environmental effects that would result from the proposed action and alternatives, including no action. It is organized into the following chapters:

- Chapter 1. *Purpose and Need*: This describes the reason for the proposal and the actions and analysis which led to it. It also describes public involvement and the results of that involvement, including significant issues which led to development of alternatives. Finally, it specifies the decision to be made and the official who will make the decision.
- Chapter 2. *Alternatives*: This chapter describes in more detail the proposed action as well as alternatives, including no action. It also discusses mitigation measures for each alternative and includes a summary comparison of the environmental consequences of each alternative.
- Chapter 3. *Affected Environment and Environmental Consequences*: This chapter briefly describes the affected environment and the environmental effects of each alternative. Within each section, e.g., soil, water, wildlife indicator species, the affected environment is described first, followed by the effects of the No Action and action alternatives.
- Chapter 4. *Consultation and Coordination*: This chapter provides a list of preparers and the agencies and organizations contacted during the development of the environmental assessment.
- Chapter 5. *References Cited*
- *Appendices*: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project area resources, may be found in the project planning record located at the Red Rock Ranger District Office in Sedona.

Background

The M Diamond Ranch, grazing permittee on the Buckhorn Range Allotment on the Coconino National Forest, has proposed a group of erosion control and wildlife habitat improvements within the allotment. These would be accomplished using grant funds from the Arizona Department of Environmental Quality for nonpoint source pollution control and from the Arizona Game & Fish Department through their Habitat Partnership program. The improvements would be located within the Wickiup, Winter, Boulder, Bald Hill, Indian Flat, Painted Tank, and Buckhorn Pastures of the allotment. All are within the Red Rock Ranger District. Map 1 illustrates the general area and location of proposed treatments. This portion of the allotment is located immediately north of West

Clear Creek and extends east-west over about 12 miles, beginning about 7 miles east of Camp Verde.

The project area is located within three Management Areas (MA) of the Coconino National Forest Land and Resource Management Plan:

- MA 7 – Pinyon-juniper woodlands on slopes less than 40 percent
- MA 10 – grassland and sparse pinyon-juniper
- MA 11 – Verde Valley

The Mogollon Rim passes through the area from southeast to northwest. The Wickiup and Winter Pastures are below the rim and the other five pastures in the project are above it.

Purpose of and Need for Action

An assessment of existing and potential conditions has determined that improvement practices are needed to meet the direction in the Coconino National Forest Land and Resource Management Plan (Forest Plan).

In the pastures below the Mogollon Rim much of the area has been found to have impaired or unsatisfactory soil and watershed condition. As a result the ability to grow and maintain vegetative ground cover has been compromised. Areas which formerly sustained a vegetative community of grasses, forbs, shrubs and scattered trees now have limited perennial grasses and forbs and the increase of juniper and pinyon trees and, in some areas, mesquite shrubs contributes to this condition. With little vegetation on the soil surface the increased runoff from thunderstorms has led to on-site soil erosion and gully erosion with subsequent transport of sediment to the Verde River through West Clear Creek and tributaries. There are a number of headcuts (abrupt vertical walls in the flow pattern of channels) which are advancing through deep erosive soils. (A more detailed description of the current condition, its causes, and its effects is included in Chapter 3, *Affected Environment and Environmental Consequences*).

Proposed treatment area 2 was predominantly a grassland but has a high percentage invaded by deep rooted mesquite shrubs. As these shrubs continue to grow and the root systems expand, the ability of grass and herbaceous plants to become established and grow is diminished. As a result there is more bare soil susceptible to surface runoff and erosion. This area still has enough topsoil to produce a healthy grass and herbaceous plant community which can then be maintained by proper range management and periodic prescribed fire. However, there are some areas within the allotment, but outside this project proposal, dominated by mesquite shrubs where enough topsoil has been lost that it is unlikely that a herbaceous plant cover can be reestablished. Mesquite can be treated mechanically by root plowing at a depth of 12 inches or more to uproot the root crown which will sprout if left in the soil. However, this soil has calcareous material within the profile and tilling is likely to bring the calcareous material to the surface and hinder plant establishment.

There are a large number of rock and wire check dams constructed in gullies which appear to have been in place for a number of decades. Many appear to have been constructed by the Civilian Conservation Corps (CCC) during the 1930's; however, documentation is lacking and it is possible some may have been constructed by subsequent Forest Service programs (in this document they will be referred to as "CCC era"). Over the years many have been washed out or around; however, there are a number still functioning but in need of maintenance to continue their usefulness.

Above the Mogollon Rim, areas which once were a savannah-like vegetative community have become crowded with young juniper and pinyon trees encroaching into areas previously supporting a much more diverse vegetative community. Some of the areas treated to create seral grasslands in the 1960's and 70's have since been encroached upon by junipers and pinyons reducing their value as antelope habitat. Antelope depend on visibility in order to evade predators and the young invading trees provide potential screening for predators and reduce the habitat suitability for antelope. In areas more important for mule deer habitat the existing browse is limited. Competition from pinyon and juniper trees, exclusion of fire, and decades of heavy use by grazing and browsing animals, combined with the effects of recent severe drought, have resulted in recent overuse by grazing ungulates and deterioration of the limited browse resource.

Proposed Action

The proposed action is a combination of treatments intended to restore ecosystem conditions and move from the existing conditions toward desired conditions as specified in the Coconino National Forest Land and Resource Management Plan. Three different treatment objectives for different areas are included:

- Reduction of nonpoint source pollution through reduction of sheet and channel erosion, and moving treated areas from unsatisfactory or impaired to satisfactory watershed condition
- Maintenance and improvement of antelope habitat
- Improvement of mule deer habitat.

There are expected to be some corollary benefits to habitat for elk and Coues whitetail deer. Improved range condition for permitted livestock is expected as an additional benefit, with varying time frames to achieve this benefit.

A detailed description of the proposed action by treatment area is given in Chapter 2, Alternatives, along with coordination and mitigation measures. The following description summarizes the proposed action.

Erosion control measures are the focus in treatment areas 1 through 4. Sheet erosion measures are intended to increase the protective cover of vegetation and plant litter by increasing grass and forb composition. Reduction of encroaching juniper and pinyon into previous grassland and savannah will be done mechanically by saw and/or tree shears, accompanied by seeding with native grass and forbs. Slash (limbs and tops) will be lopped and scattered over the seeded areas to reduce surface temperatures, provide

protection for new plant seedlings and eventually add to organic matter available for incorporation into the soil. This will be accompanied by protection from livestock grazing until monitoring determines that management objectives have been reached and a specified amount of grazing can occur. In treatment area 2 mesquite shrubs will also be cut and the cut stumps painted with herbicide to prevent sprouting. Headcuts in channels will be treated with rock and wire check dams and some will have headcut armoring (sloping to a gentler slope and lining with rock to prevent further advancement of the headcut). Existing rock and wire check dams which are still functioning will receive maintenance as needed, primarily in extending or raising the keyways into the channel banks.

Antelope habitat is the emphasis for treatment areas 15 through 17. Areas 16 and 17, totaling about 285 acres, were previously treated and will receive maintenance through cutting of encroaching young junipers and pinyons with hydraulic tree shears attached to a small tractor. The resulting slash will be lopped to 24 inches or less in height to maintain visibility for antelope for protection from predators. Area 15 is new clearing of about 25 acres to extend seral grassland from the adjacent Walker Basin allotment and expand the area available for antelope use.

Mule deer habitat will be emphasized in areas 5-14 and 18-22. Increased growth of browse and forbs is the objective. Areas 5-9, 13, 14, and 18 are the highest priority due to soil capability and the need for increased browse in these general areas. They comprise a total of about 900 acres, of which about 280-330 acres is proposed for treatment.

Areas 10-12 and 19-22 are medium priority, comprising a total of about 535 acres with about 385 acres proposed for treatment. Maintenance of a savannah aspect, along with increased growth of browse and forbs is the objective. In areas 21 and 22 there is an additional objective to add cool season herbaceous forage.

Public Involvement

The Proposed Action was distributed for review and comment to 30 organizations, agencies, or individuals by letter of Feb. 23, 2005. Two written responses were received. Both expressed concurrence with two of the tentative issues included with the distributed Proposed Action. One disagreed with the purpose and need for the project, the other recommended detailed analysis plus the inclusion of cost information.

Issues

Issues associated with the proposed action were developed by the interdisciplinary team using both the external responses and knowledge of the project proposal. Potential issues were identified and analyzed to evaluate which were significant in the context of NEPA (40 CFR, 1500.4[g]), i.e., that they:

- are within the scope of the analysis
- are not already decided by law, regulation, the Coconino National Forest Land and Resource Management Plan, or previous decision

- are related to the decision to be made
- can be supported by scientific analysis rather than conjecture
- are not limited in extent, duration, or intensity

The following issues were identified:

Issue 1

The proposed action includes application of a herbicide, triclopyr, to the cut stumps of mesquite shrubs in treatment area 2. Herbicides in the environment may have effects on soil, water, vegetation and fauna.

Alternative C was developed to address this issue. A number of mitigation measures to reduce the likelihood of effect on non-target organisms are included as a part of the Proposed Action.

Issue 2

The soil and vegetation disturbance may result in spread of non-native plant species in the area to the detriment of native species.

Alternative A, the No Action Alternative, addresses this issue. There are mitigation measures included as a part of Alternatives B and C to reduce the likelihood of this occurrence.

Issue 3

The closure of areas 1-3 and the seeded portion of 4 to motorized off-road vehicle use will restrict some opportunities for dispersed recreation. It will also restrict opportunities for hunters to retrieve downed game via off-road use.

The No Action Alternative addresses this issue. However, the five forest environmental analysis and plan for off-road vehicle use, currently in process, may very likely have the same effect by closing areas except for designated routes.

Non-significant issues included the effects of past and continued livestock grazing. Permitted livestock grazing and its terms -- numbers, seasons of use, management system, etc. -- is outside the scope of this analysis. However, a part of the mitigation built into the action alternatives is exclusion from livestock grazing of areas seeded for erosion control until monitoring determines that vegetative recovery has been achieved and a specified amount of grazing use is acceptable.

Decision Framework

The District Ranger of the Red Rock Ranger District is the official responsible for deciding whether or not to approve vegetative and structural treatments on the Buckhorn Allotment. He may decide to select the No Action Alternative, either of the two action alternatives or a modification of either.