

ENVIRONMENTAL ASSESSMENT

Long Gulch Livestock Grazing

USDA Forest Service
Prescott National Forest
Verde Ranger District
Yavapai County, Arizona
April 2001

CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

Introduction:

The Long Gulch Livestock Grazing effects analysis was initiated in November of 1996 in a combination that included the Dugas grazing allotment, and the allotments making up the Box Bar Ranch which includes a Forest Service Allotment (Long Gulch), a Bureau of Land Management (BLM) Allotment (Box Bar), and a small amount of State Trust Land. Prior to issuing a decision concerns regarding the rotation through the pastures of both the Box Bar (BLM) and Long Gulch (FS) allotments caused the Interdisciplinary Team (IDT) to delay action on the Box Bar Ranch plan. A decision was issued for the Dugas Allotment only. The IDT continued the analysis of Long Gulch/Box Bar allotments in anticipation of issuing a joint FS/BLM decision regarding the Box Bar Ranch. However, before a joint decision on the coordinated management of grazing on the allotments was made, the BLM began work on a new series of grazing analyses and decided to delay any decision on their portion of the project until their plan was completed. The Forest Service having invested time and money in the analysis continued the process attempting to edit the Environmental Assessment to reflect the shift from a combined analysis of allotments to that of just Long Gulch.

A decision concerning only the Long Gulch Allotment was made in November, 1999. This decision was appealed. After review by the Southwestern Regional Office the decision was remanded to the Deciding Official based on the disjointed nature of the assessment document, the project record, and the decision document, and directed the Deciding Official to redo the analysis. (Notes 4). *(Included in the text of this document, references to project record documents will be contained in parenthesis. A complete index to the record contents is contained in Appendix 4).*

It was decided that: (Notes 4,5)

- 1.) The new analysis will be confined to the Long Gulch Allotment only which is wholly on National Forest System lands.
- 2.) All Data and information on Long Gulch used in the original decision will be retained.
- 3.) There will be no new scoping.
- 4.) Some new data will be collected to fill information gaps.
- 5.) Some of the existing data will be reformatted and summarized to facilitate easier review.

The re-evaluation has been completed and this Environmental Assessment is intended to provide the Verde District Ranger sufficient information to reach an informed decision and determine whether significant environmental affects will occur.

Long Gulch livestock grazing allotment is located on the Prescott National Forest in the Agua Fria grasslands approximately 12 miles southeast of Cordes Junction, Arizona and involves about 12,200 acres of National Forest System lands. It includes an area north and west of Granite Peak and south and east of 22 mesa in T.10 & 11 N, R.4 & 5 E, Gila and Salt River Meridian (See Maps Attached).

The proposed action of this project is to authorize continued livestock grazing on the Long Gulch allotment and improve habitat for pronghorn antelope. This action follows standards established in the Prescott National Forest Plan, the goals of the Agua Fria Grasslands Coalition (CFA 1), and applies Best Management Practices (BM 1). Applicable Coalition goals, following resource assessments, were determined to be goal #3. *Pursue opportunities to enhance wildlife habitat and species diversity* and #4. *Manage livestock grazing to complement other resource objectives*. The overall goal is to maintain and/or improve grassland conditions while permitting domestic livestock grazing. Specific project objectives include:

- 1.) Improved livestock distribution making more use of the side slopes.
- 2.) Improved site distance in antelope corridor.
- 3.) Upgrade range improvements to antelope and other wildlife standards.

Purpose and Need for Action:

The purpose of the proposed action is to issue a new 10 year term grazing permit while maintaining or improving resource conditions that may be affected by grazing, to maintain antelope distribution through the thinning of junipers in a known travel corridor, and up grading existing range facilities to meet antelope and other wildlife needs. The current term permit for the Long Gulch allotment is due to expire in 2001. The site distance in the antelope corridor is greatly restricted by juniper tree cover which affects the security of antelope using the corridor. Current range fencing on the allotment does not meet the needs for antelope movement and is in need of improvement to include a smooth bottom wire. Water troughs and tanks need small animal escape ramps.

Decision to be made:

The decision to be made by the Verde District Ranger is whether or not to authorize continued livestock grazing on the Long Gulch Allotment. If so, what permitted numbers of animals, season of use, grazing system, and range facilities should be applied to that authorization in order to improve or maintain ecosystem health and function? The Ranger will also decide whether an Environmental Impact Statement is necessary.

Issues:

This section documents issues that were raised by the IDT or members of the public, which are in response to the proposed action and are relevant to the project.

The IDT initially identified livestock distribution, soil/watershed condition, and antelope habitat as possible issues. There was a concern that livestock use on the allotment tends to be concentrated on the gentler slopes which are near water, and a wider use pattern is desired (RGE 1,2). The 22 Mesa area was identified as having soil impairment or deterioration of the soil surface layer which affects watershed function (RGE 1, VSW 9,10). There are wildlife species in and adjacent to the Long Gulch Allotment that are affected by grazing activities (WDL 4). These issues were used to develop the proposed action.

In June, 1997 a copy of that proposed action was distributed to 60 individuals, groups, and agencies (SCOP 1). These individuals and organizations included grazing permittees, interested individuals, State and Federal resource management agencies, and other special interest organizations. As a result of this scoping process seven responses were received from: three individuals, the Society of Range Management, the Arizona Antelope Foundation, the Tonto National Forest archeologist, and the Arizona State Historic Preservation Office (SCOP 2,3,4,5,6,7,8). Concerns and comments included: riparian areas, livestock stocking rates, livestock utilization levels, and wildlife species and their habitat needs.

The IDT reviewed the proposed action, responded to specific questions asked by two scoping participants (SCOP 9,10) and considered all scoping input (SCOP 11). They adjusted the proposed action to fit the existing conditions and scoping input, and created three additional alternatives. Alternatives addressed: a lower stocking rate, a reduced season of use, and intensive water development (CFA 2, NOTES 6). All action alternatives were later adjusted to include antelope and wildlife improvements (NOTES 7, CFA 3). The riparian concerns raised relate to the Dugas and Box Bar allotments (part of the original analysis area). The Long Gulch allotment has limited riparian habitat, and no adverse grazing impacts were identified within these riparian habitats (VSW 9, WLD 5). Therefore, riparian management was not carried forth as an issue.

The IDT met with the Deciding Official and presented him with four action alternatives, a no action (no grazing) alternative, and new information. After reviewing this information and discussing the situation with the IDT, the Deciding Official determined that none of the preliminary concerns of either the IDT nor the public constituted a significant issue. All concerns were adequately addressed in the proposed action (NOTES 5,7, CAF 3).

Chapter 2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

Alternatives:

This section describes the alternatives, including the No Action (No Grazing) alternative. The alternatives address the project objectives identified above.

Five alternatives were developed by the IDT based on the ability of the alternative to meet Forest Plan standards (Prescott National Forest Plan pp 78-79, 159-162, 187-188, CFA 1), the goals of the Agua Fria Grasslands Coalition (SCOP 1, CFA 1), and Best Management Practices (BM 1) as well as addressing public concerns (SCOP 11). Four alternatives created to specifically address public concerns were not considered in detail as the IDT felt those concerns were captured in the Proposed Action.

The following alternatives were considered in detail: (NOTES 6,7, CFA 2,3)

Alternative 1 - No Action (No Grazing)

This alternative addresses no grazing. The Long Gulch grazing term permit would be allowed to expire in 2001 and livestock would be removed from the allotment. Removal would take up to five years with a minimum of 20% reduction in the 200 permitted livestock per year. The Forest Service would assume responsibility for the interior facilities (fences, developed water, pipelines, etc.) which may be retained or removed. The adjacent grazing allotment permittees would assume allotment boundary fence maintenance. Private land boundary fences would remain intact. Management activities for other resources such as facilities maintenance, wildlife, fire management, and recreation would continue as funding is secured.

Alternative 2 – Proposed Action (Current Management)

This alternative provides for the issuance of a new 10 year term permit authorizing continued grazing. The authorization would be for an average of 200 cattle for a yearlong season (a variable numbers clause would be included) under a deferred rotation system moving through four pastures, one at a time. Salt and supplements would be used to encourage better use of the side slopes. Utilization standards of 40% on grama and tobosa grasses during the growing season, 50% on those species during the dormant season, 30% utilization on browse species, and 20% utilization on riparian vegetation would be used to regulate movement between pastures.

The variable numbers clause would allow for movement of cattle into and off the allotment as part of the permittees' larger cattle operation which includes the adjacent Bureau of Land Management (BLM) Box Bar allotment. The main cattle herd grazes an average of about ½ of the year on the Long Gulch and the other ½ year on the Box Bar allotment. Stocking has varied from a high of 425 to a low of 280 cattle, averaging about 380, since this rotation began in 1992.

In association with this grazing strategy, there would be hand thinning of juniper trees in the east pronghorn antelope travel corridor and a planned upgrade of existing fences and water developments to wildlife and antelope standards. The Agua Fria grasslands prescribed burning program will continue as will continued grazing coordination with the BLM. Although no new range facilities have been identified, limited improvement of existing waters such as additional storage, pipelines and troughs may be needed.

The following alternatives were considered but eliminated from detailed study: (NOTES 6,7 CFA 3,4)

Reduced Numbers - This alternative would have issued a new 10 year term permit authorizing continued grazing. The authorization would be for 100 cattle for a yearlong season under a deferred rotation system moving through four pastures. Salt and supplements would be used to encourage better use of the side slopes. Utilization standards of 40% on grama and tobosa grasses during the growing season and 50% on those species during the dormant season would be used to regulate movement between pastures. Associated with the issuance of the permit there would be hand thinning of juniper trees in a known pronghorn antelope travel corridor and a planned upgrade of facilities to wildlife and antelope standards over the life of the permit. No new range facilities would be constructed.

This alternative was eliminated from further consideration because information collected did not identify impacts related to stocking rates. Improved livestock distribution would address grazing generated problems with resource conditions. Currently, side slopes are being under utilized and a reduction in numbers will tend to concentrate cattle use on the flatter slopes and near water sources due to the herding nature of cows.

Cool Season Grazing Only - This alternative provides for the issuance of a new 10 year term permit authorizing continued grazing. The authorization would be for 200 cattle for a November 1 to February 28 grazing season under a deferred rotation system moving through four pastures. Salt and supplements would be used to encourage better use of the side slopes. Utilization standards of 30% on grama and 50% on tobosa grasses would be used to regulate movement between pastures. Associated with the issuance of the permit there would be a planned upgrade of facilities to wildlife and antelope standards over the life of the permit. No new range facilities would be constructed.

This alternative was eliminated from further consideration because it reduces stocking and would put too much emphasis on grazing grama grasses at the expense of tobosa grass. Even though tobosa grass is less favored by cattle than the gramas, lack of sufficient use of tobosa grass will cause this bunch grass to become decadent. Cool season grazing on the allotment will also put warm season grazing all on non-forest lands and would disrupt coordination efforts between the Forest and the BLM. This management plan would not result in the desired conditions.

Intensive Water Development - This alternative would issue a new 10 year term permit authorizing continued grazing for the same numbers and the same utilization standards as the Proposed Action (Alternative 2). Associated with the issuance of the permit there would be construction of earth stock tanks in drainages throughout the allotment to distribute use over all available forage areas.

This alternative was eliminated from further consideration because it would not be feasible due to challenges to water rights for new stock tanks and the time required to process water rights applications. Therefore, this alternative is not economically feasible or timely.

No Antelope Corridor Improvement – Under this senerio there would be no antelope corridor improvement work (juniper thinning, fence upgrades) associated with any action alternative. The Agua Fria grasslands east of Interstate 17 have three antelope travel corridors (Ockenfels, et al 1994). The west corridor passes east of Cordes Junction beside the Cordes Lakes subdivision and is impacted by the growth of that community. The central corridor is the least used and crosses Sycamore Mesa and Sycamore Creek. The area has several heavy stands of juniper and chaparral which inhibit antelope movement. The east corridor is the travelway between the Perry Mesa and Marlow Mesa areas. This corridor crosses a flat on Horseshoe Ranch, the ridge between Cow Canyon and Long Gulch and follows the the 677 road before fanning out north of Sycamore Creek. As the Cordes Junction area continues to grow the east corridor will become even more important for connecting the north and south habitat areas of this antelope herd. Therefore the IDT felt that treating the corridor running through this allotment should occur and it is desirable to include it with this analysis.

Chapter 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the present condition of the project area and summarizes the environmental effects associated with each alternative. It is organized by resource.

Soil and potential vegetation of the Long Gulch allotment has been mapped as part of the Terrestrial Ecosystems Survey (TES - USDA 2000). This mapping was done at a finer scale than is necessary for this grazing analysis so TES map units have been organized into ecological land units called range sites (since changed to ecological sites) [Appendix 1, VSW 1]. Range sites are used by the BLM and this will aid in blending any analysis done on the adjacent BLM allotment. TES map units have been combined into five range sites which reflect similarities in soils, topography, and potential vegetation: Loamy Hills, Basalt Hills, Clay Uplands, Loamy Bottoms, and Clay Hills (attached map, VSW 1,2,3,8).

Soils

Loamy Hills (VSW 1,6) which comprise about 8084 acres or 66 % of the allotment are characterized by moderately deep gravelly clay loam or gravelly sandy loam soils on moderately steep to steep slopes (ranging from 10% to over 40%). These soils have high infiltration and are moderately resistant to erosion. Overall soil condition rated as satisfactory (VSW 9). There was an area on 22 Mesa near Pot Hole tank that showed impaired soil condition (Map Unit 485, Plot 17, 1997) due to soil and litter movement, broom snakeweed and some soil compaction. (*Impaired soil condition indicates a reduction in soil function which can often be corrected by changes in management practices and is indicated by the presence of small rills or gullies; pedestaling of grasses, forbs and rock fragments; evidence of soil and or litter deposition; an unevenly distributed A horizon; and evidence that a shift in vegetative composition towards a dryer less productive plant community has taken place*). Grass canopy cover was lower (6% in 1997) than the 20% or more indicated in TES potential. Ground cover was 45% in 1997, higher than TES predictions of 20-25%. A follow up inspection was done on 3/15/00 (sample point DM1). While it was not done on the same location as Plot 17, it was in the general vicinity and on the same TES Map Unit (485). Observations on this inspection showed grass cover of 75%, basal vegetation of 25%, and ground cover of about 45%.

Upon determining soil and vegetation conditions were acceptable the decision was made to classify range capacity according to slope (Appendix 2, map attached). Approximately 4205 acres of this range site are classified as full capacity range; 2982 acres potential capacity, and 897 acres no capacity.

With Alternative 1 (no grazing) it is probable that those elements comprising soil condition that were rated impaired would improve. The effect would be to slightly decrease soil bulk density and increase infiltration rates in a relatively faster time frame as a result of less livestock activity. Changes in vegetative composition would also occur over time, but change would be slow because the site is currently similar to potential.

Under Alternative 2 (current management) satisfactory soil conditions would be maintained, and there would continue to be small areas of impaired soil condition.

Juniper thinning within the antelope corridor would have a neutral effect on the soil resource. All tree material would remain scattered on the site. This will reduce the potential for any localized soil movement due to the tree cutting and deter livestock use during grass/forb recovery (Appendix 3).

Basalt Hills (VSW 1,7) comprise about 2001 acres or 16% of the allotment and are characterized by shallow gravelly clay loam to stony clay loam formed over basalt. Slopes are generally steep (25% to over 40%). These soils have a high infiltration rate, however, they are inherently erosive due to steep slopes. Current conditions indicate there are some elements of soil condition that rate impaired resulting from the lack of litter, and increasing bare ground from increasing brush and juniper. Overall soil condition is satisfactory (VSW 9). Approximately 691 acres are classified as full capacity range, 770 acres as potential capacity, and 550 acres no capacity.

Grazing capacity and actual use of this range site is limited due to the steepness of the slopes. As a result, it is expected that little or no change in the current condition will result from either alternative (RGE 2).

Clay Uplands (VSW 1,5) cover about 1765 acres or 15% of the allotment and are characterized by moderately deep to deep well drained clay loam or clay soils over basalt. Slopes are relatively gentle. Soils have a high infiltration rate and are moderately resistant to erosion. On some areas there has been a shift in vegetative composition indicating a shift to a dryer, less productive plant community. All 1765 acres have been classified as full capacity range.

Overall soil condition is rated satisfactory (VSW 9). Data collected in 1996 and 1997 indicated there were some elements of soil condition on 22 Mesa that rated impaired evidenced by compaction, soil or litter movement, and the vegetative composition had levels of broom snakeweed much higher than indicated by TES. Based on these observations 22 Mesa was rested from 1997 until the winter of 1999. Plot data from 1997 was compared to data collected in 2000 (Plot 17, Plot CH01). Grass canopy cover increased from 7% in 1997, to 46% in 2000. Vegetative ground cover increased from 30% to 45% during the same time period (VSW 9,10).

Applying Alternative 1 (no grazing) it is probable that those elements of soil condition that rated impaired would improve. The effect would be to slightly decrease soil bulk density and increase infiltration rates in a relatively faster time frame as a result of less livestock activity.

Vegetative ground cover in the impaired areas of the range site would initially increase due to elimination of the livestock impacts of biomass removal and compaction. This is evidenced by the previously mentioned findings on 22 Mesa. However, lack of removal of previous year's growth in tobosa allows dead material to accumulate in the plant crown which reduces photosynthesis and inhibits new growth. On those high clay sites where tobosa is the dominant grass, such as TES 431.03, there would be a reduction in tobosa cover. The result would be less perennial grass cover because there are few grasses adapted to clay soils. This can be ameliorated through the use of recurrent fire to maintain the tobosa.

Non impaired areas would sustain cover until the effects of non stimulation affect tobosa and then decrease. Changes in vegetative composition would be slow because the majority of the area is currently dominated by vegetation communities near potential.

Under Alternative 2 (current management) current satisfactory soil conditions would be maintained, and there would continue to be small areas of impaired soil condition.

Juniper thinning within the antelope corridor would have a neutral effect on the soil resource. All tree material would remain scattered on the site. This will reduce the potential for any localized soil movement due to the tree cutting and deter livestock use allowing for grass/forb recovery.

Loamy Bottoms (VSW 1,4) comprising about 338 acres or 3% of the allotment are characterized by deep well drained sandy loam or clay loam formed from recently mixed alluvium. This range site is found in drainage bottoms and may have a substantial coarse fragment component. Permeability of these soils is moderately rapid and infiltration is good where vegetative cover is maintained. Current conditions on the allotment indicate soil condition is satisfactory. All 338 acres are classified as being full capacity range.

Under Alternative 1 (no grazing) trailing and /or trampling by domestic animals would stop as would the potential for compaction of soil and mechanical sloughing of channel banks. However, current conditions are satisfactory thus any changes that occur would be slight.

Under Alternative 2 (current management) livestock grazing will trail and/or trample a portion of this range site and the potential for compaction of soil and mechanical sloughing of channel banks will remain. However, current grazing has not had a detrimental affect on these areas and continued salt/mineral use to encourage use of side slopes and repair and maintenance of water developments will continue to keep impacts within acceptable limits and maintain satisfactory soil condition.

Clay Hills (VSW 1) covers approximately 23 acres or less than 1% of the allotment. This site is characterized by moderately shallow to shallow well drained clay loam or clay soils situated on moderately steep to steep (25% to over 40%) slopes which are commonly well armored with surface rock. These soils have a permeability ranging from slow to very slow. Current conditions on the allotment indicate soil condition is satisfactory.

Actual use of this range site is limited due to the small amount of acreage and the steepness of the slopes. As a result, it is expected that little or no change in the current condition will result from either Alternative 1 (no grazing) or Alternative 2 (current management).

Both alternatives will support soil function and sustain soil loss at natural rates on all range sites. Infiltration is not inhibited and cover limits overland flows during normal storm events. Sediment and runoff contributed to the Agua Fria River will be within normal ranges for the soils found on the Long Gulch allotment.

Vegetation

The major vegetation type for the allotment is semi-desert grassland generally dominated by tobosa grass with varying mixtures of vine mesquite, side-oats grama, cane blue stem, three-awn and curly mesquite. Brush species and juniper occur on the slopes of the canyons and in drainage bottoms, sycamore is found along Silver Creek and in conjunction with ash and cottonwood in a few pockets where perennial water is located in Indian Creek. The allotment does not contain suitable habitat for the endangered Arizona cliffrose (VSW 8,910,WDL 4, RGE 2).

Loamy Hills range site potential vegetation is dominated by juniper and turbinella oak mixed with side-oats grama, hairy grama, blue grama, three-awn, and squirreltail. Other forbs, grasses, brush and tree species are present depending on site conditions (VSW 1, TES). Compared to TES potential, current vegetation has more tobosa, catclaw, curly mesquite and juniper, and less grama grasses and oak than identified in the potential vegetation. Overall the current diversity of species is good and basal vegetation is at, near or above TES potential (VSW 8,9,10).

Under Alternative 1 (no grazing) it would be expected that the species composition now present would slowly shift more to the expected potential with increasing amounts of grama grass. This would be a slow process since basal vegetation density is near potential, indicating available growing space is occupied and lacking other forms of management (fire, juniper cutting, etc.) brush and juniper densities could increase resulting in a decline of the grass/forb layer.

With Alternative 2 (current management) livestock grazing will continue to maintain the species mix currently on site. Use of side slopes, achieved by salt and supplement placement, will distribute the use and the effects over the range site. As with Alternative 1, lacking other forms of management (fire or juniper/brush cutting for instance) increased brush and juniper densities could result in a decline of the grass/forb layer.

The planned felling and lopping of juniper trees in the 0 to 8 inches diameter at root crown (base) in the known antelope corridor will have little effect on the vegetative composition of this range site. This activity will reduce the juniper density along the approximately 4 mile long travel corridor (approximately 2 miles within this range site) but this accounts for less than 1% of the range site acreage. Localized improvements in grass/forb composition can be expected where juniper is felled but there will be little affect overall. (Appendix 3, WLD 5).

Basalt Hills potential vegetation is identified as being dominated by brush species including turbinella oak and mountain mahogany. Grasses include side-oats grama, muttongrass, and blue grama mixed with three-awn and junegrass. Brush species include catclaw. Tree species include Utah juniper and pinyon pine but are scattered as this is primarily a chaparral site (VSW 1, TES). Current vegetation has more curly mesquite and juniper, about the same side-oats grama, less muttongrass, junegrass and brush species than identified in the potential vegetation. However, overall diversity of species present is good as many species identified in the potential vegetation are present just in a different density mix (VSW 8,9,10).

Grazing capacity and actual use of this range site is limited due to the general steepness of the slopes. As a result, it is expected that little or no change in the current condition will result from either Alternative 1 (no grazing) or Alternative 2 (current management).

Clay Uplands potential vegetation is identified as being dominated by tobosa, curly mesquite and side-oats grama. Brush species include prickly pear and shrubby buckwheat. Trees are Utah juniper (VSW 1, TES). Current vegetation has about equal tobosa and curly mesquite, less side-oats grama, fewer shrubs and about equal juniper relative to potential vegetation. The diversity of species currently present is good as most species identified in the potential vegetation are present (VSW 8,9,10).

Under Alternative 1 (no grazing) it is estimated that vegetative ground cover in the range site would decrease over time due to general lack of use on the tobosa grass which is currently dominant. The lack of removal of previous year's growth in tobosa allows dead material to accumulate in the plant crown which reduces photosynthesis and inhibits new growth. Some of this can be ameliorated through the use of recurrent prescribed fire which will help maintain the tobosa.

Under Alternative 2 (current management) livestock grazing will continue to maintain the live portion of vegetative ground cover and aid in the incorporation of litter through hoof action and trampling of the material. Use of salt and supplement placement will distribute the use and the effects over the range site. As with the Loamy Hills range site, lacking other forms of management (fire or juniper cutting for instance) brush and juniper densities could increase to the point of causing stagnation and decline of the grass/herb layer, although this is a less likely occurrence due to current low juniper/brush densities.

The planned felling and lopping of juniper trees in the 0 to 8 inches diameter at root crown (base) in the known antelope corridor will have little effect on the vegetative composition of this range site. This activity will reduce the juniper density along the approximately 4 mile long travel corridor (approximately 2 miles within this range site) but this accounts for less than 1% of the range site acreage. Localized improvements in grass/forb composition can be expected where juniper is felled but there will be little affect overall (Appendix 3, WLD 5).

The Loamy Bottoms range site has a vegetative mix of warm and cool season perennial grasses mixed with a small amount of shrubs and trees. Small riparian areas associated with perennial water occur scattered within this area. Because this range site is situated in drainage bottoms relative proportions of plants fluctuate from year to year depending on precipitation and runoff (VSW 4). Currently the overall diversity of species is good, basal vegetation is near potential, and riparian areas are classified as being in proper functioning condition (VSW 8,9,10).

Little change is expected from either alternative, although grazing within riparian areas may retard recruitment of ash and willow. This range site is generally used lightly under current management .

The Clay Hills range site potential vegetation is identified as being dominated by side-oats grama and blue grama mixed with tobosa, three-awn and curly mesquite. Brush species include snakeweed and shrubby buckwheat. Tree species include Utah juniper. Current vegetation has more tobosa and curly mesquite, fewer shrubs and about equal juniper than identified in the potential vegetation.

Grazing capacity and actual use of this range site is limited due to the steepness of the slopes. As a result, it is expected that little or no change in the current condition will result from either Alternative 1 (no grazing) or Alternative 2 (current management).

The alternatives favor slightly different vegetative composition on several range sites but provide comparable vegetative cover. Under either alternative the vegetation will remain similar to vegetation on adjacent lands and will provide species diversity.

Wildlife

The allotment has a diversity of wildlife and aquatic habitats available over the landscape and there is a diversity of birds, mammals, fish, amphibians and reptiles. There are no threatened, endangered, or proposed species known on the allotment or in the vicinity of the allotment. The area does not contain the commonly used habitat for the bald eagle, Mexican spotted owl, Gila trout, razorback sucker, loach minnow, or spikedace and surveys for Southwestern willow flycatcher, and Gila topminnow/desert pupfish did not locate any individuals (the available habitat for the flycatcher was, also, classified as unsuitable) [WDL 4].

Alternative 1 (no grazing) and Alternative 2 (current management) would have no effect on threatened, endangered, or proposed species since no suitable habitat exists on the allotment for these species (WDL 5).

Loamy Bottoms include riparian vegetation and aquatic habitat in Indian Creek that provides suitable or potential habitat for the Gila chub, common black hawk, lowland leopard frog, Maricopa tiger beetle, Mexican garter snake, southwestern toad, and yellow-billed cuckoo, all sensitive species. Lowland leopard frog occupies habitat at Middle Water spring but the other species, although known to be in the general vicinity, have not been observed and the potential habitat is limited in size and distribution. Riparian habitat at Cabin Spring and Long Gulch Spring provide suitable or potential habitat for lowland leopard frog and southwestern toad but currently is not occupied (WDL 4).

Under Alternative 1 (no grazing) utilization of riparian vegetation and /or trampling by domestic animals would stop. This would allow for retention of vegetation used for cover and nesting sites, the recruitment of potential nest trees, and reduction of impacts on spawning/egg sites and aquatic habitat complexity.

Under Alternative 2 (current management) livestock grazing will remove and/or trample a portion of the available riparian vegetation used for cover and nesting. This could retard recruitment of potential nest trees and result in impacts on spawning/egg sites. Livestock use in the riparian areas can, also, result in compaction of soil and sloughing of stream banks that can increase sediment, alter stream channel morphology and reduced aquatic habitat complexity. Although grazing has affected habitat quality at Cabin and Long Gulch springs, current grazing has not had a detrimental affect on these areas and continued use of utilization standards, salt/mineral use, and repair and maintenance of water developments will continue to keep impacts within acceptable limits (WDL 5).

Because the project area is characterized by rolling hills bisected by canyons and drainages with some upland areas and the associated mix of semi-desert grassland, chaparral, juniper and riparian vegetation communities, five management indicator species are appropriate for this area. These species and their associated range sites/vegetation communities are: pronghorn (clay uplands, loamy hills/grasslands), Rufus-sided towhee (basalt hills/chaparral), mule deer (basalt and loamy hills/chaparral and woodland), juniper titmouse (basalt and loamy hills/woodland), and Lucy's warbler (loamy bottom/riparian) [WDL 4].

Under Alternative 1 (no grazing) habitat components for these species would tend to increase slightly, within the site limitations identified in Vegetation, as grazing and browsing by livestock ceased. In some areas there would be increased grass height available for use by nesting birds, antelope, and deer.

Under Alternative 2 (current management) there would be minimal affects on these species due to the relatively light to moderate grazing intensity, non-uniform utilization in grazed units, and full cover in rested units which will maintain vegetative ground cover. Continued maintenance of the water developments and construction of fences to wildlife standards will sustain usable habitat.

Under both alternatives, without other forms of management in grassland areas (fire, juniper cutting, etc.) increased brush and juniper densities could result in eventual stagnation and decline of the grass/herb layer which supply seeds, nesting material, and insects utilized by the bird species and forage for antelope and deer. Increased juniper density, also, impedes antelope movement through the area, and in the long term will cause the area to cease to be viable habitat. The chaparral-woodland species will be less affected since this habitat is currently only lightly used by livestock.

Continued prescribed burning and juniper control activities will aid in maintenance of the plant community diversity and health of needed habitat components and juniper felling will aid in keeping antelope movement along the corridor possible (WLD 5, 6).

Neither alternative will produce excessive sediment to riparian areas, which could affect aquatic species, on or downstream from the allotment. Lands within the allotment will continue to support wildlife species of the Agua Fria grasslands by providing diverse and healthy habitat.

Water/Watershed

Current conditions on the allotment indicate soil condition is satisfactory, overall diversity of plant species is good and basal vegetation is near potential. No active gullying, rills or pedestalling has been observed on the allotment and the small areas of perenial water supporting riparian vegetation have been classified as being in proper functioning condition. All this indicates that the watershed is stable and in a satisfactory condition and water quality is good (VSW 9).

It is expected that under either alternative current conditions would be maintained.

Air

Air quality in and around the allotment are high due to it's relative isolation from urban centers, limited access, and good vegetative ground cover. No activities occurring on the allotment would contribute to impairment of air quality (A-1).

It is expected that under either alternative current conditions would be maintained.

Cumulative Effects

Past, present, and reasonably foreseeable future actions on the allotment and the vicinity that have the potential to contribute cumulatively to effects on soil, vegetation, wildlife, water, air, and people include urban development, livestock grazing, vegetation treatments (eg prescribed burning, juniper thinning), non-native plant and animal species, and recreational activities.

Urban development in the Agua Fria watershed has decreased riparian, grassland, and woodland habitats and continues to do so. Due to the generally permanent conversion of these habitats to human occupation, they are lost forever (WDL 5).

Livestock grazing in the watershed on Federal, State, and Private lands also impacts habitats in varying degrees. Grazing activity on the adjacent BLM lands is expected to remain similar to current strategies (RGE 1). Approximately 380 head of cattle will graze 6 BLM pastures in coordination with the 4 pastures of the Long Gulch Allotment. However, although the agencies coordinate on grazing strategies management on the BLM pastures is determined by the BLM and management on the Forest Service pastures is determined by the Forest Service.

Through application of monitoring of utilization levels and effects from grazing on Federal and State lands and cooperative alliances such as the Agua Fria Grasslands Coalition, functioning habitats are expected to be maintained throughout the grassland area. Prescribed fire and juniper treatments on Federal and State lands benefits riparian and watershed conditions through the increase and/or maintenance of the grass/herbaceous vegetation component. Fire creates habitat diversity, increases forage production, palatability, and nutritive value and maintains grasslands (WDL 6). Prescribed fire does affect air quality during the time of active burning and juniper treatments do affect the availability of habitat for certain wildlife species but these effects are either short lived or controlled so as to not be a long-term detriment (A 1, WLD 5). Juniper treatments will have a beneficial effect on the movement of antelope through the area (WLD 5, Appendix 3).

Non-native plant and animal species invasions have negatively impacted native species in some areas throughout the watershed and are expected to continue to spread into new areas. Treatment strategies in place or in process of being developed are expected to slow or control non-native plant spread (RGE 2).

Recreational activities are expected to increase as human population increases and will have minor negative affects on soil and riparian resources (REC 1). These include localized compaction at undeveloped camping sites, soil movement due to the use of existing roads and trails, riparian vegetation trampling, wheel-tracking drainage bottoms, and bank sluffing due to off road vehicle use.

Management Concerns

Because of the aggressive growing habits, invasive weeds often out compete native plants, reducing plant diversity, increasing soil erosion, and damaging watersheds. The three surrounding forests (Kaibab, Coconino, Prescott) are preparing a weed management strategy. Until the strategy is complete, early detection and eradication of small infestations will be conducted. Currently no invasive weeds have been detected on the allotment and implementation of any alternative is not expected to have adverse affects concerning the establishment and spread of noxious weeds (RGE 2).

Heritage resource clearance has been completed for this project. As concluded in report 97-09-075, *Verde District 1997 Grazing Allotments*, this project will not have any adverse affects on known cultural resources (REC 2).

Suitability for livestock grazing based on various attributes such as slope and forage production have been determined as part of the Forest Planning Process. Locally mapped areas with slopes of 0 to 25%

have full grazing capacity, those with slopes of 25 to 40% have a potential grazing capacity, and those with slopes greater than 40% are considered to have no grazing capacity. Range utilization monitoring shows that this allotment can sustain livestock grazing at the current permitted numbers without causing unacceptable impacts to resources (Appendix 2, RGE 2,3,4,5,6,7,8,9).

Specifically Required Disclosures

Adverse impacts on prime farmland, rangeland, wild and scenic rivers, or ecologically critical areas are not expected from implementing the action alternative. Wetlands and floodplains are only a minor part of this proposal and planned livestock distribution and forage utilization will have only minor effects associated with the action alternative.

Civil Rights, Native American Rights, Minority Groups, Women, and Environmental Justice are not expected to be adversely affected.

Consultation with others

The current Permittee was consulted and participated in the development of the action alternative.

Natalie Robb and Kyle Cooper of the Arizona Game and Fish Department, participated in the survey of Indian Creek on the BLM administered Box Bar allotment.

Jeff Williams, Tempe AZ; Jeff Burgess, Tempe AZ; Jack Bohning, Society of Range Management, Prescott AZ; Jerry Mundell, Camp Verde AZ; and David Brown, Antelope Foundation, Phoenix AZ provided scoping information.

Literature Cited

Ockenfels, Richard A; Amber Alexander; Cindy L. Dorothy Ticer; and William K. Carrel. *Home Ranges, Movement Patterns, and Habitat Selection of Pronghorn in Central Arizona*. Arizona Game and Fish Department Research Branch Technical Report #13.

Robertson, George; Pat Boness; Juan Gallegos; Jim Hurja; Sara Leahy; Greg Miller; Wayne Robbie; Kenneth Scalzone; Ron Stein; Rory Steinke. *Terrestrial Ecosystem Survey of the Prescott National Forest*. USDA Forest Service, Southwestern Region.

Appendix

1. TES Units Grouped Into Range Sites
2. Capacity Classification
3. Antelope Corridor Improvement
4. Response to comments
5. Project Record Index

APPENDIX 4
RESPONSE TO COMMENTS

Comments received by:

Jeff Burgess, Tempe AZ

Jack Bohning, Prescott AZ

Arizona Game & Fish Department – Dana Bayer, Habitat Specialist, Area VI

Arizona Antelope Foundation – Warren Leek

Forest Guardians – Kirsten Stade, Grassland Ecologist

Prescott National Forest Friends – Jim Powers

Leslie Glustrom, Boulder CO

RESPONSE TO COMMENTS FROM JEFF BURGESS, TEMPE AZ LONG GULCH LIVESTOCK GRAZING

1. Your EA only analyzes two alternatives, the current situation and a no grazing alternative. Federal regulations call for the planning team to "formulate a broad range of reasonable alternatives".

A reasonable range of alternatives is that number responding to issues. If the proposed action creates an issue then an alternative is created to address that issue. Six alternatives were considered following the response to scoping. Four of those issues were not analyzed in detailed study because no information was collected to support the perceived need addressed by the alternative. The only issue carried forward was whether or not to authorize grazing.

2. Regulations also define the "no action" alternative as being the current management situation but in this EA, the no action alternative is the "no grazing" alternative.

The use of No Action to describe the no grazing alternative originally came about during the 1995 grazing analysis that led to the Rescission Act and has been used since then. The basis for this interpretation is the Council on Environmental Quality's "Forty Most Asked Questions" #3. This answer states that two interpretations are acceptable including the situation you mention (no change) and the application used in the EA (no implementation of the proposed activity). The Proposed Action, Alternative 2, throughout the document is clearly labeled as current management. No other grazing systems were analyzed because the results from the current system are meeting resource objectives.

3. Research has shown that maximum annual forage utilization levels need to be kept at no more than 35% but your proposed action would set utilization at 40% during the growing season and 50% in the dormant season. You also claim that this heavy grazing is needed to aid in the incorporation of litter.

There have been numerous papers published on utilization rates and we have copies of many of them including the Holechek study referenced. Our experience with tobosa grass has shown that at 40% utilization we retain a reasonably open canopy to encourage re-growth while gradually building biomass to support burning on a regular schedule. This utilization level sustains palatability in tobosa (by producing green shoots) which reduces selective grazing of more preferred species. Grazing (and the associated disturbance) places litter on the soil surface that improves or sustains soil condition. The adjacent Rice Peak allotment was burned in a prescribed fire in 1994 and not grazed until after recovery from a second burn in 1999. During the five years the area was not grazed there was good re-growth of all species but **no** litter accumulated.

Tobosa is the primary forage species on the upland ecological sites, found in 3 of the 4 forest pastures. Being the primary forage, tobosa receives most of the use. Paulsen and Ares (1961) found that during "a series of dry years on the Jornada, tobosa maintained its greatest basal area under grazing which removed 40-55 percent of the annual herbage growth. During periods of deficient rainfall, forage production declined irrespective of the grazing use and the best management" (Journal of Range Management [JRM], 14(2): 78-82). A study by Senock et al (1993) looked at tobosa tiller defoliation under low-density continuous and high-density rotational stocking. They indicated "In general, high-density rotation grazing promoted more uniform forage utilization of tobosa than low-density continuous grazing". (JRM, 46:500-505).

4. *There is no mention anywhere in the EA about recent range trends on the allotment, except for 22 Mesa.*

Range trend appears to be upward on all range sites overall. However, some isolated areas show downward or stable trends. Condition plots and field inspections from 1997 thru 2000 were used to compare Terrestrial Ecosystem Survey (TES) potential vegetation and ground cover to current condition. All plots were similar to potential indicating that current vegetative conditions (and therefore recent vegetative trends) are satisfactory.

5. *High utilization levels could be impacting the quality of local wildlife habitat. Your Regional Forester set maximum utilization levels in 1996 with the Record Of Decision (ROD) for Amendment of Forest Plans, Arizona and New Mexico and you are not complying with that direction by exceeding those levels.*

The proposed action complies with the ROD as we have site-specific data to set a utilization limit on tobosa at 40% growing season, 50% dormant season. The ROD states that the Allowable Use Guide is to be used in the absence of site specific data and in the absence of more specific guidelines established through site specific NEPA. The ROD also states that guidelines for specific allotment management or for grazing strategies not covered in the Allowable Use Guide will vary on a site-specific basis when determined through the Integrated Resource Management (IRM) process (ROD, page 94).

6. *The EA does not discuss the habitat requirements of antelope or the status of the herd. What impacts are the high forage use-levels having on antelope and other wildlife.*

Although suitable habitat for the pronghorn on the allotment occurs in both the clay uplands and loamy hills range sites habitat evaluations have identified the majority of the allotment as poor or unsuitable for pronghorn because of steep slopes and/or vegetation (Ockenfels et al. 1996). The Wildlife Biologist is most concerned about the travel corridor across the allotment. His evaluation of the effects of grazing on the allotment indicated it would minimally affect the antelope but treatment of the travel corridor would be critical.

In conjunction with grazing permittees, the Arizona Fish & Game Department, and other cooperators we have developed additional water in open areas for antelope, designed an antelope standard for fencing (that is now used by the Department and BLM) and aggressively pursued the burning program. As a result of the coordinated efforts in the Agua Fria grasslands we believe that antelope fawning cover is sufficient and forage exceeds total livestock and wildlife needs in normal years. The habitat is generally in good shape but limited by the topographic diversity of the Agua Fria that breaks the continuity of the grass stands.

The Unit 21 herd has shown a downward population trend primarily due to loss of adult animals to lion predation (Ockenfels, personal communication). The fawn survival rate had been much higher than the state average (48% v. 18%, AG&F), particularly in the 1980's but also during the 1987-1990 drought (28% v. 9%, AG&F), and this did not drop until the adult population declined. We realize that the Unit 21 antelope are in trouble and share your concern because we have made significant investments in this herd's habitat. The Wildlife Biologist documents allotment conditions (project record) and the EA addresses four other management indicator species (page 11) and the affects to their habitat components under each alternative.

7. How can you refuse to consider a reduction in permitted numbers when actual use is less than permitted numbers now?

Livestock numbers (stocking) on the Long Gulch Allotment have varied from 280 to 425 cattle (averaging 380) using the allotment for an average of 6 months (equivalent to 140 to 213 cattle year long [average about 190]). These numbers fall within current permitted numbers of 200 head yearlong. The permit also has a variable number clause whereby numbers are adjusted annually due to such things as: fluctuating forage conditions, water availability, prescribed burning needs, wildlife issues, and in response to the permittees need to build the herd. Thus flexibility in numbers is used to respond to fluctuating conditions rather than just locking in a reduced number.

References

Ockenfels, R.A., A. Alexander, C.L. Dorothy Ticer, and J.A. Wennerlund. 1996. A landscape-level pronghorn habitat evaluation model for Arizona. Arizona Game and Fish Department Technical Report 19.

Paulsen, H.A., F.N. Ares. 1961. Trends in Carrying Capacity and Vegetation on an Arid Southwestern Range. *Journal of Range Management* 14(2): 78-82.

Senock, R. S., D.M. Anderson, L.W. Murray, G.B. Donart, (and others). 1993. Tobosa tiller defoliation patterns under rotational and continuous stocking. *JRM*. 46: 500-505.

**LONG GULCH LIVESTOCK GRAZING ASSESSMENT
RESPONSE TO COMMENTS RECEIVED FROM Mr. JACK BOHNING OF
PRESCOTT, AZ**

Mr. Bohning made three comments, the FS response to each follows:

1. *The Box Bar Allotment management on Bureau of Land Management lands needs to be a part of this assessment so that coordinated management can take place.*

Both the Prescott NF and the Bureau of Land Management (BLM) recognize the need to coordinate management. The assessment does identify this on page 4 and 5 of the assessment under the description of the proposed action and the affected environment describing the use of range sites. Previous attempts to include the Box Bar allotment with the Long Gulch allotment were rejected by both the Regional Office and the BLM, so any further attempt would not be prudent. Thus, the assessment covers only the Long Gulch allotment and leaves any analysis on the Box Bar allotment to the BLM. In practice, movement between pastures and across boundaries will continue to be coordinated.

2. *Urban encroachment is mentioned but mitigating actions are not pursued.*

Urban encroachment is a concern in terms of cumulative impacts to the entire Aqua Fria watershed especially for wildlife. Actual encroachment on the Long Gulch allotment however, has not been found to be a problem and therefore no mitigation measures are necessary. Mitigation measures beyond the bounds of the Long Gulch allotment are outside the scope of this assessment.

3. *Livestock grazing is recognized as a legitimate and proper use of the rangeland.*

We agree and will continue to monitor grazing use on the allotment making adjustments as necessary to protect or enhance the resources should the decision be made to continue grazing.

RESPONSE TO COMMENTS FROM ARIZONA GAME AND FISH DEPARTMENT LONG GULCH LIVESTOCK GRAZING

Dana Bayer, Habitat Specialist, Region 6 commented for the Arizona Game and Fish Department. The response to comments is in the order made:

1. *Stocking rates need to be made on site-specific forage production and trend data, ocular estimates do not provide adequate data:*

Stocking is based on findings of our monitoring and of inventory data collected on the allotment. For Long Gulch we have records from several years that include a significant range of precipitation. Monitoring looks at utilization but also at species composition, vigor, reproduction, soils (including erosion and the condition of the soil surface), the plant community and its successional progression, at livestock management effectiveness, and for other management concerns that may be present.

Inventory is based on the Terrestrial Ecosystem Survey and the NRCS Ecological Sites (which is an grouping of TES units with similar properties and responses to management) for baseline on potential. Ecological Inventory (EI) plots are a site-specific inventory of vegetation and soil condition and are established on major TES map units. We complete Soil Condition worksheets that are less detailed but supplement the EI data. If riparian areas are present we assess them using the "Process for Assessing Proper Functioning Condition" BLM TR 1737-9.

Collectively this information provides a picture of ecological health and functionality of the analysis area. Copies of the forms used are attached.

2. *Alternative 2 (current management) does not adequately address our previous concerns with range condition and wildlife needs:*

The Department's previously expressed concerns were considered both in the Box Bar/Dugas analysis and again for Long Gulch. Many of these were addressed previously since they applied either to Box Bar (specifically in and adjacent to the Agua Fria River) or to the Dugas allotment. An important point is that all nine Verde District allotments (and probably all of the Cave Creek RD and BLM allotments) in the Agua Fria grasslands are on rotation grazing systems that graze cattle in a specific pasture within the allotment at any given time. This means most of the allotment is not being grazed and usually at least one growing season has occurred since many of the pastures have been grazed. There is no shortage of cover or forage for wildlife in this ecosystem although it may not be present everywhere at all times.

Stocking rates are limited on Long Gulch by the availability of water, if the salting and supplement does not work it will mean that distribution patterns remain relatively similar to current (recognizing that prescribed burning has a significant effect on distribution with herbivores favoring recently burned areas).

3. *The Department supports the District's recent efforts to establish a monitoring program on the Long Gulch allotment:*

The trend plots are in place and key areas identified. We will continue to use inspections as the primary source of monitoring and the key area utilization will be included but by itself has limited value.

- 4. The Department agrees that proper livestock grazing is beneficial to stimulate forbs and new tobosa grass, however, allowing 40-50% utilization of tobosa grass, livestock will be in direct competition with wildlife species for winter annuals, browse and perennial grass species and does not leave adequate ground cover for wildlife needs:*

Our experience with tobosa is that 40-50% utilization, in conjunction with rest, provides the healthiest stands of grass, reduces selective grazing of other grasses, and promotes high production of annuals. For the balance of the response see the second item above.

- 5. We recommend special management considerations for drought conditions:*

The use of variable numbers has been very effective at addressing fluctuations in weather. We have been through two droughts since beginning this management approach and permittees were responsive to the need to adjust numbers. The premise behind variable numbers is that the appropriate number of livestock for the conditions will be grazed and the measure of effectiveness is determined through monitoring. During the 1996 drought we monitored extensively and as a result of that monitoring removed 22 Mesa pasture from grazing until we determined ecological conditions had improved (1999).

- 6. Implement a minimum of one growing season of rest after prescription burns:*

We concur with the rest following burning recommendation. Occasionally, we have had cattle in a pasture following a burn to clean up prickly pear and re-sprouting brush but this is normally difficult if most of the pasture was burned.

- 7. Implement a deferred rest rotation grazing system that rotates the season of use in pastures and allows for year-round rest within the rotation:*

The intent of moving cattle based on utilization is to offset season of use. The execution of this strategy on Long Gulch (and the BLM's Box Bar) has been affected by availability of water in some pastures. We will continue to work with the permittee, the Department, and the BLM to improve waters in this area to facilitate a more effective rotation.

- 8. The Department supports the District's plan to hand thin juniper trees, upgrade fences and water developments and continued application of prescribed burning:*

We have relied heavily on the Department's input, assistance, and general support in the grasslands and look forward to continuing this relationship.

- 9. The Department recommends a riparian enclosure at Middle Water on Indian Creek to protect the riparian vegetation and enhance the opportunity for increased regeneration:*

As discussed on the telephone we will work with the Department on Middle Water. Concurrent with that it is appropriate to look at Upper Water as we have done some interim fencing there and need to improve the management of both areas.

RESPONSE TO COMMENTS FROM THE ARIZONA ANTELOPE FOUNDATION LONG GULCH LIVESTOCK GRAZING

1. Antelope populations have declined precipitously in the last 10 years in the northern half of Unit 21 from more than 100 head to only a few individuals so it makes little sense to continue the status quo when it was the past level of grazing management during which these animals declined.

The Verde Ranger District is very much aware of the Game Management Unit 21 antelope situation and the limitations on the habitat. We do not believe the grazing on Long Gulch has an impact on antelope but recognize that fences do, therefore the need to bring them up to standard.

2. Present livestock management program has been a factor in contributing to 1) brush and juniper encroachment, and 2) fragmentation of habitat.

Our awareness of woody plant increase in the grasslands led the Verde District to begin prescribed burning in 1981; the first burn was in Cottonwood Basin on Dugas. Since then we have burned or have allowed natural fires to burn over 95,000 acres, many of which have had followup burns. In 1987 the BLM joined the program and the Cave Creek R.D. is the third participant.

We also made adjustments in the grazing program to get utilization in the tobosa to a level which sustains the effects of burning longer than would occur if the canopy was not kept open. Forb production increased 278% following a 1982 burn on the Todd allotment (Boren, 1983, ASU). We monitored this study site through Spring 1985 and with 40% utilization on tobosa were still about 200% greater than the control. A tobosa stand on the Dugas allotment was also burned in 1982 and received less grazing and, although we did not measure production, by 1984 there was visibly less forb production on that site. When we started the burning program our intent was to retain the grasslands remaining in the ecosystem, we have since modified this to increase the grassland's size by systematically reducing desert shrub and juniper density through fire and hand treatments.

Habitat fragmentation is a problem for the antelope herd in this area which is why the east travel corridor connecting Perry Mesa and Marlow mesa areas is so important. As the Cordes Junction area continues to grow this corridor will become even more important for connecting the north and south habitat areas of this antelope herd. Since the juniper and chaparral growth is now inhibiting free antelope movement, treatments will be conducted to make the travelway more antelope friendly.

3. Grassland utilization rates of 40 to 50% anticipated in the environmental assessment may be deleterious to perennial forbs.

In 1985 we worked with the Arizona Game and Fish Department to identify key antelope areas on Orme Ranch and then assessed those areas. There were ungrazed grass stands but they were not used at all by antelope, these areas were as near water as the preferred sites but had grass cover >.33m and the only forb was mustard. The key areas (identified as fawning areas but

possibly not based on Ockenfels study which found that most fawning occurred on the south end of the range where the Spring greenup starts) were characterized by fairly heavy grazing of tobosa and high annual forb production and diversity. These findings correlate with the AG&F study which found that fawning areas had sufficient cover (not necessarily the best cover), good forage production and were proximate to water.

More aggressive management of grazing and vegetation coincided with an increase in the Unit 21 antelope herd (from approximately 150 to more than 320, pers. comm. R. Young, and AG&F surveys) and a visible change in the landscape (less brush, more ground cover). In 1988, Doug MacPhee of this office worked with then Unit 21 WM Rob Young, and Research Branch Director Jim DeVos to get the proposed antelope study dusted off, locations changed (from 19A&B to 19A and 21), obtained partial funding, got the BLM to commit funding, and supported the study logistically. We worked closely with the researchers and are very much aware of the findings.

During the study there was an unexpectedly high antelope mortality due to lions. Richard Ockenfels (pers. comm) said that 11 of the first 14 antelope collared in Unit 21 were killed by lions.

4. The antelope corridor work will only facilitate travel and will do nothing to rehabilitate any lost habitat.

In conjunction with grazing permittees, the Department, and other cooperators we have developed additional water in open areas for antelope, designed an antelope standard for fencing (that is now used by the Department and BLM) and aggressively pursued the burning program. As a result of the coordinated efforts in the Agua Fria grasslands we believe that antelope fawning cover is sufficient and forage exceeds total livestock and wildlife needs in normal years. The habitat is generally in good shape but limited by the topographic diversity of the Agua Fria that breaks the continuity of the grass stands. The Unit 21 herd fawn survival rate had much been higher than the state average (48% v. 18%, AG&F), particularly in the 1980's but also during the 1987-1990 drought (28% v. 9%, AG&F), and this did not drop until the adult population declined. We realize that the Unit 21 antelope are in trouble and share your concern because we have made significant investments in this herd's habitat.

5. We would like to assist the Forest Service in making the Long Gulch allotment more antelope friendly.

Hopefully, recent antelope transplants will stimulate this population. To ensure recovery we will continue to work on habitat improvement with other agencies and with the Foundation. Please stay in touch so that we can collectively focus on the opportunities to improve one of Arizona's largest remaining semi-desert grasslands. Your contact for project work on Verde is Biologist Albert Sillas.

References

Boren, Helen Kim. 1985. Response of Forbs to Spring Burning in a Tobosa (*Hilaria mutica*) Community of Central Arizona. University of Arizona.

**LONG GULCH LIVESTOCK GRAZING ASSESSMENT
RESPONSE TO COMMENTS RECEIVED FROM FOREST GUARDIANS,
SANTA FE, NM**

Responses to comments specific to the Long Gulch Livestock Grazing Assessment:

1. Efforts to restore ecosystem health through prescribed fire will be futile without the reduction or elimination of livestock grazing.

We do not agree. We recognize livestock grazing as a legitimate use of rangelands and feel that grazing under current management compliments the prescribed burning program by aiding in the retention of a reasonably open tobosa grass canopy that encourages re-growth while gradually building biomass that carries the fire. We have made adjustments in the grazing program to get utilization in the tobosa to a level that sustains the effects of burning longer than would occur if the canopy were not kept open.

2. Efforts to improve habitat for wildlife are a waste of energy and taxpayer dollars given that the proposed action does not include some intention of reducing or eliminating livestock grazing on the Long Gulch Allotment.

We do not agree. We recognize livestock grazing as a legitimate use of rangelands and feel that the current stocking levels and management are sustainable and generally compatible with wildlife. Relatively inexpensive improvements to fences, developed waters, and juniper densities will only add to the habitat quality. Should the decision be made to continue grazing, we will continue to monitor grazing use on the allotment making adjustments as necessary to protect or enhance the resources.

3. Current research indicates that with respect to protection of resources and wildlife species, relaxing utilization standards during the dormant season is without scientific merit.

There have been numerous papers published on utilization rates and we have copies of many of them. Paulsen and Ares (1961) found that during “a series of dry years on the Jornada, tobosa maintained its greatest basal area under grazing which removed 40-55 percent of the annual herbage growth”. Our experience with tobosa grass has shown that at 40% utilization in the growing season and 50% utilization in the dormant season we retain a reasonably open canopy to encourage re-growth while gradually building biomass. This utilization level sustains palatability in tobosa (by producing green shoots) which reduces selective grazing of more preferred species and promotes high production of annuals favored by antelope and other wildlife. Grazing (and the associated disturbance) places litter on the soil surface that improves or sustains soil condition.

4. *The Long Gulch Allotment provides habitat for a number of species, including raptors. The survival of these species depends upon the reduction or elimination of livestock grazing in these habitats at all times of the year.*

Localized effects to wildlife resulting from removal of forage and trampling of habitat cover will occur in areas grazed. However, the allotment is on a rotation grazing system that grazes cattle in a specific pasture within the allotment at any given time. This means most of the allotment is not being grazed and usually at least one growing season has occurred since many of the pastures have been grazed. There is no shortage of cover or forage for wildlife in this allotment although it may not be present everywhere at all times.

General Comments not specifically tied to this assessment but representing Forest Guardian positions were also supplied and are grouped and responded to below:

1. *National Environmental Policy Act – A reasonable range of alternatives needed, cumulative impacts need to be fully analyzed and disclosed.*

A reasonable range of alternatives is that number responding to issues. If the proposed action creates an issue then an alternative is created to address that issue. Six alternatives were considered following the response to scoping. Four of those issues were not analyzed in detailed study because no information was collected to support the perceived need addressed by the alternative. The only issue carried forward was whether or not to authorize grazing. Cumulative impacts were identified and analyzed. Display of cumulative impacts is on page 12 of the assessment document.

2. *National Forest Management Act – A suitability analysis is required.*

Suitability has been determined as part of the original Forest Planning process. The Court decision (*Wilderness Society v Thomas*) in 1999 on suitability, upheld the adequacy of suitability determinations at the Forest Planning level. Therefore no further suitability analysis is needed, only project level capability determinations, which was done for this assessment.

3. *Clean Water Act – Best Management Practices need to be identified and displayed in the EA.*

Best Management Practices were determined. They are contained in the project record. Best Management Practices are used for implementation and actual display of them in an assessment document would not benefit the decision maker and only add to the bulk of the document. The EA does identify that Best Management Practices are a part of the proposed action and identifies the document location in the project record.

4. Forest Service Handbook Regulations – the EA does not identify the potential natural plant community or a desired condition.

The analysis of soils and vegetation utilized the Terrestrial Ecosystem Survey for the Prescott National Forest as well as on site ecological plot data. The material used compares the effects of grazing on the plant community and soil by showing similarity (or not) to potential conditions described in the Terrestrial Ecosystem Survey (TES) for the Prescott NF and Natural Resources Conservation Service (NRCS) range sites. A desired condition is not specifically identified although goals and objectives for the project are and from these a desired condition can be inferred.

5. General Ecological Costs – A biological assessment for T&E species has not been completed for this project, effects on cryptogamic soils is not disclosed, effects on Ponderosa pine ecosystems are not disclosed, long term effects of fences and water developments on wildlife are not disclosed, effects on riparian habitats are not disclosed.

A biological assessment has been completed, since there are no T&E species or habitat present on the allotment a “no effect” determination was made. The document is in the project record. Cryptogamic soils were not identified as an issue either by the watershed specialist or the public. No Ponderosa pine ecosystems are present within the allotment. The Wildlife Biologist has evaluated the allotment for both the short term and the long term. Based upon his evaluation some fences and water developments need to be upgraded to current wildlife standards and these have been included in the proposed action of this project. Riparian areas only occur as small spots associated with springs or bedrock pools in some of the drainages. The Wildlife Biologist has determined that grazing has not had detrimental effects on these areas and that utilization standards will be sufficient to maintain these areas. Effects are discussed both in the wildlife reports in the project record and in the wildlife section of the EA.

RESPONSE TO COMMENTS RECEIVED FROM THE PRESCOTT NF FRIENDS LONG GULCH LIVESTOCK GRAZING ASSESSMENT

1. *The Proposed Action Statement is evidence this is a predetermined decision.*

Under NEPA a project must be proposed in order to have meaningful analysis and public participation. A proposed action initiates analysis. The proposed action for the Long Gulch Livestock Grazing analysis therefore proposes to continue livestock grazing on the allotment and the analysis documented in the Long Gulch assessment supports the proposed action although other alternatives were considered. A decision concerning the project HAS NOT been made, although lacking comments supporting some other alternative by the public, the decision, when made, most certainly will favor the proposed action **but this does not** mean the decision **will be** the proposed action. The Decision Maker has the discretion to choose any alternative or make a new alternative based upon the project record that he/she reviews prior to making any decision.

2. *The PNFF strongly believes that to provide input regarding the environmental assessment at this point in the process would be of no value.*

While we disagree that any public input would be of **no value**, it is true that public input is best when given earlier in the process. This is why it is important to participate in the analysis phase of project development so that proposed actions will reflect majority public attitudes as this proposed action does based upon the public input received.

RESPONSE TO COMMENTS FROM LESLIE GLUSTROM, BOULDER CO LONG GULCH LIVESTOCK GRAZING ASSESSMENT

1. *All documents related to the Long Gulch Allotment from the first NEPA effort should be included in the record for this decision:*

After the Regional Forester remanded the decision on the Box Bar Ranch Coordinated Plan (BBRCP) project with instructions to re-do the analysis (the first NEPA effort mentioned above), all relevant documents and/or portions of documents from the BBRCP project record have been either incorporated directly into the Long Gulch Livestock Grazing project record or have been assimilated into current Specialist reports.

2. *Range Suitability – 1. Provide a range suitability analysis in accordance with page 43 of the Prescott National Forest Plan. 2. Redo the Range Capability analysis using 15% slope for full capacity:*

Suitability has been used out of context in the Forest Plan and that section is being removed through a plan amendment. The Court decision (*Wilderness Society v Thomas*) in 1999 on suitability, upheld the adequacy of suitability determinations at the Forest Planning level. Full capacity range capability for this analysis uses 25% slope as the upper limit. Observations made by range and watershed management professionals show these slopes are being used by livestock (albeit lightly) with no adverse affects. Therefore, this upper limit was considered appropriate.

3. *Range Analysis – 1. When was the last full R-3 range analysis done? 2. When was the second most recent range analysis done? 3. When was the map used to show capability for the November 1999 EA done?*

The last R-3 analysis was done in 1968 and updated in 1978 when Long Gulch-Turret Peak allotments were combined. There is no documentation of any earlier range analysis but was most likely in the mid-1950s. The base map used to show capacity for the remanded 1999 project record was done in 1968 with colorization added in 1996. The above information however is not relevant to the Long Gulch Livestock Grazing Assessment. R-3 range analysis methodology is a forage assessment and does not fully display environmental conditions or address ecological potential. The methodology used for this assessment uses soil and existing vegetation as means of determining potential. The material used compares the effects of grazing on the plant community and soil by showing similarity (or not) to potential conditions described in the Terrestrial Ecosystem Survey (TES) for the Prescott NF and Natural Resources Conservation Service (NRCS) range sites.

4. *Range Capacity – 1. Prepare a quantitative estimate of range capacity and prepare a series of alternatives that address that capacity determination:*

This was done in 1978 as part of the combination of the Long Gulch and Turret Peak allotments. Monitoring of use since that time does not indicate a change in stocking number is warranted. An alternative dealing with reduced numbers as well as a no grazing alternative were considered.

5. *Soils/Watershed/Wildlife Analysis – 1. Define satisfactory and impaired soil and watershed condition. 2. Rewrite the wildlife analysis on page 9 and 10 of the assessment giving riparian dependant resources precedence. 3. Put page numbers on your documents:*

Page 5 of the assessment, under the *Soils* heading has the definition of impaired soils used and Page 10 displays the components used to define satisfactory watershed. A definition sheet identifying terms has been added to the project record. Riparian areas only occur as small spots associated with springs or bedrock pools in some of the drainages. The Wildlife Biologist has determined that grazing has not had detrimental effects on these areas and that utilization standards will be sufficient to maintain these areas, therefore no re-write is warranted and actions are consistent with the forest plan.

Page numbers were applied to the assessment document but footer space was too small for the page numbers to show when the document was printed. This has been corrected.

6. *Economics – 1. Prepare an economic analysis of all alternatives using \$ 1.35 per AUM:*

Economics was not identified as an issue either by the public or by the interdisciplinary team during the analysis and therefore was not used to develop alternatives. Economics would not add information that would influence the making of an informed decision.

7. *Develop and analyze a reasonable range of alternatives – 1. Analyze fully all alternatives displayed in the EA. 2. Develop alternatives with a range of AUMs. 3 Develop and analyze alternative season grazing strategies. 4. Develop an alternative in conjunction with the BLM. 5. Develop alternatives to manage tobosa grass without grazing. 6 Develop a " no riparian grazing " alternative:*

Six alternatives were developed for this analysis. In addition to the proposed action and the no action alternatives, four additional alternatives were considered in response to public scoping. The Decision Maker determined that this array of alternatives represented a reasonable range. The interdisciplinary team determined through the analysis process that four of the alternatives would not meet desired resource objectives or were not supported by the findings of the resource condition assessments. Because of these determinations there is no need to analyze these alternatives further. This action is consistent with NEPA

procedures. Within the proposed action, necessary adjustments to grazing including livestock numbers are possible without developing new alternatives and therefore would not aid in arriving at an informed decision.

The Bureau of Land Management's NEPA procedures differ from those of the Forest Service and the analyses' were separated. As part of the remand the Regional Office recommended that no further attempt to consolidate the analysis of the two allotments be made. In practice, coordination of cattle movement across agency boundaries occurs and will continue to occur but management of each agency's resources is the sole responsibility of that agency.

Management of the Long Gulch Allotment without grazing is the no action alternative and additional non-grazing alternatives are outside the scope of the proposed action including a "no riparian grazing" alternative.

8. Monitoring plan – 1. Flesh it out with the "who, what, where, when". 2. Change the % utilization to conform to Region 3 guidelines:

The monitoring plan developed as part of this analysis identifies methods, key areas, key species, and utilization standards. Since monitoring is an action associated with implementation no further information is necessary, at this time, for the decision maker to make an informed decision. The utilization standards proposed in this project are based on professional management experience with the grasses, forbs, and shrubs that populate the allotment. Actual use has shown that the proposed utilization levels will retain a reasonably open canopy that encourages re-growth while building biomass that allows the periodic burning that is essential to sustain this ecosystem. Proposed utilization also maintains palatability of the dominant forage species, tobosa grass, which reduces selective grazing of more preferred species.