

Standards for Rangeland Health and Guidelines for Grazing Administration
Implementation Project: Allotment Assessment
CROSBY TANK - 5219

I. Introduction

The **Crosby Tank** Allotment Assessment was conducted in accordance with directions set forth in the Washington Office Instruction Memorandum No. 98-91 and Arizona State Instruction Memorandum No. 99-012 for implementation of Standards for Rangeland Health and Guidelines for Grazing Administration (Standards and Guides).

The purpose of Standards and Guides is to insure the health of public rangelands. These standards help the Bureau of Land Management (BLM), rangeland users, and interested members of the public achieve a common understanding of acceptable resource conditions, and work together to implement that vision (see appendices for a copy of the Standards and Guidelines).

Arizona's Standards and Guides were developed by the BLM State Standards and Guides Team and the Arizona Resource Advisory Council (RAC), a state level council appointed by the Secretary of the Interior.

The Secretary of the Interior approved the Standards and Guides in April 1997. The Decision Record, signed by the BLM State Director (April 1997) provides for full implementation of the Standards and Guides in all Arizona Land Use Plans.

This assessment was conducted by an interdisciplinary assessment team (IAT) of resource specialists from:

- BLM.
- Natural Resource Conservation Service (NRCS).
- Arizona Game and Fish Department (AGFD).
- Mohave County Extension.

The IAT was assisted by the Rangeland Resource Team (RRT), a diverse group of local residents formed and appointed under the RAC charter (see appendices for a list of members on both teams). The RRT may provide informal advice to the BLM Field Manager regarding implementation of Standards and Guides, and "will have opportunities to raise any matter of concern with the resource advisory council and ... to provide information and options to the council for their consideration" as provided for by regulations at 43 CFR 1784.6-2(a)(2)(iv)(A).

The BLM/RAC Implementation Strategy for Arizona states that the RRT's primary role is to assist BLM managers in assuring the S&G's are consistently applied and technically sound. The IAT analyzed all available information in cooperation with the RRT. Based on field observations, team members determined whether rangeland conditions were meeting, progressing toward meeting, or not meeting the Standards for Rangeland Health.

The RRT, IAT, permittees and other interested parties were invited to attend an issue scoping meeting on November 10, 2005, and a field visit on July 11, 2006. In cases where standards were not being met, the group identified which resource uses needed to be addressed, and teams presented recommendations to improve resource conditions.

After consultation with interested persons, permittees, and the IAT, the Authorized Officer will select the appropriate actions. The selected management actions will be analyzed through the National Environmental Policy Act (NEPA) process and a proposed decision will be issued.

II. Grazing Use

A. Total grazing privileges

Active Grazing Use: 470 AUMs

Suspended Non-use: 266 AUMs

(Note: an AUM, or Animal Unit Month, is a unit of measurement indicating how much forage is eaten by a cow/calf pair in one month.)

B. Season(s) of use

137 Cattle 6/16 to 11/15, 68% Public Lands – 470 Federal AUMs

C. Kind and class of livestock

Cow Calf Operation

D. Percent federal range

68% Federal Lands

III. Allotment Profile

A. Description

The Crosby Tank Allotment #5219 is located in Mohave County, Arizona, approximately 50 miles South of St. George, Utah. The allotment is accessed via Mohave County road number 5.

B. Acreage

The allotment contains:

- 10,187 acres of federal land
- 650 acres of state land
- 1,920 acres of private land

C. Objectives

1. Land Use Plan Objectives

Vermillion Resource Area Implementation Plan for the Arizona Strip Resource Management Plan

Program guidance decisions as well as specific resource objectives for the Crosby Tank Allotment are found in the Arizona Strip Resource Management Plan (RMP), and Implementation Plan (IP), Clayhole Habitat Management Plan (HMP) and Crosby Tank Allotment Management Plan (AMP).

GZ20- Established Utilization levels not to exceed 50 percent average of current years growth on key species.

WS01- Manage vegetation cover towards ecological stability and sound long-term protective soil cover.

WS21- Manage watershed areas according to watershed categorizations to achieve identified objectives.

RR01 Consider all applications for special recreation permits within the resource area, subject to the constraints of this plan and the environmental assessment for the proposed use.

RR11 Restore and/or maintain the generally natural, "remote" settings that exist throughout the resource area through mitigation of new projects and implementing restoration projects as necessary.

RR17 Institute visitor limits, regulation, or restriction in the resource area only when monitoring of resource and social conditions indicates a trend toward unacceptable change to desired recreation settings, brought about by such use.

TE01 –Carry out management consistent with multiple use for conservation of candidate species and their habitats and ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these

species as threatened or endangered. Adverse impacts to listed species will be avoided.

WL02 Maintain productive wildlife habitat and ensure wildlife needs and considerations are incorporated into land use planning, National Environmental Policy Act documents, and management decisions.

WL06 in cooperation with Arizona Game and Fish Department, continue restoration of native wildlife into their historic ranges by supporting and assisting in the releases of native species.

WL16 Complete ecological site inventories in key areas to determine site potentials and present ecological conditions; establish desired plant community objectives for various areas and include these objectives in Allotment Management Plans, Habitat Management Plans, watershed plans, and other plans in order to prescribe management or improvement practices to achieve these objectives.

2. Specific Resource Objectives

California Condor Recovery Plan Objectives (April, 1996)

CC-1 Provide foraging habitat for California condors.

CC-2 Maintain a healthy, self-sustaining population of California condors with a positive growth rate of at least 150 individuals with at least 15 breeding pairs.

Bald Eagle^a

BE-1 The wintering population of bald eagles would be recovered and delisted.

BE-2 Restrict authorized and/or permitted activities within 0.5 miles of active bald eagle wintering roosts.

Mule Deer

MD-1. Self-sustaining mule deer populations would be enhanced or maintained in Game Management Units 12B, 13A, and 13B. Initial or supplemental transplants could be authorized on a case by case basis. Existing habitat areas could be expanded and new habitat areas may be added where appropriate.

^a The Arizona Strip BLM is currently in the process of developing a new resource management plan (RMP). These objectives are part of the draft RMP and were derived from recovery plans, conservation strategies, and other applicable documents. These objectives are subject to change pending completion of the RMP process.

MD-2. Crucial summer mule deer habitat would be managed for at least 10% grasses and forbs and 30% palatable browse species CBW, where consistent with site potential. Crucial winter mule deer habitat would be managed to include at least 30% palatable browse species, where consistent with site potential. Palatable browse species would be maintained and enhanced through vegetation conversion. Palatable browse species could include, but are not limited to cliffrose, bitterbrush, ceanothus, four-wing saltbush, desert holly, Mormon tea, and mountain mahogany.

Allotment Management Plan^b

Improve or maintain key species composition and ground cover at each established key area in accordance with the following objectives over a 20-year period after the grazing system is implemented. The attainment of objectives will be monitored through the 200-point pace-frequency transect. Increase or decrease of species will be determined through percent each species has the potential for 100 percent (each species is related to occurrences in a plot, not total plant occurrences). Change in ground cover will also be monitored on a percent basis.

Key Area #1 - Key Species monitored are squirreltail, galleta and sand dropseed. Increase the frequency of squirreltail from 20 to 25 percent. Increase the frequency of sand dropseed from 5 to 10 percent. Increase the frequency of galleta grass from 6 to 10 percent.

Key Area #2 - Key Species monitored are squirreltail, and western wheatgrass. Maintain the frequency of squirreltail at 30 percent. Increase the frequency of western wheatgrass from 20 to 25 percent. Maintain the frequency of sagebrush at 45 percent.

Key Area #7 – no objectives were ever developed in the AMP for this key area.

Desired Plant Community (DPC) Objectives

DPC objectives were developed during this evaluation process by an interdisciplinary team of resource specialists. These objectives focus on the ecological sites and their potentials, which reflect the vegetative diversity of the area. DPC objectives are expressed in figures of Composition by Weight (CBW). Composition data is collected using the Dry Weight Rank sampling method.

^b Current frequency objectives found in the Allotment Management Plan will be analyzed in this assessment. They will, however, be replaced by Desired Plant Community objectives for future assessments.

Desired Plant Community(DPC) Key Area#1 (Loamy Upland 14-18" pz)

Maintain the perennial grass composition between 20-50% through 2030 by;
Maintaining Hija CBW between 5 to 10%
Maintaining Spcr CBW between 3 to 10%
Maintaining Bogr CBW between 10 to 30%
Maintaining Sihy CBW between 2 to 10%
Maintain the shrub/browse composition between 10-30% through 2030.
Maintain the forb composition between 1-10% through 2030.

Desired Plant Community(DPC) Key Area#2 (Loamy Upland 14-18" pz)

Maintain the perennial grass composition between 20-50% through 2030 by;
Maintaining Hija CBW between 5 to 15%
Maintaining Spcr CBW between 3 to 10%
Maintaining Bogr CBW between 10 to 30%
Maintaining Sihy CBW between 2 to 10%
Maintain the shrub/browse composition between 10-30% through 2030.
Maintain the forb composition between 1-10% through 2030.

Desired Plant Community(DPC) Key Area#7 (Loamy Upland 14-18" pz)

Maintain the perennial grass composition between 20-50% through 2030 by;
Maintaining Hija CBW between 5 to 15%
Maintaining Spcr CBW between 3 to 10%
Maintaining Bogr CBW between 10 to 30%
Maintaining Sihy CBW between 2 to 10%
Maintain the shrub/browse composition between 10-30% through 2030.
Maintain the forb composition between 1-10% through 2030.

D. Key Species

<u>Plant Category</u>	<u>Common Name</u>	<u>Scientific Name</u>
Cool Season Grasses-	Indian ricegrass	Oryzopsis hymenoides
	Bottlebrush squirreltail-Sitanion hystrix	
	Western Wheatgrass	Agropyron smithii
Warm Season Grasses-	Galleta	Hilaria jamesii
	Sand dropseed	Sporobolus cryptandrus
	Blue grama	Bouteloua gracilis
Browse Species-	Fourwing Saltbush	Atriplex canescens
	Winterfat	Ceretoides lanata

E. Grazing System

137 Cattle 6/16 to 11/15, 68% Public Lands – 470 Federal AUMs

Crosby Tank is a deferred rotation grazing system using 2-pastures. The Northeast or Kenworthy pasture will receive 2 ½ months grazing during the grazing year(6/16 to 8/30). The Southwest or Crosby tank pasture will receive 2 ½ months grazing during that grazing year(9/1 to 11/15). The next year the Southwest pasture receives the June 16 to August 30 grazing treatment and the Northeast is grazed from September 1 to November 15. Each of these pastures will receive 9 ½ months rest during each grazing year.

F. Other uses

1. Special Status Species

Animals:

The following federally listed, proposed, candidate, State, or BLM sensitive species may occur within or adjacent to this Allotment.

- Bald eagle (*Haliaeetus leucocephalus*) (De-listed 6/28/2007)
- California condor (*Gymnogyps californianus*) (Endangered – experimental, non-essential population)
- Ferruginous hawk (*Buteo regalis*) (AZ species of concern)
- Northern goshawk (*Accipiter gentilis*) (AZ species of concern)
- Spotted bat (*Euderma maculatum*) (AZ species of concern)
- Western small-footed myotis (*Myotis ciliolabrum*) (BLM sensitive)
- Fringed myotis (*Myotis thysanodes*) (BLM sensitive)
- Big free-tailed bats (*Nyctinomops macrotis*) (BLM sensitive)

Bald eagle. Only found on the Arizona Strip during the winter months. They do not nest in this area. In winter, they may fly over and forage for food in this allotment. They are infrequently seen along the slopes of the Kaibab Plateau and in canyons near the Grand Canyon during the colder months.

California condor. An experimental non-essential population of California condors was established on the Vermilion Cliffs in 1996. Condors may fly over or forage within this allotment at any time of the year. These birds may occasionally forage on carrion within the allotment.

Ferruginous hawk. Typical habitat includes pinyon-juniper and open country. The Strip is at the periphery of the ferruginous hawk breeding range, but they are uncommon visitors in winter months.

Northern goshawk. Goshawks are found in ponderosa pine habitat on the Strip. One pair is known to have nested in the same nest in this allotment in 2003, 2004, and 2005. Another pair is known to have nested less than a mile north of this allotment for the same three years. In 2003 and 2004 both pairs each fledged two young.

A variety of sensitive bat species have been captured on neighboring allotments at livestock watering areas. Species known to occur on this allotment include spotted bats, small-footed myotis, fringed myotis, and big free-tailed bats.

2. Other Wildlife Species

The Crosby Tank allotment is in the Arizona Game and Fish Department's Game Management Unit 13A. Mule deer (*Odocoileus hemionus*) is the primary big game animal found in this allotment.

Introduced populations of Merriam's turkey (*Meleagris gallopavo merriami*) and Kaibab squirrel (*Sciurus aberti kaibabensis*) are also present on the allotment. Other wildlife includes a variety of passerines, reptiles, small mammals, and invertebrates. Predators may include coyotes, foxes, and bobcats, and raptors such as red-tailed hawks and golden eagles.

3. Recreation

This Allotment is considered to have recreation values for geology, scenic view sheds, and remoteness. Potential recreation activity includes: Sightseeing, horseback riding, hiking, camping, hunting, rock collecting, photography, bird watching, and nature study.

Off Highway Vehicles: This allotment contains two designations: "limited to existing roads and trails" and "limited to designated roads and trails".

Recreation Opportunity Spectrum: "Semi-Primitive Motorized" and "Roaded Natural" ROS Classes are found in this allotment.

Visual Resource Management (VRM): Class II and Class III are found on this allotment.

Trails: The historic Temple Trail crosses the east side of this allotment.

4. Wilderness

There are no Wilderness areas on this allotment.

G. Issues brought out in scoping.

1. Issues relating to Rangeland Health

- a. Eroding fan and stream terraces in S $\frac{1}{2}$ of section 27, T35N. R9W. along Langs Run. (Smith)
- c. Erosion along Langs Run in SE $\frac{1}{4}$ of section 10 and NE $\frac{1}{4}$ of section 15. Sagebrush domination along all areas of Langs Run stream terraces. (Smith)
- d. Noxious Weeds: White top and Scotch thistle.

2. Issues not relating to Rangeland Health, and not discussed further in this document.

- a. Allotment boundary fence problems/maintenance responsibility.

Presently too much water is coming down the drainage for the size of the culvert, it then overflows south over the road and causing a large headcut where the boundary fence is located. A large 4' culvert has been installed and the road has been built up and the gully was filled in with dirt. The permittees are constructing a new fence for a short distance to help remedy the problem.

- b. Deteriorating road crossing dam, across Tributary A, in S $\frac{1}{4}$ of section 27, T35N. R9W. (Smith)

A dam was made by pushing and crushing trees into the gully at the road crossing. Five feet of silt has built up above the dam where the road crosses. Cutting around the dam will soon cut across the road upstream, destabilizing the treated watershed. Thus maintenance on the dam is needed to protect the road and watershed, this can be done with a catapillar and a culvert, which was also addressed in the langs run watershed plan as a necessary project.

IV. Management Evaluation

A. Purpose of Evaluation

The purpose of this assessment is to determine if the existing soil, water, and vegetative resources are meeting/making progress toward meeting or are not meeting the Arizona Standards for Rangeland Health. These resources are managed according to resource management plans, Allotment Management Plans, and other activity plans, which identify terms and conditions for management on public lands within the Crosby Tank Allotment. If the current livestock grazing practices are determined to be causing non-attainment of Standards then they will be modified to comply with the Guidelines for Grazing Administration. This assessment will also evaluate and update existing Activity Plan objectives to ensure multiple use objectives are tied to the indicators for rangeland health.

B. Summary of Studies Data

1. Livestock Actual Use

Actual Use Livestock is expressed as a percent of 470 AUMs authorized on the grazing permit each year.

<u>Grazing Year</u>	<u>AUMs Used</u>	<u>%-age AUMs Used</u>	<u>Non-use</u>
04-05	467	99%	3
03-04	467	99%	3
02-03	257	55%	213
01-02	467	99%	3
00-01	467	99%	3
99-00	467	99%	3
98-99	467	99%	3
97-98	467	99%	3
96-97	467	99%	3
95-96	234	50%	236
94-95	257	55%	213
93-94	234	50%	236
92-93	88	19%	382

2. Precipitation

The Crosby Tank Allotment falls in the 14.26" precipitation zones and is most represented by the Carroll Catch rain gauge. Approximately 13% (1.89") comes in the fall, 29% (4.07") comes in the winter, 21% (3.06") comes in the spring and 37% (5.23") comes in the summer.

The fall precipitation has been below normal from 1996 thru 1998, 2000 and below again in 2002-04. The good or above average years were in 1994-95, 1997, 1999, 2001 and 2005-2006.

Winter precipitation has been above normal 1995-98 and 2005, then below normal 1999 thru 2004.

Spring precipitation has been above normal from 1995, 1998-99, and 2003. The below normal years are 1996-97, 2000-02 and 2004-05.

Summer precipitation was below normal from 1994-96, 1998, 2001-02 and 2004-05. The above normal years are 1997, 1999 and 2003.

The overall Annual precipitation trend is above normal 1995, 1997-99 and 2005. In 1994, 2001 thru 2004 the annual precipitation stayed below normal.

For specific precipitation data see the appendices.

3. Utilization

Utilization is the proportion or degree of current years forage production that is consumed or removed by animals. The Key Species Grazed Class Method was used to collect the data. Utilization was read at the key areas.

Utilization levels during the analysis period have mostly been below the 50% allowable level. During the evaluation period, average utilization across all pastures for Cool Season grasses was 43%, ranging between 23% and 54%. For the Warm Season grasses the average was 43%, ranging from 26% to 53%.

4. Trend

The vegetation monitoring data is collected at different points in time on the same site (key area), reading and recording these studies every few years and then comparing these back to the original baseline data to detect any change.

Trend monitoring was conducted at three key areas over the allotment. Trend data was collected using the Pace-frequency of bare ground, litter, rock, composition and basal live vegetation. In addition it measures the occurrence frequency of forage and non-forage species. A trend up, down or static refers to the direction of change to the forage plant frequency at the key area, which is toward or away from the stated objective.

Pace Frequencies 'Trend' summaries for each pasture as shown:

Key Area#1, West Crosby Tank –Loamy Upland 14-18" pz

Frequency of key species increased from 98 to 120.

Basal Live Vegetative Cover is 8%

Based on attributes of frequency and ground cover data, trend is upward.

Key Area#2, East Crosby Tank–Loamy Upland 14-18" pz

Frequency of key species increased from 88 to 115.

Basal Live Vegetative Cover is 6%

Based on attributes of frequency and ground cover data, trend is upward.

Key Area#7, Kenworthy – Loamy Upland 14-18" pz

Frequency of key species decreased from 139 to 104.

Basal Live Vegetative Cover is 11%

Based on attributes of frequency and ground cover data, trend is downward.

5. Ecological Site Inventory

Ecological Status defined in terms of different Seral stages are the developmental stages of ecological succession. The following four ecological status classes correspond to percent similarity to the potential natural community and correlate

with Seral stages ratings in the Land Use Plan. Also, the present state of all plant and soils of an ecological site relate to the potential natural community.

Early Seral Stage(0-25%)
Mid Seral Stage(26-50%)
Late Seral stage(51-75%)
Potential Natural Community-PNC (76-100%)

Key Area#1 (West Crosby Tank) –Loamy Upland 14-18” pz
Ecological Status – Late Seral (63% of PNC)
The trend of Ecological Status of this site is upward.

Key Area#2 (East Crosby Tank) – Loamy Upland 14-18” pz
Ecological Status – Late Seral (57% of PNC)
The trend of Ecological Status of this site is upward.

Key Area#7 (Kenworthy) – Loamy Upland 14-18” pz
Ecological Status – Late Seral (64% of PNC)
The trend of Ecological Status of this site is upward.

6. Special Status Species

Bald eagle: Bald eagles have not been known to nest anywhere on the Arizona Strip. Their typical habitat components include bodies of water with fish, which are not available in this allotment. There have not been studies or data collected on bald eagles on the Arizona Strip. To date, there are no official records of this species roosting, foraging, or flying over this allotment.

California condor: The re-introduction of condors to northern Arizona began with the release of six captive-reared birds on the Vermilion Cliffs in 1996. As of April of 2007, there were 63 condors in the wild in northern Arizona. The re-introduced population as a whole appears to be stable and is increasing. Six chicks have been successfully hatched in the wild.

California condors currently range across the entire Arizona Strip, throughout the Grand Canyon, into adjacent Utah and Nevada, and south of the Grand Canyon in Arizona. Condors range widely, easily covering over 100 miles in a day. Condors are most commonly observed near the release site on the Vermilion Cliffs, at Navajo Bridge near Marble Canyon, on the Kaibab Plateau, and near the South Rim of the Grand Canyon. Condors occasionally fly over and may feed on carrion in this allotment.

Ferruginous hawk: Typical habitat requirements of open country with pinyon-juniper or woodland periphery are present on the Strip but the area is at the edge of their breeding range. There are probably only 5-10 known laying pairs in Arizona. There have not been studies or data collected on ferruginous hawks on the Arizona

Strip. To date, this species has not been observed nesting, roosting, foraging, or flying over this allotment.

Northern goshawk: Goshawks are residents of ponderosa pine habitat on the Strip. Two pairs are known to nest in neighboring allotments a few miles to the east and may occasionally forage in the Crosby Tank allotment.

7. Wildlife Habitat

Habitat for mule deer on this allotment is considered yearlong in the northern portion and summer in the southern portion, with some summer crucial along the southern edge of the allotment. Deer population data is not collected specifically for this allotment, but is collected for the Game Management Unit as a whole. Game Management Unit 13A covers Arizona Strip BLM managed lands between the Hurricane Cliffs and Kanab Creek.

Mule deer generally occupy sagebrush, pinyon/juniper, interior chaparral and pine/oak woodlands in this unit. Deer densities are generally low throughout the unit even in high quality habitat areas. Although deer densities are low, the unit provides a trophy quality hunt opportunity to those who draw a permit. The 13A population trend/status as of early 2005 is stable to increasing.

Pronghorn antelope may occasionally also use the northern portion of the allotment. However, this allotment is not classified as pronghorn habitat.

Surveys for Mexican spotted owls (*Strix occidentalis lucida*) were conducted in the area between Mt. Trumbull and Mt. Logan in 2003, 2000, 1999, 1998, 1992, 1991, and 1978. No spotted owls were found during the surveys, and it is now believed that the area is not suitable habitat for spotted owls. Owl species that were found during the course of the surveys were long-eared, great horned, flammulated, saw-whet, and western screech.

8. Riparian/Fisheries Habitat

There is no riparian/fisheries habitat on this allotment

9. Wild Horse and Burro Habitat

There are no wild horses or burros on this allotment

10. Lithology and Soils

Lithology:

The Crosby Tank Allotment consists mainly of scoriaceous basalt, pyroclastics, basalt flows, limestone, and associated alluvial fans and floodplains. Landscape slopes range from one to fifty percent.

Soils:

ECOSITE AND SOIL MAP UNIT INDEX (625)

- 27 Lozinta extremely gravelly loam, 1 to 15 percent slopes, (fan terraces), scoriaceous basalt and pyroclastics; Cinder Upland (PJ-Woodland), 14" to 18" ppt
- 28 Lozinta extremely gravelly loam, 15 to 45 percent slopes, (cinder cones), scoriaceous basalt and pyroclastics; Cinder Hills (PJ-Woodland), 14" to 18" ppt
- 57 Showlow-Section complex, 1 to 15 percent slopes, (hills, fan terraces), basalt, pyroclastics, limestone; Showlow= Clay Loam Upland (P-J Woodland), 14" to 18" ppt; Section= Loamy Upland (P-J Woodland), 14" to 18" ppt
- 59 Showlow very cobbly clay loam, 1 to 15 percent slopes, (hills, fan terraces), basalt, pyroclastics; Clay Loam Upland (PJ-Woodland), 14" to 18" ppt
- 60 Showlow very cobbly silty clay loam, 15 to 35 percent slopes, (hills, fan terraces), basalt, pyroclastics; Clay Loam Upland (PJ-Woodland), 14" to 18" ppt
- 61 Sponiker gravelly loam, 1 to 15 percent slopes, (hills, fan terraces), basalt, pyroclastics; Loamy Upland (PIPO-Woodland), 18" to 30" ppt
- 66 Whiskey silt loam, 1 to 4 percent slopes, (stream terraces) mixed alluvium; Loamy Upland, 14" to 18" ppt
- 72 Yumtheska very gravelly loam, 4 to 20 percent slopes, (hills), limestone; Shallow Loamy (PJ-Woodland), 14" to 18" ppt
- 73 Yumtheska very gravelly loam, 30 to 50 percent slopes, (hills), limestone; Limestone Hills (PJ-Woodland), 14" to 18" ppt

Soil Condition Assessment:

The stream terrace soil along Langs is dominated by sagebrush and is subject to lateral erosion from the main gully. Much of the silt loam A horizon has long since been removed. Physical surface crusts have reduced the infiltration rates and increased runoff. Soil samples were taken from the structurally altered (platy to massive), compacted, near surface layers in this area and tested for texture and bulk density (Db). Percent change from normal near surface bulk density for those textures and the differences in porosity were noted.

Soil Sample	Location	Texture	pH CaCO ₃	EC	Normal Bulk Density (Db) g/cc	Root restricting Db g/cc*	Sample Db g/cc	% Increase in Db	% Decrease in Porosity
Crosby-Db-1 (4-8") Whiskey, mu 66	T35NR09W sec 27 NESW big sagebrush,	sil	7.7 e	0.55	1.15	1.5	1.47	27.8	21.4
Crosby-Db-2 (4-8") Whiskey, mu 66	T35NR09W sec 10 SWSE big sagebrush,	sicl	7.9 e-es	0.59	1.15	1.5	1.56	35.7	27.4

*NRCS soil quality information sheet "Rangeland Soil Quality – Compaction", May 2001. Most root systems are greatly affected at these Db levels, especially young grasses. The initiation of root restriction for many plants will usually start well below these Db levels.

Compaction is usually greatest at the 4 to 8 inch depth where surface weathering and powdering are not effective in reversing the problem. The bulk density data shows that these soils, have an increase of 27.8 to 35.7 percent in density.

A rule of thumb is that a Db increase of 15 percent results in a decreased infiltration/permeability rate of about 50 percent. Since the larger pores are the first to be reduced by compressive forces, the effect is to reduce the infiltration rate and to increase runoff. This soil receives runoff and fine sediments from the surrounding uplands and has a high potential to gully when disturbed. The infiltration rate and near surface permeability has been reduced, resulting in greatly increased runoff. Thus, the site is droughtier now than prior to gully formation, given the same amount of precipitation.

Reduced porosity also means a loss in root space, productive potential, available water holding capacity, and aeration. The porosity loss in these soil layers ranges from 21.4 to 27.4 percent. Sprouts would find it hard to penetrate compacted layers or to break through a clayey surface crust. Achieving the potential plant community of the ecological site guide, under these degraded soil conditions, may not be possible.

Nearing or exceeding the root restricting Db helps to explain why there are barren interspaces between old bushes and the lack of young grass seedlings.

C. Information and/or Data Pertaining to Issues (from III.G.1.)

1. Issues relating to Rangeland Health

a. Eroding fan and stream terraces in S ½ of section 27, T35N. R9W. along Langs Run. (Smith)

The Whisky soil is dominated by big sagebrush. Lateral cuts off the main gully are prevalent and where the area is invaded by trees, then sheet and rill erosion are stripping away the soil.

b. Erosion along Langs Run in SE ¼ of section 10 and NE ¼ of section 15. The Sagebrush is dominate along all areas of the Langs Run stream terraces. (Smith)

Big sagebrush along Langs Run is not providing good watershed cover. This heavy sagebrush cover needs to be thinned in order to increase the grass cover.

c. Noxious Weeds: White top and Scotch thistle.

Scotch Thistle is lightly scattered throughout this allotment and White Top is an aggressively spreading plant that occurs on private land. Policy allows us to use whatever tools we have to control or stop the spread of these noxious invading species. BLM noxious weed coordinator will either use herbicides treatment, hand grubbing or biological control measures.

V. Conclusions

A. Pertaining to Objectives

1. Land Use Plan Objectives

***GZ20** -Established Utilization levels not to exceed 50 percent average of current years growth on key species.*

This objective has been met. Utilization has not exceeded 50 percent average of the current year's growth. Heaviest utilization that has occurred is 53 percent on any of the key species. The averages are 43% on the cool season grasses, 43% on the warm season grasses, and 41% on the browse species.

WS01- *Manage vegetation cover towards ecological stability and sound long-term protective soil cover using mechanical, chemical, biological or fire methods as tools for accomplishments.*

This work is in progress. Implementing the Death Valley Watershed treatment project is critical in improving and correcting the head cutting and erosion issues found on Upper Lang's Run Watershed.

WS21- *Manage watershed areas according to watershed categorizations to achieve identified objectives.*

The allotment was classified in the 1992 RMP as category IV. This means that some of the watershed units currently are in unsatisfactory erosion condition and the soils would be responsive to treatment. The allotment should remain a category IV until treatments have reduced the erosion to an acceptable level.

RR01 *Consider all applications for special recreation permits within the resource area, subject to the constraints of this plan and the environmental assessment for the proposed use.*

This objective is being met as new requests for Special Recreation Use Permits are received, they are evaluated and reviewed for consistency with this objective and processed accordingly.

RR11 *Restore and/or maintain the generally natural, "remote" settings that exist throughout the resource area through mitigation of new projects and implementing restoration projects as necessary.*

This objective is being met: This objective is a routine process that occurs on surface disturbing projects and especially after large wildfires or prescribed fire.

RR17 *Institute visitor limits, regulation, or restriction in the resource area only when monitoring of resource and social conditions indicates a trend toward unacceptable change to desired recreation settings, brought about by such use.*

This objective is being met: Monitoring of the area's resources and social conditions haven't produced results which would indicate a need for special regulations or restriction of visitor's activities.

TE01 –*Carry out management consistent with multiple use for conservation of candidate species and their habitats and ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered. Adverse impacts to listed species will be avoided.*

This objective is being met. No actions which might contribute to the need to list candidate species are known. No adverse impacts to listed animal species are known.

WL02 *Maintain productive wildlife habitat and ensure wildlife needs and considerations are incorporated into land use planning, National Environmental Policy Act documents, and management decisions.*

This objective is being met. All proposed actions with potential to impact wildlife species are reviewed through the NEPA process. Biological evaluations would be prepared to document the effects of any proposed action on listed or proposed species.

WL06 *in cooperation with Arizona Game and Fish Department, continue restoration of native wildlife into their historic ranges by supporting and assisting in the releases of native species.*

This objective is being met. No restorations of native wildlife have occurred in this allotment, but the re-introduction of the California condor, desert bighorn sheep, and pronghorn elsewhere on the Arizona Strip have led to increased wildlife diversity in this allotment. Condors and bighorn sheep occur at times in this allotment.

WL16 *Complete ecological site inventories in key areas to determine site potentials and present ecological conditions; establish desired plant community objectives for various areas and include these objectives in Allotment Management Plans, Habitat Management Plans, watershed plans, and other plans in order to prescribe management or improvement practices to achieve these objectives.*

This objective has been met. The ecological site inventories have been completed at key areas. As described above desired plant community objectives are being cooperatively set as part of this S&G process and will be incorporated into the various activity plans as are revised upon completion of the new land use plan (RMP) which currently being developed.

2. Specific Resource Objectives

Bald Eagle

BE-1 The wintering population of bald eagles would be recovered and delisted.

This objective has been met, although it is more a nationwide objective than an Arizona Strip objective. Bald eagles were delisted on June 28, 2007.

BE-2 Restrict authorized and/or permitted activities within 0.5 miles of active bald eagle wintering roosts.

This objective is being met. Site visits and clearances for any proposed activities are conducted by BLM biologists. Active bald eagles roosts are reported and appropriate actions taken to restrict activities within the 0.5 mile radius. At present, no known wintering roosts for bald eagles are known from this allotment.

California Condor Recovery Plan

CC-1 Provide foraging habitat for California condors.

Foraging habitat is available for condors. Due to recent concerns raised about the condors eating contaminated food, leaving dead livestock on the range for the condors is not being encouraged. Condors are especially vulnerable to lead poisoning and carcasses possibly containing lead should be removed from the range. There is no evidence that the habitat is limiting or restricting condor population growth.

CC-2 Maintain a healthy, self-sustaining population of California condors with a positive growth rate of at least 150 individuals with at least 15 breeding pairs.

While this objective has not yet been met, the condor population appears to be stable and is increasing. Recent reports of at least two successful nests indicate that the birds are beginning to make progress towards self-sustaining populations. The condors at the Vermilion Cliffs are still very young birds, with many having just recently reached sexual maturity. It may still be many years before the population objective reaches 150 individuals and at least 15 breeding pairs. There is no evidence that rangeland health on this allotment would inhibit the condor population from reaching this objective.

MD-1. Self-sustaining mule deer populations would be enhanced or maintained in Game Management Units 12B, 13A, and 13B. Initial or supplemental transplants could be authorized on a case by case basis. Existing habitat areas could be expanded and new habitat areas may be added where appropriate.

This objective is being met. Deer populations in this area are stable.

MD-2. Crucial summer mule deer habitat would be managed for at least 10% grasses and forbs and 30% palatable browse species CBW, where consistent with site potential. Crucial winter mule deer habitat would be managed to include at least 30% palatable browse species, where consistent with site potential. Palatable browse species would be maintained and enhanced through vegetation conversion. Palatable browse species could include, but is not limited to cliffrose, bitterbrush, ceanothus, four-wing saltbush, desert holly, Mormon tea, and mountain mahogany.

This objective is being met. Please refer to vegetation data and DPC objectives.

B. Pertaining to Issues

1. Issues relating to Rangeland Health

a. Eroding fan and stream terraces in S ½ of section 27, T35N. R9W. along Langs Run. (Smith)

The Upper Langs Run Watershed plan is currently addressing methods that will be used to reduce the sagebrush and trees and replace it with grasses to help remedy the problem.

b. Erosion along Langs Run in SE ¼ of section 10 and NE ¼ of section 15. The sagebrush is dominate along all areas of Langs Run stream terraces. (Smith)

This too was identified as a Langs Run Watershed project using tebuthiuron to achieve this objective.

d. Noxious Weeds: White top and Scotch thistle

Scotch Thistle is lightly scattered throughout this allotment and White Top is an aggressively spreading plant that occurs on private land. Policy allows us to use whatever tools we have to control or stop the spread of these noxious invading species. BLM noxious weed coordinator will either use herbicides treatment, hand grubbing or biological control measures.

The following is added for conclusions relative to implementation of the Standards for Rangeland Health and Guidelines for Grazing Administration

Based on the analyses and supporting documentation referenced herein, resource conditions on the allotment:

- ☐ Meet all applicable standards for rangeland health
- ☒ Are making significant progress toward meeting the applicable standards for rangeland health
- Do not meet the standards for rangeland health for:
 - ☐ No. 1: Upland sites
 - ☐ No. 2: Riparian-Wetland sites
 - ☐ No. 3: Desired Resource Conditions
- ☐ Have not been sufficiently documented to make a specific determination, but there is no reason to believe that current management would preclude meeting the standards for rangeland health.

VI. Recommendations

- A. Renew the 10 year grazing permit, with current terms and conditions.
- B. Implement future range improvements as needed.
- C. Continue collecting study data by documenting the vegetative trends and utilization.
- D. Continue with Langs Run Watershed Plan and its current treatments and restoration projects.

AUTHORIZED OFFICER CONCURRENCE:

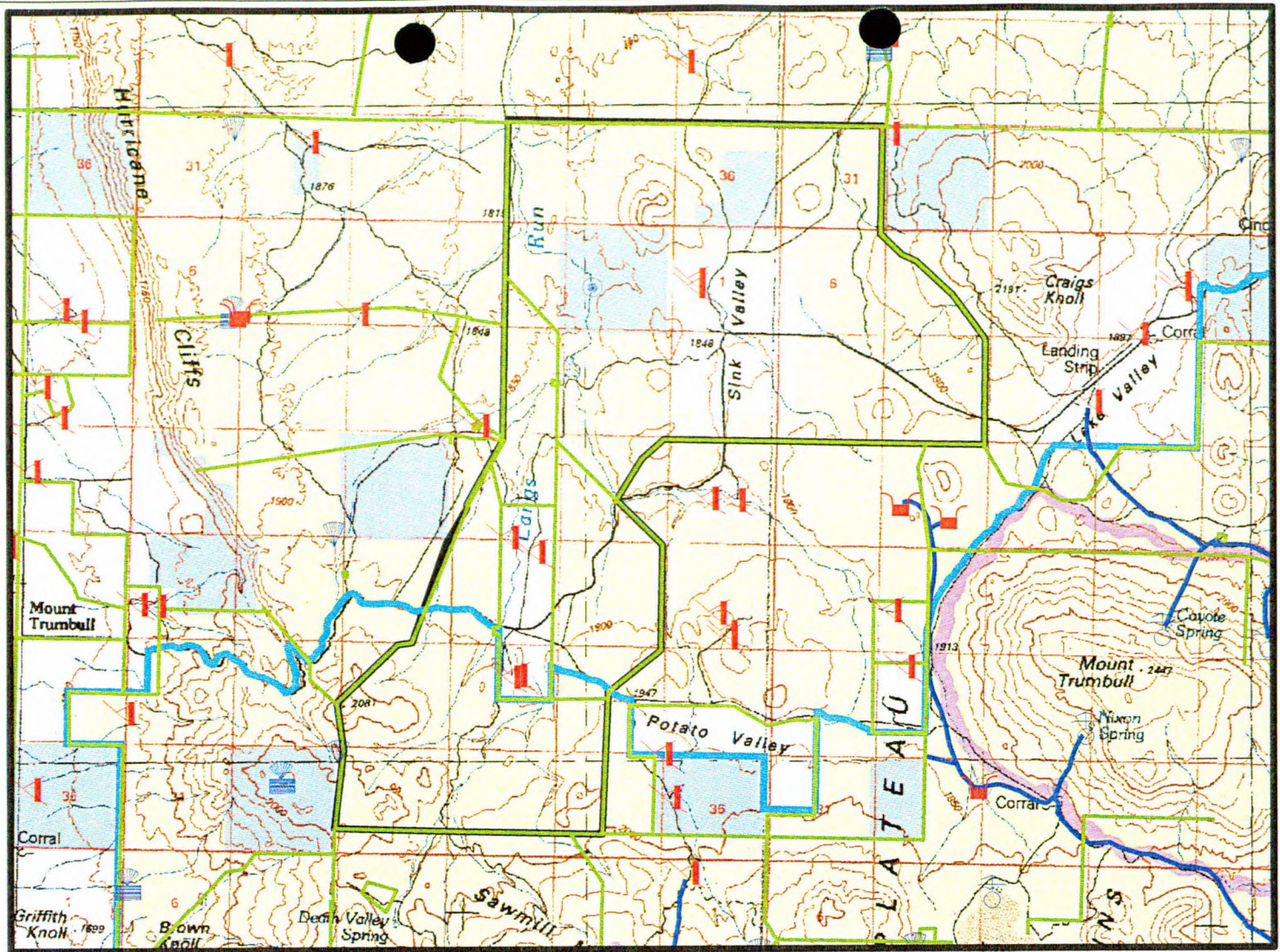
X I concur with the conclusions and recommendations as written.

 I do not concur.

 I concur, with the following modifications:

Ducky J. Hammond
Field Manager
Arizona Strip Field Office

9/19/2007
Date

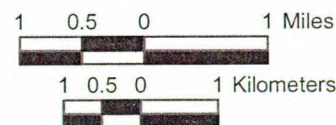


Crosby Tank Allotment

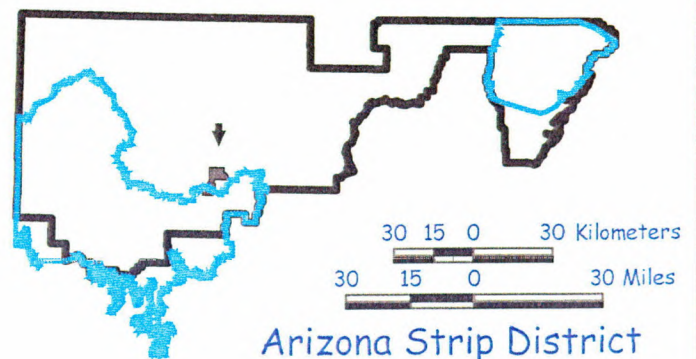
Bureau of Land Management
Arizona Strip District



1:100,000



- Noxious Weeds
- Livestock Catchment
- Key Area
- Fence
- Pipeline
- Monument Boundary
- Allotment Boundary
- Wilderness Boundary
- Ownership**
 - BLM
 - Forest Service
 - Indian Reservation
 - National Park
 - Private
 - Recreation Area
 - State
- Fenced Reservoir
- Trough
- Undeveloped Spring
- Unfenced Reservoir
- Water Storage Tank
- Well
- Wildlife Catchment
- U Wildlife Drinker
- Windmill
- Cattleguard
- Corral
- Developed Spring



Arizona Strip District

This product may not meet BLM standards for accuracy and content. Different data sources and input scales may cause some misalignment of data layers.

Produced by
Linda Price
November 3, 2005

Appendix A

ARIZONA STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR GRAZING ADMINISTRATION

ARIZONA STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR GRAZING ADMINISTRATION

INTRODUCTION

The Department of the Interior's final rule for Grazing Administration, issued on February 22, 1995, and effective August 21, 1995, requires that Bureau of Land Management (BLM) State Directors develop State or regional standards and guidelines for grazing administration in consultation with BLM Resource Advisory Councils (RAC), other agencies and the public. The final rule provides that fallback standards and guidelines be implemented, if State standards and guidelines are not developed by February 12, 1997. Arizona Standards and Guidelines and the final rule apply to grazing administration on public lands as indicated by the following quotation from the Federal Register, Volume 60, Number 35, page 9955.

"The fundamentals of rangeland health, guiding principles for standards and the fallback standards address ecological components that are affected by all uses of public rangelands, not just livestock grazing. However, the scope of this final rule, and therefore the fundamentals of rangeland health of §4180.1, and the standards and guidelines to be made effective under §4180.2, are limited to grazing administration."

Although the process of developing standards and guidelines applies to grazing administration, present rangeland health is the result of the interaction of many factors in addition to grazing by livestock. Other contributing factors may include, but are not limited to, past land uses, land use restrictions, recreation, wildlife, rights-of-way, wild horses and burros, mining, fire, weather, and insects and disease.

With the commitment of BLM to ecosystem and interdisciplinary resource management, the standards for rangeland health as developed in this current process will be incorporated into management goals and objectives. The standards and guidelines for rangeland health for grazing administration, however, are not the only considerations in resolving resource issues.

The following quotations from the Federal Register, Vol. 60, No. 35, page 9956, February 22, 1995, describe the purpose of standards and guidelines and their implementation:

"The guiding principles for standards and guidelines require that State or regional standards and guidelines address the basic components of healthy rangelands. The Department believes that by implementing grazing-related actions that are consistent with the fundamentals of §4180.1 and the guiding principles of §4180.2, the long-term health of public rangelands can be ensured.

"Standards and guidelines will be implemented through terms and conditions of grazing permits, leases, and other authorizations, grazing-related portions of activity plans (including Allotment Management Plans), and through range improvement-related activities.

"The Department anticipates that in most cases the standards and guidelines themselves will not be terms and conditions of various authorizations but that the terms and conditions will reflect the standards and guidelines.

"The Department intends that assessments and corrective actions will be undertaken in priority order as determined by BLM.

"The Department will use a variety of data including monitoring records, assessments, and knowledge of the locale to assist in making the "significant progress" determination. It is anticipated that in many cases it will take numerous grazing seasons to determine direction and magnitude of trend. However, actions will be taken to establish significant progress toward conformance as soon as sufficient data are available to make informed changes in grazing practices."

FUNDAMENTALS AND DEFINITION OF RANGELAND HEALTH

The Grazing Administration Regulations, at §4180.1 (43 Code of Federal Regulation [CFR] 4180.1), Federal Register Vol. 60, No. 35, pg. 9970, direct that the authorized officer ensures that the following conditions of rangeland health exist:

(a) Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.

(b) Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

(c) Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM management objectives such as meeting wildlife needs.

(d) Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal candidate and other special status species.

These fundamentals focus on sustaining productivity of a rangeland rather than its uses. Emphasizing the physical and biological functioning of ecosystems to determine rangeland health is consistent with the definition of rangeland health as proposed by the Committee on Rangeland Classification, Board of Agriculture, National Research Council (Rangeland Health, 1994, pg. 4 and 5). This Committee defined Rangeland Health ". . . as the degree to which the integrity of the soil and the ecological processes of rangeland ecosystems are sustained." This committee emphasized ". . . the degree of integrity of the soil and ecological processes that are most important in sustaining the capacity of rangelands to satisfy values and produce commodities." The Committee also recommended that "The determination of whether a rangeland is healthy, at risk, or unhealthy should be based on the evaluation of three criteria: degree of soil stability and watershed function, integrity of nutrient cycles and energy flow, and presence of functioning mechanisms" (Rangeland Health, 1994, pg. 97-98).

Standards describe conditions necessary to encourage proper functioning of ecological processes on specific ecological sites. An ecological site is the logical and practical ecosystem unit upon which to base an interpretation of rangeland health. Ecological site is defined as:

". . . a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management" (Journal of

Range Management, 48:279, 1995). Ecological sites result from the interaction of climate, soils, and landform (slope, topographic position). The importance of this concept is that the "health" of different kinds of rangeland must be judged by standards specific to the potential of the ecological site. Acceptable erosion rates, water quality, productivity of plants and animals, and other features are different on each ecological site.

Since there is wide variation of ecological sites in Arizona, standards and guidelines covering these sites must be general. To make standards and guidelines too specific would reduce the ability of BLM and interested publics to select specific objectives, monitoring strategies, and grazing permit terms and conditions appropriate to specific land forms.

Ecological sites have the potential to support several different plant communities. Existing communities are the result of the combination of historical and recent uses and natural events. Management actions may be used to modify plant communities on a site. The desired plant community for a site is defined as follows: "Of the several plant communities that may occupy a site, the one that has been identified through a management plan to best meet the plan's objectives for the site. It must protect the site as a minimum." (Journal of Range Management, 48:279, 1995.)

Fundamentals (a) and (b) define physical and biological components of rangeland health and are consistent with the definition of rangeland health as defined by the Committee on Rangeland Classification, Board on Agriculture, National Research Council, as discussed in the paragraph above. These fundamentals provide the basis for sustainable rangelands.

Fundamentals (c) and (d) emphasize compliance with existing laws and regulation and, therefore, define social and political components of rangeland health. Compliance with Fundamentals (c) and (d) is accomplished by managing to attain a specific plant community and associated wildlife species present on ecological sites. These desired plant communities are determined in the BLM planning process, or, where the desired plant community is not identified, a community may be selected that will meet the conditions of Fundamentals (a) and (b) and also adhere to laws and regulations. Arizona Standard 3 is written to comply with Fundamentals (c) and (d) and provide a logical combination of Standards and Guidelines for planning and management purposes.

STANDARD AND GUIDELINE DEFINITIONS

Standards are goals for the desired condition of the biological and physical components and characteristics of rangelands. Standards:

- (1) are measurable and attainable; and
- (2) comply with various Federal and State statutes, policies, and directives applicable to BLM Rangelands.

Guidelines are management approaches, methods, and practices that are intended to achieve a standard. Guidelines:

- (1) typically identify and prescribe methods of influencing or controlling specific public land uses;
- (2) are developed and applied consistent with the desired condition and within site capability; and
- (3) may be adjusted over time.

IMPLEMENTING STANDARDS AND GUIDELINES

The authorized officer will review existing permitted livestock use, allotment management plans, or other activity plans which identify terms and conditions for management on public land. Existing management practices, and levels of use on grazing allotments will be reviewed and evaluated on a priority basis to determine if they meet, or are making significant progress toward meeting, the standards and are in conformance with the guidelines. The review will be interdisciplinary and conducted under existing rules which provide for cooperation, coordination, and consultation with affected individuals, federal, state, and local agencies, tribal governments, private landowners, and interested publics.

This review will use a variety of data, including monitoring records, assessments, and knowledge of the locale to assist in making the significant progress determination. Significance will be determined on a case by case basis, considering site potential, site condition, weather and financial commitment. It is anticipated there will be cases where numerous years will be needed to determine direction and magnitude of trend.

Upon completion of review, the authorized officer shall take appropriate action as soon as practicable but no later than the start of the next grazing year upon determining that the existing grazing management practices or level of use on public land are significant factors contributing to failure to achieve the standards and conform with the guidelines that are made effective under 43 CFR 4180.2. Appropriate action means implementing actions that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with guidelines.

Livestock grazing will continue where significant progress toward meeting standards is being made. Additional activities and practices would not be needed on such allotments. Where new activities or practices are required to assure significant progress toward meeting standards, livestock grazing use can continue contingent upon determinations from monitoring data that the implemented actions are effective in making significant progress toward meeting the standards. In some cases, additional action may be needed as determined by monitoring data over time.

New plans will incorporate an interdisciplinary team approach (Arizona BLM Interdisciplinary Resource Management Handbook, April 1995). The terms and conditions for permitted grazing in these areas will be developed to comply with the goals and objectives of these plans which will be consistent with the standards and guidelines.

ARIZONA STANDARDS AND GUIDELINES

Arizona Standards and Guidelines (S&G) for grazing administration have been developed through a collaborative process involving the Bureau of Land Management State S&G Team and the Arizona Resource Advisory Council. Together, through meetings, conference calls, correspondence, and Open Houses with the public, the BLM State Team and RAC prepared Standards and Guidelines to address the minimum requirements outlined in the grazing regulations. The Standards and Guidelines, criteria for meeting Standards, and indicators are an integrated document that conforms to the fundamentals of rangeland health and the requirements of the regulations when taken as a whole.

Upland sites, riparian-wetland areas, and desired resource conditions are each addressed by a standard and associated guidelines.

Standard 1: Upland Sites

Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform (ecological site).

Criteria for meeting Standard 1:

Soil conditions support proper functioning of hydrologic, energy, and nutrient cycles. Many factors interact to maintain stable soils and healthy soil conditions, including appropriate amounts of vegetative cover, litter, and soil porosity and organic matter. Under proper functioning conditions, rates of soil loss and infiltration are consistent with the potential of the site.

Ground cover in the form of plants, litter or rock is present in pattern, kind, and amount sufficient to prevent accelerated erosion for the ecological site; or ground cover is increasing as determined by monitoring over an established period of time.

Signs of accelerated erosion are minimal or diminishing for the ecological site as determined by monitoring over an established period of time.

As indicated by such factors as:

Ground Cover

- litter

- live vegetation, amount and type (e.g., grass, shrubs, trees, etc.)

- rock

Signs of erosion

- flow pattern

- gullies

- rills

- plant pedestaling

Exceptions and exemptions (where applicable):

None

Guidelines:

1-1. Management activities will maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units. The ground cover should maintain soil organisms and plants and animals to support the hydrologic and nutrient cycles, and energy flow. Ground cover and signs of erosion are surrogate measures for hydrologic and nutrient cycles and energy flow.

1-2. When grazing practices alone are not likely to restore areas of low infiltration or permeability, land management treatments may be designed and implemented to attain improvement.

Standard 2: Riparian-Wetland Sites

Riparian-wetland areas are in properly functioning condition.

Criteria for meeting Standard 2:

Stream channel morphology and functions are appropriate for proper functioning condition for existing climate, landform, and channel reach characteristics. Riparian-wetland areas are functioning properly when adequate vegetation, land form, or large woody debris is present to dissipate stream energy associated with high water flows.

Riparian-wetland functioning condition assessments are based on examination of hydrologic, vegetative, soil and erosion-deposition factors. BLM has developed a standard checklist to address these factors and make functional assessments. Riparian-wetland areas are functioning properly as indicated by the results of the application of the appropriate checklist.

The checklist for riparian areas is in Technical Reference 1737-9 "Process for Assessing Proper Functioning Condition." The checklist for wetlands is in Technical Reference 1737-11 "Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas."

As indicated by such factors as:

- Gradient
- Width/depth ratio
- Channel roughness and sinuosity of stream channel
- Bank stabilization
- Reduced erosion
- Captured sediment
- Ground-water recharge
- Dissipation of energy by vegetation

Exceptions and exemptions (where applicable):

Dirt tanks, wells, and other water facilities constructed or placed at a location for the purpose of providing water for livestock and/or wildlife and which have not been determined through local planning efforts to provide for riparian or wetland habitat are exempt.

Water impoundments permitted for construction, mining, or other similar activities are exempt.

Guidelines:

- 2-1. Management practices maintain or promote sufficient vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability, thus promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform.
- 2-2. New facilities are located away from riparian-wetland areas if they conflict with achieving or maintaining riparian-wetland function. Existing facilities are used in a way that does not conflict with riparian-wetland functions or are relocated or modified when incompatible with riparian-wetland functions.
- 2-3. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect ecological functions and processes.

Standard 3: Desired Resource Conditions

Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained.

Criteria for meeting Standard 3:

Upland and riparian-wetland plant communities meet desired plant community objectives. Plant community objectives are determined with consideration for all multiple uses. Objectives also address native species, and the requirements of the Taylor Grazing Act, Federal Land Policy and Management Act, Endangered Species Act, Clean Water Act, and appropriate laws, regulations, and policies.

Desired plant community objectives will be developed to assure that soil conditions and ecosystem function described in Standards 1 and 2 are met. They detail a site-specific plant community, which when obtained, will assure rangeland health, State water quality standards, and habitat for endangered, threatened, and sensitive species. Thus, desired plant community objectives will be used as an indicator of ecosystem function and rangeland health.

As indicated by such factors as:

Composition
Structure
Distribution

Exceptions and exemptions (where applicable):

Ecological sites or stream reaches on which a change in existing vegetation is physically, biologically, or economically impractical.

Guidelines:

- 3-1. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, non-native plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) cannot achieve ecological objectives as well as non-native species, and/or (d) cannot compete with already established non-native species.

3-2. Conservation of Federal threatened or endangered, proposed, candidate, and other special status species is promoted by the maintenance or restoration of their habitats.

3-3. Management practices maintain, restore, or enhance water quality in conformance with State or Federal standards.

3-4. Intensity, season and frequency of use, and distribution of grazing use should provide for growth and reproduction of those plant species needed to reach desired plant community objectives.

3-5. Grazing on designated ephemeral (annual and perennial) rangeland may be authorized if the following conditions are met:

ephemeral vegetation is present in draws, washes, and under shrubs and has grown to useable levels at the time grazing begins;

sufficient surface and subsurface soil moisture exists for continued plant growth;

serviceable waters are capable of providing for proper grazing distribution;

sufficient annual vegetation will remain on site to satisfy other resource concerns, (i.e., watershed, wildlife, wild horses and burros); and

monitoring is conducted during grazing to determine if objectives are being met.

3-6. Management practices will target those populations of noxious weeds which can be controlled or eliminated by approved methods.

3-7. Management practices to achieve desired plant communities will consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples.

Appendix B

TEAM MEMBERSHIP

Interdisciplinary Assessment Team

Linda Price	Project Coordinator (BLM)
Scot Franklin	Wildlife Biologist (BLM)
Larry Gearhart	Wilderness/Recreation Specialist (BLM)
Kevin Schoppmann	Vegetation/Grazing Administration (BLM)
Robert Smith	Soils and Hazmat Watershed(BLM)
John Sims	Wildlife Manager (Arizona Game and Fish Department)
Kyle Spencer	Soils and Vegetation (Natural Resource Conservation Service)
Rob Grumbles	Vegetation and Social Economics (Mohave County Extension Service)
Vernon Parent	Vegetation and Social Economics (Washington County Extension Service)

Rangeland Resource Team

Commodity Interests

Bill Gubler,
Grazing
Rancher, St. George, UT

Bill Howes
Off Road Vehicle Use
Wizards Motorcycle Club

Kent McComb,
Grazing
Retired, St. George, UT

Non-Commodity Interests

Scott Hansen,
Environmental Conservation
Retired, St. George, UT

Spence Esplin,
Historical
Retired, St. George, UT

Phil Squire,
Dispersed Recreation/Wildlife
Retired, St. George, UT

Local Area Interests

Frank Malan,
Public-at-Large
Retired, St. George, UT

Roger McPeck
Public-at-Large
Retired, St. George, UT

Dennis Becenti
Native American Interests
Hopi and Navajo Tribes, AZ

Alternates

Maggie Sacher,
Commercial Recreation/Tourism
Owner: Lee's Ferry Lodge,
Marble Canyon, AZ

Paul Weaver
Non-Commodity
St. George, UT

Appendix C:

PRECIPITATION DATA

Historical Precipitation Report

Field Office 110

Rain Gauge Name: Carroll Catch

Rain Gauge Number: 06

Year	Seasonal Precipitation Amounts					Annual Average					Percent of Normal				
	Fall	Winter	Spring	Summer	Annual	Fall	Winter	Spring	Summer	Annual	Fall	Winter	Spring	Summer	Annual
1972	1.72	2.20	1.16	4.52	9.60	1.88	3.93	3.01	5.21	14.03	92%	56%	39%	87%	68%
1973	3.68	3.42	3.60	2.49	13.19	1.88	3.93	3.01	5.21	14.03	196%	87%	120%	48%	94%
1974	1.19	2.29	0.86	3.60	7.94	1.88	3.93	3.01	5.21	14.03	63%	58%	29%	69%	57%
1975	1.93	5.67	2.15	3.84	13.59	1.88	3.93	3.01	5.21	14.03	103%	144%	72%	74%	97%
1976	0.49	2.49	3.35	3.83	10.16	1.88	3.93	3.01	5.21	14.03	26%	63%	111%	74%	72%
1977	0.96	1.04	2.86	3.45	8.31	1.88	3.93	3.01	5.21	14.03	51%	26%	95%	66%	59%
1978	0.78	8.26	3.08	5.53	17.65	1.88	3.93	3.01	5.21	14.03	42%	210%	102%	106%	126%
1979	4.89	6.18	4.05	4.35	19.47	1.88	3.93	3.01	5.21	14.03	260%	157%	135%	84%	139%
1980	0.54	6.52	4.09	6.94	18.09	1.88	3.93	3.01	5.21	14.03	29%	166%	136%	133%	129%
1981	1.95	2.00	8.32	7.24	19.51	1.88	3.93	3.01	5.21	14.03	104%	51%	277%	139%	139%
1982	1.64	3.61	4.46	6.97	16.68	1.88	3.93	3.01	5.21	14.03	87%	92%	148%	134%	119%
1983	3.27	4.43	3.49	8.80	19.99	1.88	3.93	3.01	5.21	14.03	174%	113%	116%	169%	143%
1984	3.07	1.90	0.65	11.98	17.60	1.88	3.93	3.01	5.21	14.03	163%	48%	22%	230%	125%
1985	1.29	5.41	2.87	5.90	15.47	1.88	3.93	3.01	5.21	14.03	69%	138%	95%	113%	110%
1986	4.00	1.01	3.25	7.40	15.66	1.88	3.93	3.01	5.21	14.03	213%	26%	108%	142%	112%
1987	1.90	2.94	3.65	3.63	12.12	1.88	3.93	3.01	5.21	14.03	101%	75%	121%	70%	86%
1988	4.68	2.56	4.74	4.90	16.88	1.88	3.93	3.01	5.21	14.03	249%	65%	158%	94%	120%
1989	0.85	4.07	1.25	4.69	10.86	1.88	3.93	3.01	5.21	14.03	45%	103%	42%	90%	77%
1990	0.34	2.82	2.70	7.17	13.03	1.88	3.93	3.01	5.21	14.03	18%	72%	90%	138%	93%
1991	0.68	4.68	2.50	3.95	11.81	1.88	3.93	3.01	5.21	14.03	36%	119%	83%	76%	84%
1992	1.09	4.50	7.53	4.91	18.03	1.88	3.93	3.01	5.21	14.03	58%	114%	251%	94%	129%
1993	1.87	9.63	4.00	2.70	18.20	1.88	3.93	3.01	5.21	14.03	100%	245%	133%	52%	130%
1994	2.25	3.20	2.43	2.82	10.70	1.88	3.93	3.01	5.21	14.03	120%	81%	81%	54%	76%
1995	2.38	7.62	5.44	5.06	20.50	1.88	3.93	3.01	5.21	14.03	127%	194%	181%	97%	146%
1996	0.50	4.43	1.45			1.88	3.93	3.01	5.21	14.03	27%	113%	48%		
1997	2.38	4.62	1.38	9.12	17.50	1.88	3.93	3.01	5.21	14.03	127%	117%	46%	175%	125%
1998	1.19	5.19	3.75	4.12	14.25	1.88	3.93	3.01	5.21	14.03	63%	132%	125%	79%	102%
1999	2.13	1.68	3.69	6.50	14.00	1.88	3.93	3.01	5.21	14.03	113%	43%	123%	125%	100%
2000	0.10	3.28	1.06			1.88	3.93	3.01	5.21	14.03	5%	83%	35%		
2001	2.35	3.75	2.19	2.51	10.80	1.88	3.93	3.01	5.21	14.03	125%	95%	73%	48%	77%
2002	0.69	1.69	0.34	3.43	6.15	1.88	3.93	3.01	5.21	14.03	37%	43%	11%	66%	44%
2003	1.85	3.28	3.12	5.25	13.50	1.88	3.93	3.01	5.21	14.03	98%	83%	104%	101%	96%
2004	1.25	3.88	1.62	4.75	11.50	1.88	3.93	3.01	5.21	14.03	67%	99%	54%	91%	82%
2005	4.25	8.25	3.00	5.11	20.61	1.88	3.93	3.01	5.21	14.03	226%	210%	100%	98%	147%
2006	2.00	0.63	3.12	4.45	10.20	1.88	3.93	3.01	5.21	14.03	106%	16%	104%	85%	73%
2007	1.50	2.50	1.00			1.88	3.93	3.01	5.21	14.03	80%	64%	33%		

Appendix D:

Vegetation Data

UTILIZATION STUDY SUMMARY

ALLOTMENT = CROSBY TANK

PASTURE = WEST

KEY AREA NUMBER = 1

Page 1

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Utilization expressed as a percent use for each species as of the particular year read.

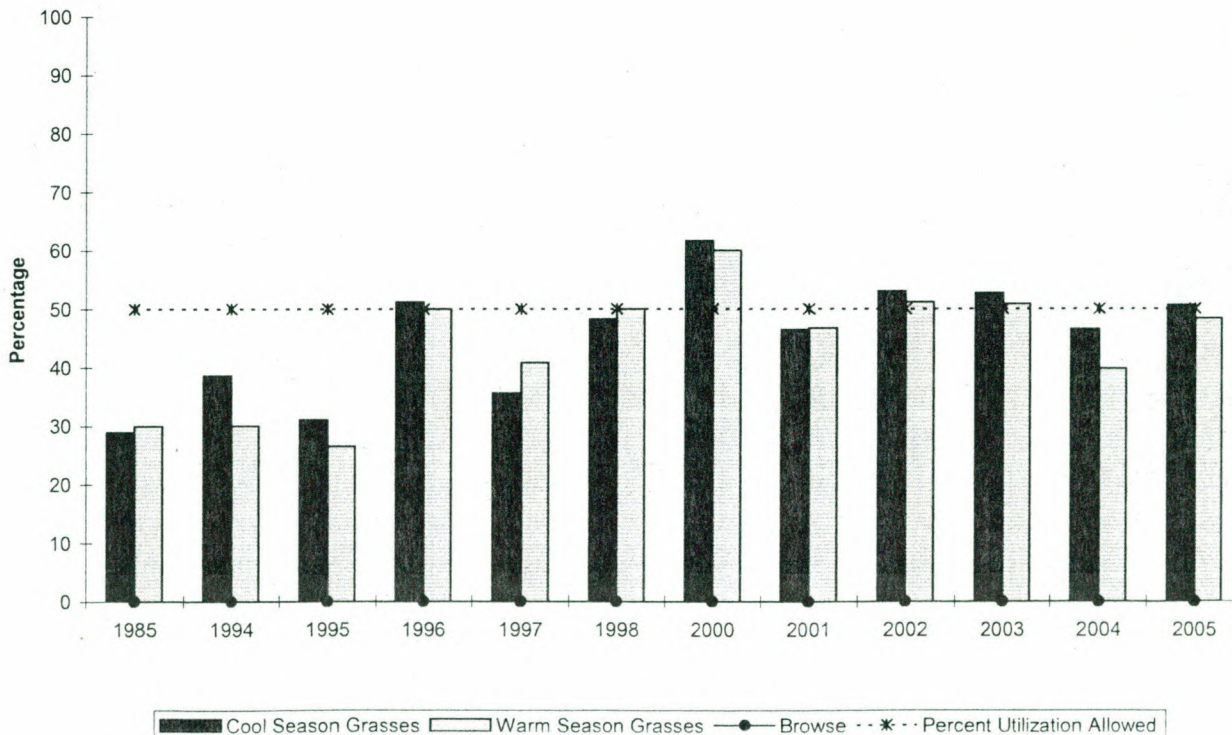
	1985	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	AVG
Cool Season Grasses													
ORHY	29	41	33	53	46	48	62	46	54	54	46	50	45
SIHY	29	36	30	49	33	48	62	47	53	52	47	51	42
CSGG													
AVERAGE	29	39	31	51	36	48	62	46	53	53	47	51	43
WARM SEASON GRASSES													
HIJA	30	30	27	50	38	51	62	47	52	50	47	46	44
BOGR					44	49	58	47	51	52	30		47
BOER												51	51
WSGG													
AVERAGE	30	30	27	50	41	50	60	47	51	51	40	48	45
BROWSE													
SSSS													
AVERAGE													
AVG ALL SPECIES	29	36	29	51	39	49	61	47	52	52	43	49	44

Allotment: CROSBY TANK

Pasture: WEST

Key Area: 1

Utilization by Plant Category



UTILIZATION STUDY SUMMARY

ALLOTMENT = CROSBY TANK

PASTURE = EAST

KEY AREA NUMBER = 2

Page 1

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Utilization expressed as a percent use for each species as of the particular year read.

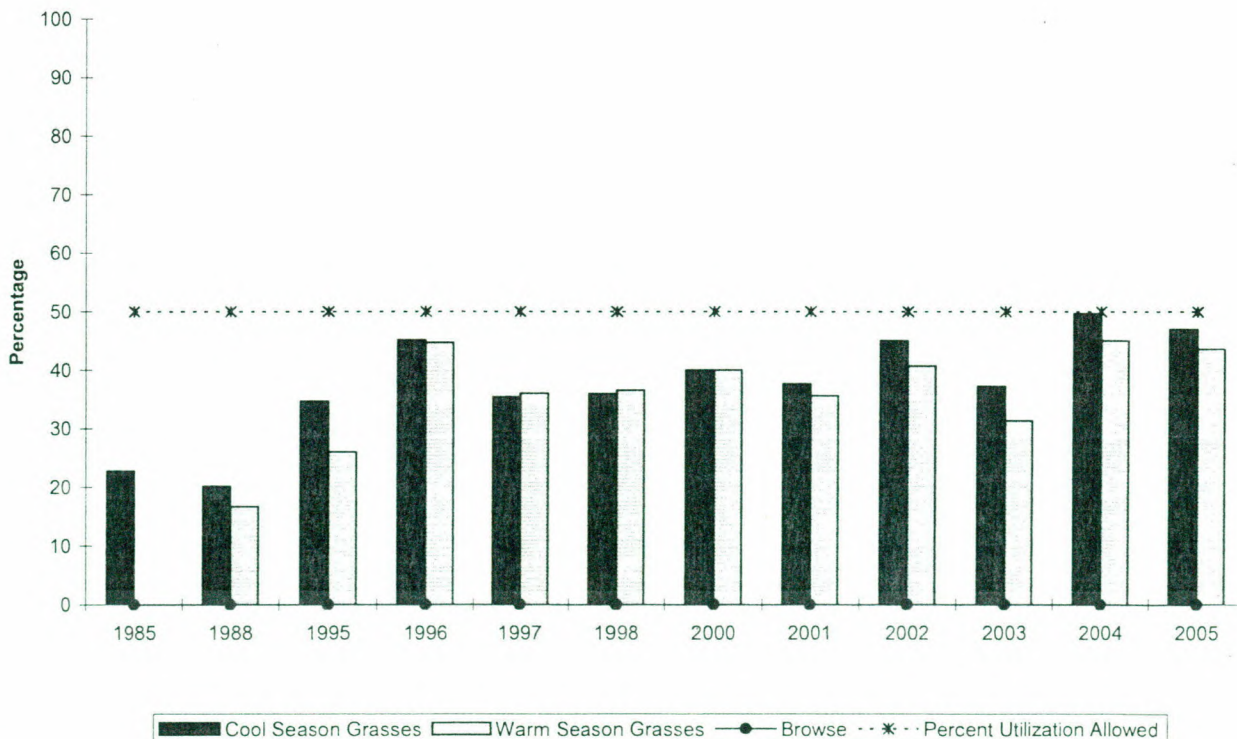
	1985	1988	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	AVG
Cool Season Grasses													
ORHY	28	37	36	49	43	40	40	38	46	40	48	47	39
SIHY	26	24	39	38	34	34	40	39	42	34	54	48	36
AGSM	12	10	30	45	31	34	40	36	47	39	46	46	31
CSGG													
AVERAGE	23	20	35	45	35	36	40	38	45	37	50	47	35
WARM SEASON GRASSES													
BOGR		17	26	45	36	37	40	36	41	31	45	44	37
WSGG													
AVERAGE		17	26	45	36	37	40	36	41	31	45	44	37
BROWSE													
SSSS													
AVERAGE													
AVG ALL SPECIES	23	20	33	45	36	36	40	37	44	36	48	46	36

Allotment: CROSBY TANK

Pasture: EAST

Key Area: 2

Utilization by Plant Category



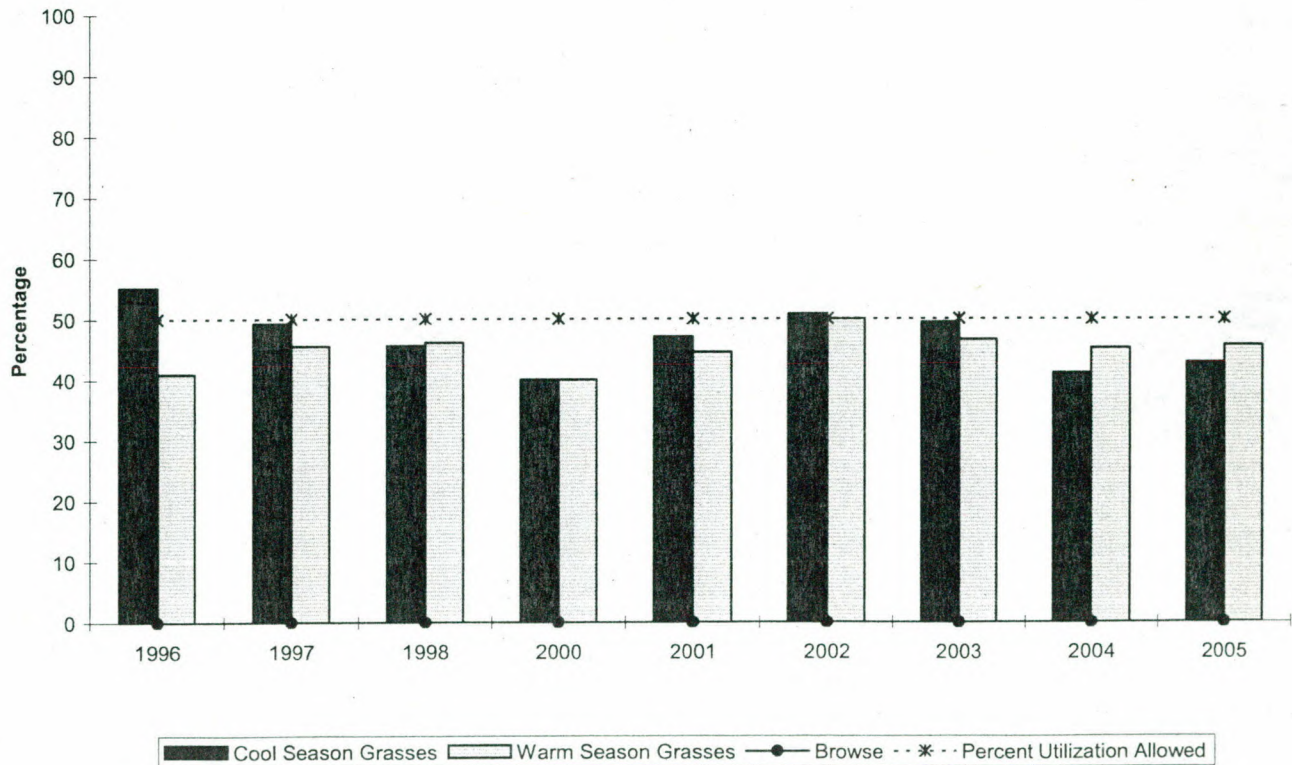
UTILIZATION STUDY SUMMARY																			
ALLOTMENT = CROSBY TANK PASTURE = KENWORTHY KEY AREA NUMBER = 7 Page 1 09/19/07																			
Utilization expressed as a percent use for each species as of the particular year read.																			
	1996	1997	1998	2000	2001	2002	2003	2004	2005										AVG
Cool Season Grasses																			
ORHY	62	50	48	40	47	50	50	41	39										49
SIHY	38	49	42	40	47	51	49	41	46										45
CSGG																			
AVERAGE	55	49	46	40	47	51	49	41	43										47
WARM SEASON GRASSES																			
SPCR	43	46	47	40	46	53	53	42	46										46
BOGR	39	45	45	40	43	48	42	47	45										44
WSGG																			
AVERAGE	41	46	46	40	45	50	47	45	46										45
BROWSE																			
SSSS																			
AVERAGE																			
AVG ALL SPECIES	46	47	46	40	46	50	48	43	44										46

Allotment: CROSBY TANK

Pasture: KENWORTHY

Key Area: 7

Utilization by Plant Category



Site History

Allotment: Crosby Tank

Pasture: West

Site: 1

% Ground Cover

Category	8/23/84	8/12/87	8/14/91	8/5/94	7/7/98	8/11/05
Ground Cover						
Bare Ground	76	77	65	56	56	50
Litter - Non-Persistent	19	13	13	25	30	31
Litter - Persistent	4	3	8	8	7	11
Rock		1	4	3	2	1
Live Basal Veg.	2	7	11	9	7	8

% Plant Frequency

Quadrat Size: 40x40 cm

Species	8/23/84	8/12/87	8/14/91	8/5/94	7/7/98	8/11/05
Woody Species						
Artemisia tridentata	52	55	49	51	56	40
Gutierrezia sarothrae	24	37		23	23	39
Juniperus osteosperma	1			1		2
Opuntia						1
Grasses - Perennial						
Agropyron smithii	3	3			1	3
Bouteloua gracilis	57	62	32	58		41
Hilaria jamesii	6	8	31	14	16	21
Oryzopsis hymenoides	1			1	1	2
Sitanion hystrix	21	18	8	15		51
Sporobolus cryptandrus	5			1		2
Forbs - Perennial/Biennial						
Aster arenosus						2
Astragalus					1	
Comandra umbellata						1
Eriogonum - perennial forb #1	2					
Marrubium vulgare						4
Penstemon				1	1	
Penstemon pachyphyllus						1
Perennial forb(s)						1
Sphaeralcea	3	8	8	5	3	17
Swertia albomarginata						1
Annuals						
Annual forb(s)				2	2	
Eriogonum - annual forb #1				2	1	
Eriogonum deflexum						33
Lactuca serriola						3
Salsola kali						3
Unclassified						
Aster					1	
Chenopodium						1
Eriogonum						1
Euphorbia				1	2	3
Phlox					4	
Senecio					2	

Site History

Allotment: Crosby Tank

Pasture: East

Site: 2

% Ground Cover

Category	8/23/84	8/12/87	8/14/91	8/5/94	8/7/98	8/11/05
Ground Cover						
Bare Ground	71	71	50	52	53	45
Litter - Non-Persistent	13	16	13	18	28	37
Litter - Persistent	10	7	19	18	11	13
Live Basal Veg.	2	4	17	12	7	6
Rock	2	4	2	2	2	

% Plant Frequency

Quadrat Size: 40x40 cm

Species	8/23/84	8/12/87	8/14/91	8/5/94	8/7/98	8/11/05
Woody Species						
Artemisia frigida					1	
Artemisia tridentata	56	44	62	62	60	55
Chrysothamnus nauseosus	1		2	1		
Chrysothamnus viscidiflorus						1
Gutierrezia sarothrae	17	23	2	27	21	43
Juniperus osteosperma	1	1	1	2	1	2
Opuntia			1		1	
Pinus edulis	1					1
Grasses - Perennial						
Agropyron smithii	21	22	1	3	24	35
Bouteloua gracilis	17	28	17	24	23	12
Hilaria jamesii		1		1		
Oryzopsis hymenoides	3	1	10	4	6	9
Sitanion hystrix	34	17	34	53	55	59
Sporobolus cryptandrus	4	1	3	4	4	
Forbs - Perennial/Biennial						
Eriogonum - perennial forb #1					2	
Gilia aggregata						2
Lupinus	2		2	2	1	
Mirabilis linearis						2
Phlox longifolia						1
Psoralea tenuiflorum						1
Sphaeralcea	1		11	4	4	18
Annals						
Ambrosia acanthicarpa						1
Annual forb(s)				2	5	
Eriogonum deflexum						6
Lactuca serriola						2
Portulaca oleracea						1
Unclassified						
Chenopodium						1
Cryptantha					3	
Erigeron						2
Euphorbia				1	1	2
Mahonia			1			

Site History

Allotment: Crosby Tank

Pasture: Kenworthy

Site: 7

% Ground Cover

Category	9/27/84	10/18/88	9/8/92	8/11/98	8/17/05
Ground Cover					
Bare Ground	56	38	37	38	31
Live Basal Veg.	7	8	9	10	11
Litter - Non-Persistent	31	48	50	46	43
Litter - Persistent	5	5	5	7	16
Rock	1				

% Plant Frequency

Quadrat Size: 40x40 cm

Species	9/27/84	10/18/88	9/8/92	8/11/98	8/17/05
Woody Species					
Artemisia frigida		1	1		
Artemisia tridentata	78	70	75	80	62
Ceratoides lanata					1
Chrysothamnus nauseosus				1	1
Chrysothamnus viscidiflorus	3	2	1		
Gutierrezia sarothrae	60	4	18	15	10
Opuntia		1			
Grasses - Perennial					
Agropyron		1			
Agropyron smithii	2		1		
Aristida longiseta			1	1	
Bouteloua gracilis	12	13	17	19	19
Muhlenbergia porteri				18	14
Muhlenbergia richardsonis	10	18	19		
Oryzopsis hymenoides	3	2	1	1	2
Sitanion hystrix	18	48	27	49	36
Sporobolus cryptandrus	62	52	70	70	47
Forbs - Perennial/Biennial					
Onopordum acanthium					1
Penstemon			1		
Perennial forb(s)				1	
Sphaeralcea	39	4	25	9	37
Annuals					
Annual forb(s)			1	1	
Festuca octoflora					1
Unclassified					
Cryptantha			3	2	
Erigeron			1	8	20
Euphorbia			1		

Appendix E:

Wildlife Data

Arizona Game & Fish Unit 13A Mule Deer Population Counts			
Year	Number of Animals Surveyed	Bucks / 100 does	Fawns / 100 does
1989	86	52	39
1990	44	10	27
1991	15	29	57
1992	Insufficient Data		-
1993	9	0	13
1994	43	42	84
1995	51	29	35
1996	55	42	69
1997	No Survey		-
1998	59	8	44
1999	108	23	31
2000	170	27	33
2001	165	36	68
2002	57	28	50
2003	148	39	59
2004	140	40	75
2005	136	38	84

Arizona Game & Fish Unit 13A Pronghorn Antelope Population Counts			
Year	Total Surveyed	Bucks/100 does	Fawns/100 does
1981	171	35	18
1982	206	31	40
1983	141	47	33
1984	186	25	11
1985	145	22	16
1986	141	20	13
1987	139	42	25
1988	215	21	28
1989	174	40	21
1990	222	30	13
1991	196	17	43
1992	214	41	34
1993	282	61	51
1994	372	43	29
1995	398	49	34
1996	339	45	16
1997	447	27	20
1998	357	25	17
1999	209	21	23
2000	205	22	10
2001	278	24	38
2002	284	37	4
2003	333	21	33
2004	358	26	61
2005	335	20	67