

Standards for Rangeland Health and Guidelines for Grazing Administration
Implementation Project: Allotment Assessment
For
BELNAP ALLOTMENT

I. INTRODUCTION

The Belnap 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 March 15, 2001. 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. Grazing Privileges

<u>Livestock Numbers</u>	<u>Season of Use</u>	<u>% Federal</u>	<u>Active AUMs</u>
110 Cattle	06/01-11/15	85	516
4 Horses	06/01-11/15	85	19

B. Season of Use

110 cows and 4 horses from 06/01 to 11/15

C. Kind and class of livestock

Cow/Calf Operation

D. Percent Public Land

The Belnap allotment is 85% public land. The state and private lands within the allotment boundaries are grazed in conjunction with the federal lands. Fees for AUMs on state ground are paid to the State of Arizona by the permittee.

III. ALLOTMENT PROFILE

A. Geographic Description

The Belnap allotment is located approximately 60 miles south of St. George, Utah on the Arizona Strip. The allotment is within the boundaries of T. 34 and 35 N., R. 10 W. southwest of Bundyville. Elevations range from 5320' in the sagebrush draws to 5520' on the pinyon-juniper ridges. The allotment contains two major ecological sites. The limestone ridges and slopes are classified as a Shallow Loamy Upland 9-13" precipitation zone (pz). The draws and bottoms are Loamy Uplands 9-13"pz.

B. Acreage

Public Lands (BLM)	7,279		
State	640		
Private	~~1,550~~	120	CHANGE DECURED AS A RESULT OF TRANSFER TO
Total	~~9,469~~	8,039	CANYON EDGE L.L.C. (TONY HEATON)

C. Objectives

Program guidance decisions for the Belnap allotment are found in the Arizona Strip Resource Management Plan (RMP, 1992), the Shivwits Resource Area RMP Implementation Plan (SRAIP), and the Clayhole Habitat Management Plan.

1. Land Use Plan Objectives: Shivwits Resource Area Implementation Plan For The Arizona Strip Resource Management Plan.

GZ17 - Allowable use on key forage species is 50 percent on allotments with rotational grazing systems.

Off-Highway Vehicles

OH01 Designation Off-Highway Vehicle Use as follows:

- a. Use of existing roads/trails: 1,031,341 acres (BLM designation: "Limited to Existing Roads and Trails")
- b. Use of designated roads/trails: 278,921 acres (BLM designation: "Limited to Designated Roads and Trails")
- c. Closed: 68,404 acres (excludes wilderness, which is closed to vehicular traffic)
- d. Open: 0 acres (for further evaluation)

Recreation

RR02 Evaluate requests for additional recreation permits through the National Environmental Policy Act process and for their consistency with management goals and objectives and process on a case-by-case basis.

RR03 Limit camping to 14 days at any one location unless otherwise authorized.

RR04 Recreation management direction includes:

- Accommodate current uses, protect cultural values, and complement wilderness management plans where appropriate.
- Provide visitor information.
- Use various methods to acquire visitor use data on a annual basis.

- Maintain a system of traffic counters, monitor results monthly and field-verify results annually.
- Conduct compliance patrols by district ranger.
- Consider visual impacts on all proposed actions and protect scenic values by using mitigation measures where feasible, including alternative locations, camouflage, vegetation or topographic screening and other measures.

RR-05 Improve and increase road signs and develop a sign inventory system.

RR-06 Implement actions to restore and/or maintain natural conditions or appearance in all areas.

RR08 Manage the majority of the Resource Area for extensive recreation while maintaining its naturalness/remoteness. The exception to this is the Cedar Pockets campground.

RR09 Commercial recreation permits would be issued to the extent that their cumulative impacts are consistent with the overall objectives of this plan and in the public interest.

Visual Resources

VR01 Assign Visual Resource Management Classes for the Resource Area as follows:

153,815 acres as Class 1

310,318 acres as Class II (Includes the primary travel corridors)

188,695 acres as Class III

879,652 as Class IV

Wilderness

No wilderness resources are located on this allotment.

Wild and Scenic Rivers

There are no wild and scenic rivers in this allotment

Watershed

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

WS22- Manage watershed areas according to watershed categorizations to achieve identified objectives.

Wildlife and Special Status Species

- WL02 Maintain productive wildlife habitat and ensure wildlife needs and considerations are incorporated into land use planning, National Environmental Policy Act (NEPA) documents, and management decisions.
- WL07 Manage wildlife habitat through the Habitat Management Plan process to achieve desired plant community objectives.

Habitat Management Plan Objectives

- O8. Provide for safe and yearlong wildlife use of all existing livestock waters within the habitat area.

2. Specific Resource Objectives

Desired Plant Community Objectives developed during this process

Desired Plant Community (DPC) Key Areas #1 & #2 (Loamy Upland 9-13" p.z.)

- ▶ Maintain ecological condition in Mid to Late Seral through 2030 by,
- ▶ Maintaining tree composition between 2-10% through 2030.
- ▶ Maintaining shrub composition between 15-50% through 2030.
- ▶ Maintaining perennial grass composition between 50-80% Through 2030.
- ▶ Maintaining forb composition between 2-10% Through 2030.

D. Key Species

<u>Plant Category</u>	<u>Common Name</u>	<u>Scientific Name</u>
Cool Season Grasses	Squirrel Tail	Sitanion hystrix
	Needle & Thread	Stipa comata
	Indian rice grass	Oryzopsis hymenoides
Warm Season Grasses	Sand dropseed	Sporobolus cryptandrus
	Galleta grass	Hilaria jamseii
	Black grama	Bouteloua eriopoda
	Blue grama	Bouteloua gracillis

E. Grazing System Description

Despite the fact that the Belnap allotment has no official Allotment Management Plan (AMP), it has been operating under a two pasture deferred rotation system since 1984. Cattle are turned on the allotment June 1 and stay until November 15. One pasture is grazed from June 1 through August 31 and the other is used September 1 through November 15. The time of use for each pasture is alternated each year.

F. Other Values

1. Special Status Species (Plant and Animals)

Listed below are the Threatened and Endangered (T/E) species that may occur within or adjacent to the Belnap Allotment.

Threatened Species

- Bald eagle (*Haliaeetus leucocephalus*) (proposed for de-listing)

Bald eagles and peregrine falcon (*Falco peregrinus anatum*) (delisted in 1999) may occasionally fly over the area. An experimental non-essential population of California condors was established on the Vermilion Cliffs in 1996. These birds may forage on carrion within the allotment, though none have been observed here to date.

BLM Sensitive and State Species of Concern

Sensitive species are usually rare within at least a portion of their range. Listed below are the sensitive species that may occur within or adjacent to the Belnap Allotment:

- Ferruginous hawks (*Buteo regalis*)
- Western burrowing owls (*Athene cunicularia hypugea*)
- Swainson's hawk (*Buteo regalis*)
- Spotted bat (*Euderma maculatum*)
- Western small-footed myotis (*Myotis ciliolabrum*)
- Fringed myotis (*Myotis thysanodes*)
- Allen's lappet-browed bat (*Idionycteris phyllotis*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)

Ferruginous hawks (*Buteo regalis*), Swainson's hawk, and western burrowing owls (*Athene cunicularia hypugea*) are known to use habitat similar to that found on the Belnap Allotment, though specific sightings have not been recorded for any of these species.

A variety of sensitive bat species have been captured on this and neighboring allotments including Townsend's big-eared (*Corynorhinus townsendii*), spotted bats (*Euderma maculatum*), small-footed myotis (*Myotis ciliolabrum*), fringed myotis (*Myotis thysanodes*), and big free-tailed bats (*Nyctinomops macrotis*). To date, no Allen's lappet-browed bat (*Idionycteris phyllotis*) have been captured on this or neighboring allotments.

Herpetological inventories have not been done for the spring sites found on the allotment. No sensitive reptiles or amphibians are known or suspected to occur on this allotment.

2. Other Wildlife Resources

The Hurricane Valley provides habitat for a herd of from 100 to 150 pronghorn antelope (*Antilocapra americana*). However, pronghorn have not been observed in the area surrounding the Belnap Allotment. Habitat on the allotment is not considered suitable for pronghorn due to the abundance of sagebrush and juniper trees. It is unlikely that they occur on the allotment.

Mule deer (*Odocoileus hemionus*) probably occur in limited numbers on the Belnap Allotment. However, the area is not considered prime mule deer habitat. The area is included within Game Management Unit (GMU) 13B.

Nongame wildlife found on the allotment is typical of the area, including a variety of small mammals, grassland birds, raptors, and reptiles. All waters within this arid region are important for wildlife.

3. Recreation

Off Highway Vehicle Management: OHV classification: Limited to existing roads and trails.

Planning: Arizona Strip District Resource Management Plan (RMP): No specific objectives for recreation/wilderness planning were proposed for this area.

Recreational Opportunity Spectrum (**ROS**): The ROS classes found in this allotment are Semi-Primitive Motorized and Roaded Natural.

Visual Resource Management: One VRM Class is found on this allotment Class 4.

Trails: No developed recreation trail or formal designation for any road/trail is known in this allotment.

Special Management Areas

This allotment lies in the Grand Canyon- Parashant National Monument.

Wild and Scenic Rivers

There are no Wild and Scenic Rivers resources in this allotment.

4. Wilderness

No wilderness resources occur in this allotment.

G. Issues brought out in scoping

1. Issues relating to Rangeland Health

- a. Scotch Thistle infestation around Fence Pond

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

- a. Woodcutting/OHV activity

Because of the OHV designations set up for this area in the RMP, and the Shivwits Resource Area Implementation Plan - OHV activities are limited to existing roads and trails and there are no authorized off road activities permitted. OHV users going cross country are in violation of the area's management plans and OHV regulations and restrictions. Perhaps more signing or law enforcement presence in the area is required to implement and enforce the restrictions.

- b. Wildlife catchment maintenance

There are wildlife catchments on the Arizona Strip that have been installed by the BLM and some installed by the Arizona Game and Fish Department (AGFD), many of which are in disrepair. There are three or four AGFD catchments on this allotment, or in close proximity, that are non-functional. The AGFD is aware of the problem and have just recently elevated the issue in statewide priority.

IV. MANAGEMENT EVALUATION

A. Purpose of Assessment

The purpose of this assessment is to determine if the existing permitted livestock use, Allotment Management Plan, and other activity plans, which identify terms and conditions for management on public lands within the Belnap Allotment are meeting/making progress toward meeting or are not meeting the Arizona Standards for Rangeland Health. If the current livestock grazing practices are determined to be causing the 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

1. Actual Use Livestock

Actual use was determined from licensed use. Total active preference for the allotment is 534 AUMs.

<u>Grazing year</u>	<u>AUMs Used</u>	<u>Percent of Authorized AUMs Used</u>
1986	320	60%
1987	441	83%
1988	440	83%
1989	456	85%
1990	343	64%
1991	Non-use	
1992	334	63%
1993	237	44%
1994	352	70%
1995	408	76%
1996	461	86%
1997	376	70%
1998	428	80%
1999	405	76%
2000	400	75%
2001	Non-use	

2. Precipitation

Average annual precipitation on the Belnap allotment is 9-13". There is no rain gauge within the allotment boundaries. Therefore, the two nearest gauges at Acorn and Bundyville are references for Belnap's annual precipitation data. The Alcorn rain gauge is located in T35N, R10W, Sec. 30, approximately 1 mile north of the allotment boundary. Average precipitation is ~13.02" annually. Approximately 12% (1.58") comes in the fall, 30% (3.94") in the winter, 19% (2.44") in the spring and 39% (5.05") in the summer.

The Bundyville gauge is located in T35N, R9W, Sec. 19 approximately 3 miles northeast of the allotment. Average annual precipitation for this gauge is ~10.88". Approximately 13% (1.42") comes in the fall, 24% (2.63") in the winter, 24% (2.56") in the spring, and 39% (4.27%) in the summer.

3. Utilization

Utilization is the portion or amount of a key plant species current years growth that is consumed or destroyed by animals. Data from 1985-2000 has been compiled for this evaluation. The Key Species Grazed Class method was used to collect the data.

Utilization is read at or around the designated key area for each pasture.

Utilization levels in the north pasture exceeded the 50% allowable at 51% in 1996. All other years of the evaluation period, utilization was below 50%. Overall utilization in the north pasture for the evaluation period was 40%. In the south pasture, the highest utilization occurred in 1994 and 1996, at 51%. Overall utilization in the south pasture for the evaluation period was 37%.

4. Trend

Trend monitoring was conducted at two key areas over the allotment. The north and south pastures have key area locations where trend data was collected. Data was collected using the Pace-Frequency method. This method of monitoring measures the frequency of bare ground, litter, rock and live vegetation. In addition, it measures the occurrence frequency of forage and non-forage species. Both key areas were established in 1982 and are in an upward trend.

Key Area #1, North Pasture, Loamy Upland 9-13" p.z., 5,400' elev.
Apparent Trend = Up, Live Veg. Cover 9%.

Key Area #2, South Pasture, Loamy Upland 9-13" p.z., 5,360' elev.
Apparent Trend = Up, Live Veg. Cover 11%.

5. Ecological Status Information

Ecological condition is the present state of the vegetation on the ecological site in relation to the potential natural community for the site. Ecological status is also defined in terms of different seral stages. Seral stages are developmental stages of ecological succession. The ecological status classes correspond to a similarity percentage of the potential natural community (PNC).

Early Seral (0-25%)

Mid Seral (26-50%)

Late Seral (51-75%)

Potential Natural Community (>76%)

Key Area #1, Loamy Upland 9-13" p.z., Early PNC (76% of PNC)

Key Area #2, Loamy Upland 9-13" p.z., Late Seral (74% of PNC)

6. Wildlife Habitat

Habitat management for non-listed, nongame species are typically provided in the form of supplemental benefits from actions designed to addressing T/E or game species. These most often take the form of water developments or vegetative treatment projects.

Mule deer and all big game species populations are monitored annually by the Arizona Game and Fish Department. Mule deer survey data for the Belnap area includes direct counts by sex and age class. The number of mule deer counted in this area varied considerably over the 15 year period from 1985 to 2000, from a low of 31 in 1992 to a high of 156 in 1996 (see appendices). There is no estimate of mule deer numbers available specifically for this allotment. The number of mule deer counted may not accurately reflect population trends due to variations and other inherent biases in survey techniques. In addition, overall population numbers are influenced, at least to a small degree, by removal of up to 70 deer per year from hunting. It is not known how many mule deer are taken illegally each year.

The following summary of mule deer habitat needs was taken from the literature. Most of the data used in this summary was derived from Colorado where mule deer are widespread.

The mating season for mule deer usually begins in November and continues through January. Gestation is about 6 or 7 months. The birthing season usually begins in June and can continue into August. Mature females commonly have twins, while yearlings have only single fawns. Does are mature at about 1½ years, while young males may not mate due to competition with older males. The lifespan for females may be as long as 22 years and as long as 16 years for males, though 8 to 10 years is considered old for both. Only males have antlers. They begin shedding in December and continue into March.

Mule deer are most likely to be found in open forested areas or on the plains and prairies. They prefer rocky or broken terrain at higher elevations during the summer and seek shelter at lower elevations during the winter. Cover becomes important to mule deer during the winter, although it is less important in areas such as the Arizona Strip where winters are mild with minimal snowfall. Optimal cover proportions for the region include 55 percent for foraging, 20 percent for hiding cover, 10 percent for thermal cover, 10 percent for fawn-rearing cover, and 5 percent for fawn habitat.

Mule deer are primarily browsers, feeding on a wide variety of plant species. They are capable of altering or severely damaging plant communities through overbrowsing. Mule deer consume leaves, stems, and shoots of woody plants most often during summer and fall, while grasses and forbs compose the bulk of spring diets. Some of the most common foods include: rabbitbrush (*Chrysothamnus* spp.), mountain-mahogany (*Cercocarpus* spp.), snowberry (*Symphoricarpos* spp.), buffaloberry (*Shepherdia* spp.), ceanothus (*Ceanothus* spp.), rose (*Rosa* spp.), serviceberry (*Amelanchier* spp.), sagebrush (*Artemisia* spp.), sumac (*Rhus* spp.), willow (*Salix* spp.), Gambel oak (*Quercus gambellii*), cliffrose (*Purshia mexicana*), mariposa (*Calochortus* spp.), juniper (*Juniperus* spp.), yucca (*Yucca* spp.), euphorbia (*Euphorbia* spp.), manzanita (*Arctostaphylos* spp.), milkvetch (*Astragalus* spp.), and dandelion (*Taraxacum officinale*). Grasses include bluegrasses (*Poa* spp.), wheatgrasses (*Agropyron* spp.), and bromes (*Bromus* spp.).

Mule deer populations in the early 1960s in this Game Management Unit (13B) were probably in excess of 2,500 animals. At that time, a variety of predator control measures were in effect to protect livestock that allowed mule deer numbers to build up in excess of the carrying capacity of the habitat. Many of those predator control methods were banned in the late 1960s and early 1970s. Mule deer populations took several precipitous declines, leading the Arizona Game and Fish Department to restrict hunting in the mid-1980s. Since that time, mule deer numbers have been gradually increasing. Fawn production and survival suggest this is a low productivity area for mule deer.

Unit 13B is considered by Arizona Game and Fish Department to be low productivity habitat for mule deer. Summer range is limited to a few small areas on Black Rock and Poverty Mountains, Mt. Dellenbaugh and Whitmore Canyon. Much of the remainder of the area is covered by pinyon-juniper woodlands with little if any understory. Areas that have been chemically or mechanically treated, such as at Twin Points and Low Mountain, have seen dramatic increases in mule deer populations. Cliffrose is a favored browse species for mule deer in this area and appears to be readily available. Mule deer also rely on forbs which can be plentiful in years with adequate precipitation or nearly absent in dry years.

While this allotment does not provide optimum conditions for mule deer, the reasons are likely related to lack of precipitation on limited summer range habitat and encroachment of pinyon-juniper woodlands. Despite this, mule deer populations continue to increase slowly and are stable. Mule deer would benefit from increased treatments in decadent pinyon-juniper habitat. At present, habitat conditions are conducive to continued, though slow, expansion of the mule deer herd and are appropriate relative to site potential.

7. Special Status Species (Plant and Animals)

Bald Eagle

The bald eagle is currently listed as threatened, but is expected to be delisted soon. It is a seasonal migrant that forages in and along large expansive ridges such as the Hurricane Cliffs. During the winter, migrant bald eagles are both scavengers and predators. No effect to this species is expected, and no further discussion will follow.

BLM Sensitive and State Species of Concern

Peregrine Falcon: Peregrine falcons are monitored at selected nest sites along the Hurricane Cliffs annually by Arizona Game and Fish Department and by BLM Arizona Strip biologists. There are no known peregrine nest sites on the Belnap Allotment. Peregrine falcons were delisted in October 1999.

There are no monitoring programs in place to document changes in abundance of ferruginous hawks or western burrowing owls. Bats are monitored annually at livestock waters in the Hurricane Valley, though there are no widely accepted methods for monitoring bat populations. No indications of declining populations were detected for any of these species.

7. Riparian/Fisheries

There is no riparian or fisheries habitat on the allotment

8. Wild Horse and Burro Habitat

There is no wild horse and burro habitat on the allotment.

9. Lithology and Soils

Lithology:

The Belnap allotment consists mainly of Kiabab limestone, Moenkopi mudstones and gypsum hills and ridges with associated alluvial fans and floodplains. Steep limestone and sandstone walls of the Parashant Canyon are at the south end.

Soils:

Soil Map Units, SSA 623.(SCS,1993)

- 08 Barx fine sandy loam, 1 to 5 percent slopes, (fan terraces), mixed; Loamy Upland, 9" to 13"
- 10 Berzatic fam-RO-Goblin complex, 35 to 70 percent slopes, (escarpments, cliffs), LS-gyp; Berzatic=Breaks, 7" to 11"; Goblin=Breaks (gypsiferous), 7" to 11"
- 11 Bisoodi-Anasazi family complex, 1 to 8 percent slopes, (plateaus), limestone and sandstone; Bisoodi=Shallow Loamy, 9" to 13" ppt; Anasazi family=Sandy Loam Upland (calcareous), 9" to 13" ppt
- 45 Mellenthin-Rock outcrop-Torriorthents complex, 10 to 70 percent slopes (hills) Kiabab; Mellenthin=Shallow Loamy, 9" to 13"; Torriorthents=Breaks, 9" to 13"
- 46 Mellenthin-Strych Complex, 4 to 25 percent slopes, cool, (plateaus, mesas), limestone; Mellenthin=Shallow Loamy, 9" to 13"; Strych=Loamy Upland, 9" to 13"
- 49 Mellenthin-Tanbark complex, 5 to 50 percent slopes, dry, (plateau, mesa, hill), SS, gypsite; Mellenthin=Limey Upland, 9" to 13"; Tanbark= Gypsum Hills, 9" to 13"
- 51 Meriwhitica-Rock outcrop-Strych complex, 35 to 70 percent slopes, (cliffs, canyons) Callville & Redwall limestones; Meriwhitica=Breaks, 9" to 13"; Strych=Loamy Upland, 9" to 13"
- 63 Radnik loam, 1 to 5 percent slopes (floodplain) mixed; Loamy Bottom, 9" to 13" ppt
- 64 Riverwash-Torrifluents complex, 1 to 3 percent slopes, (channel, floodplain), mixed; Torrifluents=Sandy Wash, 9" to 12" ppt
- 73 Strych very gravelly loam, 2 to 10 percent slopes (fan) mixed; Loamy Upland, 9" to 13"
- 75 Tanbark loam, 15 to 75 percent slopes, (hills, escarpments), Moenkopi; Gypsum Hills (calcareous), 9" to 13"

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

1. Issues relating to Rangeland Health

a. *Scotch Thistle infestation*

A 1/4 acres patch of scotch thistle has been identified in and around the Fence Pond within the Belnap allotment. There have been efforts over the past four years to treat this infestation. These efforts have not yet eradicated the noxious weed, however the treatments have been effective in preventing expansion and reducing plant numbers of the infestation.

V. Conclusions

1. Land Use Plan Objectives: Shivwits Resource Area Implementation Plan For The Arizona Strip Resource Management Plan (*objectives in italics, are taken from section III.C.*)

GZ17 - *Allowable use on key forage species is 50 percent on allotments with rotational grazing systems.*

This objective has been met. Utilization on some individual key species has occasionally exceeded the 50% allowable level, however the overall use for all key species is 37%, well below the 50% allowable.

Off-Highway Vehicles

OH01 *Designation Off-Highway Vehicle Use as follows:*

- a. *Use of existing roads/trails: 1,031,341 acres (BLM designation: "Limited to Existing Roads and Trails")*
- b. *Use of designated roads/trails: 278,921 acres (BLM designation: "Limited to Designated Roads and Trails")*
- c. *Closed: 68,404 acres (excludes wilderness, which is closed to vehicular traffic)*
- d. *Open: 0 acres (for further evaluation)*

This objective has been met.

Recreation

- RR02 Evaluate requests for additional recreation permits through the National Environmental Policy Act process and for their consistency with management goals and objectives and process on a case-by-case basis.*

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.

- RR03 Limit camping to 14 days at any one location unless otherwise authorized.*

There have been no known violations of this objective on this allotment and it is being met.

- RR04 Recreation management direction includes:*

Accommodate current uses, protect cultural values, and complement wilderness management plans where appropriate.

Provide visitor information.

Use various methods to acquire visitor use data on a annual basis.

Maintain a system of traffic counters, monitor results monthly and field-verify results annually.

Conduct compliance patrols by district ranger.

Consider visual impacts on all proposed actions and protect scenic values by using mitigation measures where feasible, including alternative locations, camouflage, vegetation or topographic screening and other measures.

This objective is being met: Current uses by recreationists on this allotment are minimal, routine monitoring of resources are conducted by resource specialists in the area and by District Rangers, visitor information is collected on use by traffic counts and visitor registers adjacent to the area. Impacts are routinely evaluated in NEPA documents related to any disturbing activities and mitigating measures recommended to protect the values in the area.

- RR-05 Improve and increase road signs and develop a sign inventory system.*

This objective is being met: Signs are monitored and replaced on a routine basis due to attrition and new information.

RR-06 Implement actions to restore and/or maintain natural conditions or appearance in all areas.

This objective is being met: This objective is a process that is an on-going effort based on observations of range and other specialists and restoration actions are evaluated through the planning and NEPA process for interdisciplinary input and review.

RR08 Manage the majority of the Resource Area for extensive recreation while maintaining its naturalness/remoteness. The exception to this is the Cedar Pockets campground.

This objective is being met: Visitors to the allotment engage in hunting, river running, camping, sightseeing, and indulge in a variety of legitimate recreation activities and are monitored to see that the area's values not degraded by overuse.

RR09 Commercial recreation permits would be issued to the extent that their cumulative impacts are consistent with the overall objectives of this plan and in the public interest.

This objective is being met: As new requests for commercial Special Recreation use permits are received they are evaluated and reviewed for consistency with this objective and processed accordingly.

Visual Resources

VR01 Assign Visual Resource Management Classes for the Resource Area as follows:

*153,815 acres as Class I
310,318 acres as Class II (Includes the primary travel corridors)
188,695 acres as Class III
879,652 as Class IV*

This objective is being met: This allotment contains only VRM Class 4. Review and protection of visual resource values is a routine part of the interdisciplinary NEPA process along with recommendations for mitigating measures if impacts to the visual resource are anticipated.

Wilderness

No wilderness resources are located on this allotment.

Wild and Scenic Rivers

There are no wild and scenic rivers in this allotment.

Watershed

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

This has been accomplished over most of the allotment.

WS22- Manage watershed areas according to watershed categorizations to achieve identified objectives.

The allotment was classified in the RMP as category IV. This means that the watershed units currently are in unsatisfactory erosion condition, and the soils would be responsive to treatment.

Most of the allotment is in fair to good erosion condition. There are a few small drainages near waters that have old gullies that are mostly healing.. Therefore, the allotment is being reclassified to category II. This means that the watershed units are in satisfactory erosion condition, but are susceptible to wind and water erosion following disturbance.

Wildlife

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

This objective is being met. Wildlife species and habitats are managed through the Clayhole Habitat Management Plan (HMP) dated 1979. Habitat needs for wildlife are incorporated into land use planning documents, NEPA, and management decisions.

WL07 Manage wildlife habitat through the Habitat Management Plan process to achieve desired plant community objectives.

This objective is being met. Wildlife species and habitats are managed through the Clayhole HMP. Desired plant community objectives consider the needs of wildlife and their habitat. Objectives for this Allotment have been developed that incorporate wildlife needs.

Clayhole HMP Objectives

O8. Provide for safe and yearlong wildlife use of all existing livestock waters within the CHA.

This objective is being met on this allotment. Wildlife and livestock waters are inspected and maintained at least biennially within the habitat area. Those found to be hazardous to wildlife are modified.

2. Specific Resource Objectives

Desired Plant Community (DPC) Objectives developed during this evaluation process

Key Areas #1 and #2:

Maintain ecological condition in Late Seral to PNC through 2030 by:

- *Maintaining tree composition between 2-10% through 2030.*
- *Maintaining shrub composition between 15-50% through 2030.*
- *Maintaining perennial grass composition between 50-80% Through 2030.*
- *Maintaining forb composition between 2-10% Through 2030.*

These objectives have been met. The ecological condition in key area #1 is 76 percent similar to PNC, which places it in early PNC. Tree composition is at 2%, shrub composition at 28%, perennial grass composition is at 67% and forb and annuals are at 3%.

Ecological condition in key area #2 is 74% similar to PNC, which places it in late seral condition. Tree composition is at 4%, shrub composition at 17%, perennial grass composition is at 76% and forb and annuals are at 3%.

C. Issues relating to Standards for Rangeland Health

A. *Scotch Thistle infestation*

A concerted effort of herbicide treatment and hand digging must continue to control expansion and eradicate scotch thistle around the Fence Pond. Presently, less than one acre has been detected on the allotment. Past treatments have kept the infestation from spreading beyond its existing location.

VI. SELECTED ACTIONS

1. It is recommended to renew the current grazing permit for Belnap allotment with current terms and conditions for another ten year period.
2. Continue with herbicide treatments on the scotch thistle infestation.

AUTHORIZED OFFICER CONCURRENCE:

X I concur with the conclusions and recommendations as written.

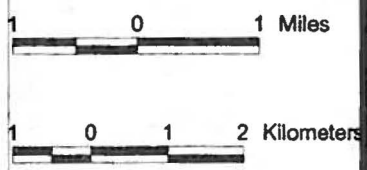
_____ I do not concur.

_____ I concur, with the following modifications:

Rogin D Taylor
Field Manager
Arizona Strip Field Office

Sept. 30, 2002
Date

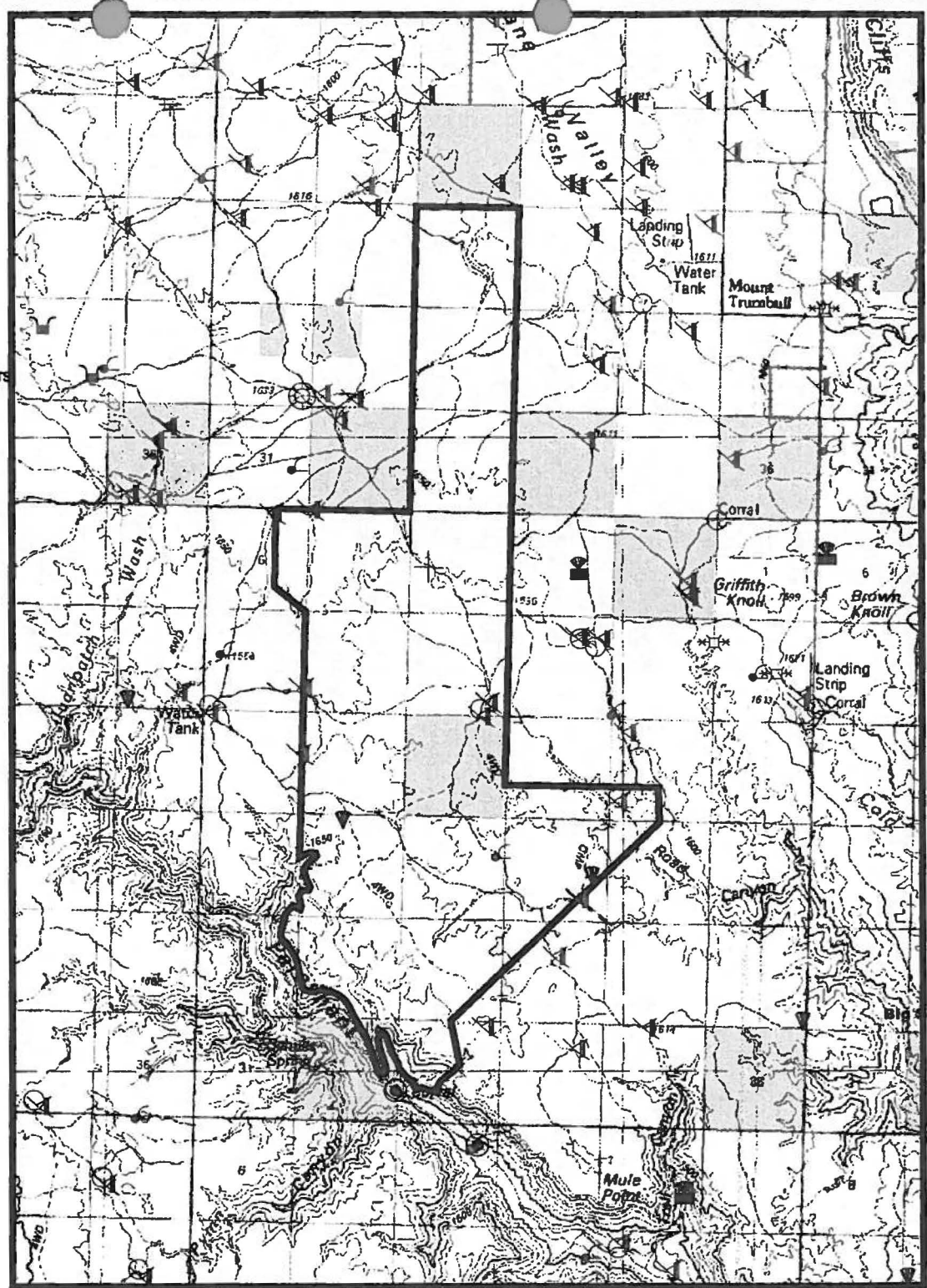
Belnap Allotment



1:100000



- ▼ Wildlife Catchment
- 🐄 Livestock Catchment
- Well
- ⊙ Storage Tank
- ⚡ Fenced Reservoir
- ⚡ Developed Spring
- ⚡ Key Area
- Fence
- ⚡ Cattleguard
- Corral
- ⚡ Unfenced Reservoir
- ⚡ Trough
- ▨ Wilderness Area
- ▭ Allotment Boundary
- Private Ownership
- ▨ State Ownership
- BLM Ownership



Appendix A

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." These checklists are reprinted on the pages following the Guidelines for Standard 3.

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 435-688-3241	Project Coordinator (BLM)
Michael Herder 435-688-3239	Wildlife Biologist (BLM)
Larry Gearhart 435-688-3269	Wilderness/Recreation Specialist (BLM)
Whit Bunting 435-688-3243	Vegetation/Grazing Administration (BLM)
Bob Smith 435-688-3245	Soils and Hazmat (BLM)
Robert Price 435-574-3923	Wildlife Manager II (Arizona Game and Fish Department)
Art Meen 520-643-7062	Soils and Vegetation (Natural Resource Conservation Service)
Rob Grumbles 520-753-3788	Vegetation and Social Economics (Mohave County Extension Service)
Vernon Parent 435-634-5706	Vegetation and Social Economics (Washington County Extension Service)

Rangeland Resource Team

Commodity Interests

Bill Gubler, Grazing
Rancher, St. George, UT

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

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

Al Rivas, Public-at-large
Retired, St. George, UT

Kent McComb, Public-at-Large
Retired, St. George, UT

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

Appendix C:

Vegetation Data

UTILIZATION SUMMARY FOR BELNAP ALLOTMENT

Pasture	Year	Key spp	Key spp	Key spp	Key spp	Total %
Belnap (N) #1		Spcr	Sihy/Stco	Boer	Hija/Bogr	
	1985	38	32	26	25	31
	1986	54	37	39	34	42
	1987	64	19	46	49	48
	1992	38	40	23	20	28
	1993	38	36	32	36	34
	1994	52	56	48	35	47
	1995	44	46	36	41	42
	1996	57	46	48	55	51
	1997	43	47	41	42	44
	1998	36	39	36	38	38
	1999	33	43	27	34	34
	2000	43	50	33	46	42
Belnap (S) #2		Spcr	Sihy/Orhy	Bogr	Hija	
	1985	37	37	28		32
	1986	35	20	21	5	23
	1987	50	33	25	21	31
	1992	34	22	17	8	21
	1993	50	18	22	38	32
	1994	54	51	47	51	51
	1995	46	43	33	40	41
	1996	57	60	44	40	51
	1997	47	42	37	45	42
	1998	43	45	34	45	42
	1999	31	33	24	43	35
	2000	44	49	43	54	47

Pa's Pocket #1		Hiri	Boer	Epne/Alca	Mupo	Total %
	1994	45	45	38/37	48	44
	1995	45	19	33/47	53	42
	1996	46	49	41/44	38	44
	1997	46	45	44/56	54	48
	1998	47	49	42/56	39	46
	1999	43	36	38/58	42	42
	2000	46	33	41/52	45	43
	2001					
	2002					
	2003					
	2004					
	2005					
	2006					
Pa's Pocket #2		Boer	Hija	Mupo/Spcr	Epne	
	1994	35	37	27/34	34	34
	1995	51	49	50/47	31	45
	1996	42	49	29/47	38	42
	1997	42	47	38/43	49	47
	1998	41	44	41/46	47	44
	1999	46	43	36/43	49	44
	2000	43	45	40/48	58	46
	2001					
	2002					
	2003					
	2004					
	2005					
	2006					

Trend Analysis Summary
Belnap Allotment

Pasture	Key Area	Year Read	% Key Species	Live Veg. Cover	Litter	Total
NORTH	#1	1982	44	3	31	78
		1984	35	5	18	58
		1987	81	7	31	119
		1990	103	6	30	139
		1993	69	9	37	115
SOUTH	#2	1982	13	4	28	45
		1986	39	8	38	85
		1988	50	7	40	97
		1991	32	20	29	81
		1993	32	11	41	84

Appendix D:

Wildlife Data

Arizona Game & Fish Unit 13B Mule Deer Population Counts				
Year	Number of Animals Surveyed	Bucks / 100 does	Fawns / 100 does	Population Estimate
1985	108	30	50	1,000 - 1,500
1986	41	29	18	1,000 - 1,500
1987	63	31	44	1163
1988	---	No Data	No Data	No Data
1989	112	71	31	900
1990	63	68	32	900
1991	85	27	37	900
1992	31	24	59	<1,000
1993	117	126	52	800-1,000
1994	143	69	52	No Estimate
1995	88	183	79	No Estimate
1996	154	87	33	No Estimate
1997	64	77	29	No Estimate
1998	156	43	45	No Estimate
1999	145	51	35	No Estimate
2000	155	49	36	No Estimate

Fixed wing surveys were flown in December - January for all of Game Management Unit 13B from 1985 through 1997. Helicopter surveys were used from 1998 through 2000.