

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

Last Chance #4815

I. Introduction

The Last Chance 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 31, 2004, and a field visit on April 28, 2004. 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 proposed actions on renewing the grazing permit 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: 609 AUMs

Suspended Non-use: 346 AUMs

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

B. Season(s) of use

12/1 to 11/30

C. Kind and class of livestock

57 Cows and Calves

D. Percent federal range¹ .

89%

III. Allotment Profile

A. Description

The Last Chance Grazing Allotment #04815 is located in northwest Arizona approximately 45 miles south of St. George, Utah. Tweeds Point, Hidden Rim, Hidden Canyon, and Upper Grand Wash Cliffs are a few of the topographical features found within the allotment. The allotment is located within the Grand Canyon-Parashant National Monument. A variety and diversity of vegetation exist in the allotment, ranging from pinyon-juniper in the higher elevations to desert shrub in the lower elevations

¹ The percentage of public land use determined by the proportion of livestock forage available on public lands within the allotment compared to the total amount available from both public lands and those owned or controlled by the permittee or lessee

B. Acreage

The allotment contains:

- 9,072 acres of federal land
- 640 acres of state land
- 0 acres of private land

C. Objectives

Program guidance decisions, as well as specific resource objectives for this allotment, are found in the: Grand Canyon Parashant National Monument Resource Management Plan (RMP, 2008); the Arizona Strip Desert Bighorn Sheep Management Plan as amended (May 2001); the Parashant Habitat Management Plan; the Grand Wash Cliffs Wilderness Management Plan, and the Last Chance Allotment Management Plan (AMP Dec. 1983).

1. Land Use Plan Objectives

Grand Canyon – Parashant National Monument Resource Management Plan

Objectives are labeled according to the applicable resource or resource use and sequentially numbered in the RMP. Listed here are the Desired Future Condition (DFC) decisions that will be assessed in this document. The codes are as follows:

RP= Riparian Ecological Zn	GM=Livestock Grazing	WM=Designated Wilderness
WS=Air, Water and Soils	TE=Special Status Species	VR=Visual Resources
VM=Vegetation	WC=Wilderness Characteristics	FM=Fire and Fuels
WF=Wildlife and Fisheries	RR=Recreation Resources	Management

Watershed / Soil Stability

DFC-VM-04

Vegetative communities will provide sufficient plant cover and litter accumulation to protect soils from wind and water erosion and enhance nutrient cycling and productivity, even during drought years.

DFC-WS-06

The natural hydrologic functions of all watersheds will be intact.

DFC-WS-07

Soils will exhibit infiltration, permeability, and erosion rates appropriate for the soil type, climate, and landform.

DFC-WS-08

Physical soil crusts will show an increase in organic cover including cryptobiotic colonies, moving them towards being organic crusts.

Ecological Processes

DFC-VM-05

Ecological processes and functions will be protected, enhanced, and/or restored by allowing tools that are necessary and appropriate to mitigate adverse impacts of allowable uses and undesirable disturbances, and contribute to meeting the Standards for Rangeland Health and NPS Vital Signs and enhance Monument values.

DFC-WF-01

Ecological conditions will be within the range of natural variability and will be functional for dependant animal species.

DFC-WF-12

The natural biological diversity of fish, wildlife, and plant species will be maintained or, where necessary and feasible, restored throughout the Monument. Habitats will be managed on an ecosystem basis, ensuring that all parts of the ecosystem and natural processes are functional.

Invasive Plants

DFC-VM-06

Invasive plant species will be contained, controlled, or eliminated and native species restored to meet desired plant community (DPC) objectives.

Fuel Loads

DFC-VM-07/DFC-FM-06

Each vegetation community is maintained within its natural range of variation in plant composition, structure, and function, and fuel loads are maintained below levels that are considered to be hazardous.

No Net Loss

DFC-VM-15

There will be no net loss of total acres within sagebrush communities (i.e., long-term or permanent removal from the landscape). A no net loss objective will not preclude restoration, rehabilitation, or related management actions.

Livestock Grazing

DFC-GM-02.

Livestock use and associated management practices will be conducted in a manner consistent with other resource needs and objectives to ensure that the health of rangeland resources is preserved or improved so that they are productive for all rangeland values. Where needed, public rangeland ecosystems will be improved to meet objectives.

DFC-GM-04.

Monument values will be maintained, protected, and improved.

Desired Plant Community

DFC-GM-01

Healthy, sustainable rangeland ecosystems will be maintained or improved to meet Arizona's Standards for Rangeland Health and Vital Sign Standards on NPS-administered lands, and produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds.

DFC-VM-03

Native vegetative communities will be protected. A mosaic of native perennial and non-invasive annual vegetative communities will be present across the landscape with diversity of species, canopy, density, and age class reflecting its local ecological site potential and naturally occurring habitat conditions.

DFC-VM-14

Sagebrush (primarily *Artemisia tridentata*) communities will consist of a healthy, diverse mosaic of different height and age structures with a thriving community of native grasses and forbs. Mosaics may include stands of young and old sagebrush, openings (ranging from bare ground to short or sparse vegetation to high-density grasslands), wet meadows, seeps, healthy streamside (riparian) vegetation, and other interspersed shrub and woodland habitats.

DFC-VM-16

Treatment objectives in sagebrush communities will focus on restoring natural disturbance processes, such as by using fire, increasing vegetative ground cover of native grasses and forbs, and removing invasive non-native plants.

DFC-VM-17

Sagebrush communities on NPS-administered lands will retain ecological integrity where natural processes maintain native plants and plant communities and are the principal influence on community and population fluctuation

DFC-VM-18

Existing stands of sagebrush will have a balance between shrub and perennial grass cover, for open to moderate shrub canopy cover (5 to 25%), and multiple height classes. This mosaic will include young, sparse stands to support Vesper sparrows and lark sparrows, and older, dense stands to benefit Brewer's sparrows, sage sparrows, black-throated sparrows, gray flycatchers, and sage thrashers.

DFC-VM-19

Sagebrush communities will include small, grassy openings to support long-billed curlews and burrowing owls.

DFC-VM-20

Sagebrush communities will include large, continuous blocks (≥ 300 acres) of unfragmented sagebrush habitat, including mosaics of open to moderate shrub canopy cover (5 to 25%) and multiple age and height classes to benefit sage-dependent species.

DFC-VM-21

Sagebrush communities will include openings of short vegetation surrounded by sagebrush for ground foraging by sage thrashers, loggerhead shrikes, Brewer's sparrows, and sage sparrows.

DFC-VM-22

Sagebrush communities will include openings of short vegetation (2 to 8 in.) with wide visibility to provide breeding habitat for long-billed curlews, and burrowing owls.

DFC-VM-23

Sagebrush communities will include native grass and forb cover in balance with open to moderate (5 to 25%) shrub canopy cover and within ecological site potential. Perennial grass components will be at or above 10%. Native forb composition will be at or above 5%.

DFC-VM-24

Fragmentation of sagebrush habitat will be less than 50% of the treatment area.

DFC-VM-25

Healthy, diverse woodland communities will consist of a mosaic of trees, shrubs, grasses, and forbs. Mosaic patches can include stands of young and old pinyon-juniper, openings, wet meadows, seeps, and other interspersed shrub habitats. The communities will be composed of a variety of different height structures and age classes, with a thriving understory community of native grasses, forbs, and shrubs.

DFC-VM-27

Treatment objectives in the pinyon-juniper vegetation communities will focus on restoring the natural disturbance regime; increasing vegetative ground cover of native grasses, forbs, and shrubs; and removing non-native invasive species.

DFC-VM-28

Stands of pinyon-juniper will include a balance between tree, shrub, and perennial grass cover to support pinyon jay and mule deer. This mosaic will include stands of old growth pinyon-juniper to support juniper titmouse; large openings of grasses, forbs and shrubs to support mule deer and provide foraging habitat for raptors such as sharp-shinned hawk, northern goshawk, Coopers hawk, American kestrel, and red-tailed hawk; and areas of sparse to dense tree canopy cover to support pinyon jay.

DFC-VM-29

Individual old growth trees will be present and will be protected during treatment implementation.

DFC-WF-17

Mule deer habitat in pinyon-juniper woodland sites will include a healthy diverse mosaic of trees, shrubs, grasses, and forbs.

Wildlife Habitat

DFC-WF-02

Native wildlife communities will be protected. A complete range of diverse, healthy, and self-sustaining populations of native animal species will occupy all available suitable habitats.

Habitat Connectivity

DFC-WF-06

Habitat connectivity and wildlife movement between ecological zones will be maintained.

Wildlife Forage Needs

DFC-WF-30

On BLM-administered lands, forage in desert bighorn sheep habitat areas will include at least 20% grasses, 20% forbs, and 20% palatable shrub species CBW, where consistent with site potential.

Fences

DFC-WF-05

Fences will be the minimum necessary for effective livestock control or other administrative purposes. Fences will be wildlife passable, consistent with the species found in the area.

DFC-WF-20

All fences in mule deer habitat will be deer passable.

Healthy Wildlife Populations

DFC-WF-03

Forage, water, cover, and space will be available to wildlife of sufficient quantity and quality to support productive and diverse wildlife populations.

DFC-WF-13

Mule deer habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-28

Desert bighorn habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-35

Desert cottontail habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-37

Migratory bird habitats will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-45

Carnivore habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability

Wildlife Population Numbers

DFC-WF-14

On BLM administered lands, mule deer populations will be at or near maximum levels sustainable for the habitat.

DFC-WF-29

On BLM-administered Lands, desert bighorn sheep populations will be at or near maximum levels sustainable for the habitat.

DFC-WF-36

Desert cottontail rabbits will be present in sufficient quantity to provide an adequate prey base for raptors, carnivores, and other predatory species, as well as ample recreational opportunities for hunting and wildlife viewing.

DFC-WF-38

Migratory birds that nest in the Monument will have resources of sufficient quantity and quality to provide for nesting sites and to fledge young successfully.

Wildlife Waters

DFC-WF-04

All waters will be safely accessible to wildlife.

DFC-WF-18

Water sources within mule deer habitat will be safely accessible to deer and other wildlife.

DFC-WF-19

On BLM administered lands, water sources within mule deer habitat will be spaced no more than 3 miles apart.

DFC-WF-31

Water sources within bighorn sheep habitat areas will be safely accessible to bighorn and other wildlife.

DFC-WF-32

On BLM-administered lands, water sources within bighorn sheep habitat will be spaced no more than 4 miles apart.

DFC-WF-43

Water sources within game bird habitats will be safely accessible by all wildlife.

Threatened and Endangered Species Habitat

DFC-TE-03

The Monument will provide a block of remote, contiguous habitat that will serve as refugia for populations of special status species.

DFC-TE-21

Habitat areas for special status raptors will provide sufficient forage and cover attributes to support thriving populations of the species.

DFC-TE-23

Potential roosting and nesting sites (for special status raptors) will be abundant.

DFC-TE-28

Peregrine falcon, ferruginous hawks, common black hawks, northern goshawks, and burrowing owls will be sufficiently abundant so that there will be no need to list these species.

Healthy Threatened and Endangered Populations

DFC-TE-20

Special status raptor populations will be healthy and self-sustaining throughout their range.

DFC-TE-25

Rodent populations, as a prey base (for special status raptors), within the Monument will be abundant.

No Net Loss of Threatened and Endangered Species Habitat

DFC-TE-04 & DFC-TE-08

There will be no net loss in the quality or quantity of special status species habitat throughout the Monument.

DFC-TE-22

No net loss will occur in the quality and quantity of suitable habitat for special status raptors within the Monument.

DFC-TE-29

No net loss will occur in the quality and quantity of suitable habitat for riparian-dependent special status bird species within the Monument.

Condors

DFC-TE-27

The experimental non-essential population of California condor will be at or above 150 individuals, viable, and stable to increasing in number.

Wilderness Characteristics

DFC-WC-02

Areas where wilderness characteristics will be maintained will be ecologically sustainable and resilient to natural and human-caused disturbances.

Recreation and Visitor Services

DFC-RR-01

Recreation and visitor services will be managed to provide varying levels of structured recreation opportunities that offer a range of specific benefits, activities, and experiences within outdoor settings.

DFC-RR-05

The excellent opportunities that exist to enjoy remote, rustic settings that provide moderate challenge and solitude in the Specialized TMAs will be maintained/enhanced.

DFC-RR-06

In Backways and Specialized TMAs, recreation opportunities associated with somewhat remote settings, such as exploring backcountry roads, vehicle camping, hunting, sightseeing, recreation aviation, and picnicking will be maintained/enhanced on existing roads, provided they will be compatible with the protection and enhancement of sensitive resource values, where appropriate.

DFC-RR-07

In the Primitive TMA, high quality recreation opportunities associated more with primitive recreation experience opportunities and non-motorized uses such as camping, sightseeing, hiking, horseback riding, and hunting, will be maintained/enhanced, provided they will be compatible with the protection and enhancement of sensitive resource values, where appropriate.

Visual Resources

DFC-VR-01

Public lands will be managed in a manner, which will protect the quality of the scenic (visual) values of these lands. (43 U.S. Code [USC] 1701, Section 102 (a) (8)).

DFC-VR-03

The region's scenic beauty, open space landscapes, and other high-quality visual resources will be maintained within the Monument.

2. Specific Resource Objectives

Last Chance Allotment Management Plan Objectives:

Key Area Number 1: located in the Upper Pasture

Squirreltail/mutton bluegrass (<i>Sitanion hystrix</i> / <i>Poa fendleriana</i>)	Increase frequency from 2% to 6%
Buckwheat (<i>Eriogonum</i> species)	maintain frequency at 19 to 20%
Cliffrose (<i>Cowania mexicana</i>)	maintain frequency at 10 to 11%
Vegetation Cover (basal) of Key Species	increase from 2% to 6-8%

Key Area Number 2: located in the Lower Pasture

Mormon tea (<i>Ephedra viridis</i>)	increase frequency from 1% to 3%
Cliffrose (<i>Cowania mexicana</i>)	increase frequency from T-1% to 3%
Apache-plume (<i>Fallugia paradoxa</i>)	maintain frequency at 1%
Warm-season grasses	increase frequency from 0% to 5%
Vegetation Cover of Key Species	increase from T-1% to 3%

Desired Plant Community Objectives.

DPC objectives were developed during this evaluation process by an IAT of resource specialists. These objectives focus on the ecological sites and their potentials, which reflect the vegetative diversity of the area. DPC objectives include species Composition by Weight (CBW) and percent basal vegetative cover. Species composition is monitored using the Dry Weight Ranking method. Percent basal vegetative cover is monitored using the "Step-Point" method. The species composition objectives were developed by consulting the Ecological Site Guides, developed by Natural Resource Conservation Service, and site-specific information of the potential of the site to produce vegetation. DPC objectives replace the 1983 AMP vegetation frequency objectives since they are better indicators of movement toward the desired vegetative community.

Key Species:

<u>Plant Category</u>	<u>Common Name</u>	<u>Scientific Name</u>
Grasses	Bottlebrush squirreltail	<i>Sitanion hystrix</i>
	Mutton bluegrass	<i>Poa fendleriana</i>
	Needlegrass	<i>Stipa species</i>
Browse	Mormon tea	<i>Ephedra viridis</i>
	Cliffrose	<i>Cowania mexicana</i>
	Apache-plume	<i>Fallugia paradoxa</i>
	Buckwheat	<i>Eriogonum species</i>

Rationale: Plant species listed above are important forage plants for livestock and wildlife, and important indicators of the rangeland health and would be used to measure success of management actions.

Key Area No. 1, located in the upper pasture:

Increase Bottlebrush squirreltail composition by dry weight to 1-5%
Increase Mutton bluegrass composition by dry weight to 3-10%
Increase Needlegrass composition by dry weight to 0-3%
Maintain Cliffrose composition by dry weight of 5-10%
Maintain Green Mormon Tea composition by dry weight of 0-5%
Maintain Apache-plume composition by dry weight of 2-10%
Maintain Buckwheat composition by dry weight of 5-15%
Maintain Big sagebrush composition by dry weight of 0-10%
Maintain Pinyon-Juniper composition by dry weight of 0-5%

Rational: The ecological site for Key Area #1 is a Limestone Slopes 13-17 inch precipitation zone (pz). The long-range climatic trends for this area favor the cool season plants; that is, most of the moisture (70%) comes between October and May. In the climax plant community trees dominate, and have the competitive edge over shrubs and grasses for moisture and nutrients. Maintaining the existing amounts of the above listed forage species on this site and possibly increasing some of them will insure a good diversity of vegetation providing wildlife and livestock forage and watershed protection. The team determined that the DPC objectives established would promote attainment of the Land Use Plan (LUP) objectives.

Sagebrush, pinyon, and juniper are listed here only because members of the field tour did not want to see these species cross a certain composition threshold. The key species listed are the species recognized to be important for forage, watershed, and cover, and are components of the ecological site. The site guide allows 0 to 10% composition by dry weight for Bottlebrush squirreltail, 0-25% for Mutton bluegrass, 0-5% for Needlegrass, 10-25% for big sagebrush, 0-5% for Green Mormon Tea, 0-10% for Cliffrose, 0-5% for Pinyon, and 0-5% for Broom snakeweed. Apache-plume and Buckwheat are not listed in the site guide.

Key Area No. 2, located in the Lower Pasture:

Maintain Needlegrass composition by dry weight of 0-5%
Maintain Blackbrush composition by dry weight of 80-95%
Increase Green Mormon Tea composition by dry weight of 1-3%
Increase Cliffrose composition by dry weight to 1-3%
Maintain Apache-plume composition by dry weight of 0-3%

Rational: The ecological site for Key Area #2 is a Loamy Upland (Cal) 10-14 inch precipitation zone (pz). The long-range climatic trends for this area favor the cool season plants; that is, most of the moisture (70%) comes between October and May

. As a result of the soils and the climatic conditions, the site is basically a black brush community along with a few other desert shrubs (cliffrose, Ephedra, and yucca). Trees are scattered but increase with elevation and cool aspect. Perennial grasses are limited, very scattered, and are primarily cool season. Forbs are also infrequent. Maintaining the existing amounts of the above listed species on this site will insure the diversity depicted at potential natural community (PNC) providing watershed protection normal for the site. The team determined that the DPC objectives established would promote attainment of the LUP objectives.

The key species listed are the species recognized to be important for forage, watershed, and cover, and are components of the ecological site. The site guide allows 3-5% composition by dry weight for Needlegrass, 1-3% for Green Mormon Tea, and 2-3% for Cliffrose. Apache-plume is combined with Cliffrose in the site guide.

Arizona Strip Desert Bighorn Sheep Management Plan, as Amended (July 2006)

BS1 Enhance and maintain forage, water, and cover conditions on 720 square miles of bighorn sheep habitat so that watersheds are in proper functioning condition, ecological processes are maintained, water quality standards are met, and threatened and endangered species habitat is conserved. Manage this habitat to support an average density of no more than four sheep per square mile within each habitat area by the year 2010.

BS2 Increase populations of desert bighorn sheep to fully occupy 720 square miles of suitable habitat on the Arizona Strip at an average density of no more than four bighorn per square mile by the year 2010. Maximum populations for the four desert bighorn habitat areas would be 886 for the Virgin and Beaver Dam Mountains, 700 for the Grand Wash Cliffs, 820 for Kanab Creek, and 432 for the Paria-Vermillion Cliffs area. The maximum population for the Arizona Strip would be 2880 desert bighorn.

Parashant Habitat Management Plan (HMP)

MD1 Identify factors suppressing mule deer population recovery and, if possible, the cause(s) of the decline in the HMP area by 1998. Where possible, eliminate or reduce the impacts of limiting factors to initiate herd recovery.

MD2a Enhance and maintain forage, water, and cover conditions on 365,000 acres of mule deer habitat to support 2,200 deer yearlong in the HMP area by the year 2010.

MD2b Identify and manage for key forage and cover species in mule deer habitat, particularly crucial summer range, based on DPC, and establish key areas by 2000.

MD3a Increase the number of mule deer in the HMP area by at least 100 percent over the 1993 estimated population of 400 head by 2010.

MD3b Increase mule deer production and maintain an average fawn survival within AGFD species management guidelines for mule deer.

MD3c Increase and maintain post harvest buck to doe ratios within AGFD species management guidelines for mule deer.

D. Grazing System

Livestock grazing is yearlong. The permittee has a cow/calf operation and selectively keeps a few replacement heifer calves each year.

The winter grazing system is from December 16 to April 15. This involves two water rotations. During the first year, Yellowstone Spring is grazed from December 16 to February 15 then Lower Spring is grazed from February 16 to April 15. The rotation is switched the following year by starting the livestock at Lower Spring and moving them to Yellowstone Spring in February.

The summer grazing systems is a similar flip-flop using a reservoir and a trough in the upper pasture. During the first year, the reservoir is grazed from June 1 through July 15 then cattle are moved to the trough from July 16 through October 31. The rotation is switched the second year by grazing the trough June 1 through July 15, then moving to the reservoir.

The middle of the allotment is the transitional zone. Grazing occurs here between winter and summer, April 16 to May 31, and November 1 to December 15.

E. Other uses:

1. Special Status Species –

Listed below are the threatened and endangered (T and E) animal species that may occur within the Last Chance allotment.

- California Condor (*Gymnogyps californianus*), (Endangered)
- Mexican Spotted Owl (*Strix occidentalis lucida*) (Threatened)

Sensitive Species

Sensitive species are usually rare within at least a portion of their range. Many are protected under certain State and/or Federal laws. Species listed as sensitive by the BLM typically consist of small and widely dispersed populations, inhabit ecological refugia or specialized or unique habitats, could become endangered or extirpated within the State or a significant portion of its range, is under status review by the U.S. Fish and Wildlife Service (USFWS), or is State-listed, but may be better conserved through application of BLM sensitive species status. Arizona wildlife species of special concern are ones whose occurrence in Arizona is or may be in jeopardy, or have known or perceived threats or population declines, as described by the Arizona Game and Fish Department's listing of Wildlife of Special Concern in Arizona. Table 1 lists the sensitive animal species that may occur within the Last Chance Allotment.

Executive Order 13186 requires the BLM and other Federal agencies to work with the USFWS to provide protection for migratory birds. These species are protected by legislation and it is important to maintain habitat for these species so migratory patterns are not disrupted. All migratory birds are protected under the 1918 Migratory Bird Treaty Act (16 USC 703), which prohibits the taking of any migratory birds, their parts, nests, or eggs. Additional protection is provided by the Neotropical Migratory Bird Conservation Act of 2000 (16 USC Chapter 80).

Bald and golden eagles are protected by the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). This law, enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs.

**Table 1. Sensitive Species that are Known to Occur
or have the Potential to Occur* in the Allotments**

Species	Last Chance	BLM Sensitive	Arizona Wildlife Species of Concern
Bald eagle (<i>Haliaeetus leucocephalus</i>)	potential	no	endangered
American peregrine falcon (<i>Falco peregrinus</i>)	verified	yes	yes
Ferruginous hawk (<i>Buteo regalis</i>)	potential	yes	yes
Western burrowing owl (<i>Athene cunicularia hypugea</i>)	potential	yes	no
Loggerhead shrike (<i>Lanius ludovicianus</i>)	potential	yes	no
Spotted bat (<i>Euderma maculatum</i>)	potential	yes	yes
Western small-footed myotis (<i>Myotis ciliolabrum</i>)	potential	yes	no
Fringed myotis (<i>Myotis thysanodes</i>)	potential	yes	no
Big free-tailed bat (<i>Nyctinomops macrotis</i>)	potential	yes	yes
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	potential	no	no

* "Potential to occur" means that suitable habitat exists, but species presence has not been verified.

2. Other Wildlife Species

Both bighorn sheep and mule deer are known to occur in this allotment. Non-game wildlife found on the allotment is typical of the area, including a variety of small mammals, birds including raptors, and reptiles. Predators include coyotes, bobcats, and mountain lions.

3. Recreation

General Management. The Last Chance Allotment has high recreation values for its geology, scenic view sheds, remoteness, and solitude. General recreation activities include recreational OHV use and driving for pleasure on designated routes, horseback riding, hiking, backpacking, camping, hunting, photography, bird watching, and nature study. The allotment is within the Parashant Special Recreation Management Area (SRMA) and the Shivwitz Frontier Recreation Management Zone (RMZ). The primary strategy for the Parashant SRMA is to target a demonstrated undeveloped recreation-tourism market demand from local community and regional/national visitors for trophy hunting opportunities, guided

backcountry tours, hiking, viewing and appreciating wildland landscapes and cultural sites, canyoneering and motorized/mechanized/non-mechanized exploring. The area's distinctive remote, rugged landscape; its proximity to the Grand Canyon; its vast size; and the largely open and undeveloped character of its recreation settings support this demand. Regional and local recreation-tourism visitors value this area for the distinctive kinds of dispersed recreation it provides. The Shivwits Frontier RMZ is managed for sustainable access for scenic, natural, open-space appreciation, and exploration recreation adventure somewhat close to nearby communities.

Off-Highway Vehicle Designation. The OHV designation in this allotment is Limited to Designated Roads and Trails.

Wilderness Characteristics. The majority of the allotment is within an area managed to maintain wilderness characteristics.

Visual Resource Management (VRM). The entire allotment is designated VRM Class II. The VRM objectives provide visual management standards for the design and development of future projects and for the rehabilitation of existing projects in the Monument. The specific objective for VRM Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Trails. No historic, recreation, or scenic trails occur in the allotment.

4. Wilderness

There are no designated wilderness areas within the allotment boundaries. Grand Wash Cliffs Wilderness is on the southwest boundary of the allotment. However, a majority of the allotment is within an area managed to maintain wilderness characteristics.

F. Issues brought out in scoping meeting.

1. Issues relating to Rangeland Health and Guidelines for Grazing Administration

- a. There was an expressed concern that wildlife may not have safe access to both Upper and Lower Last Chance Springs.
- b. A concern was expressed that there is no water at spring sources.

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

- a. None

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 that identify terms and conditions for management on public lands within the Last Chance 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. Evaluation of rangeland conditions are based on all available monitoring, inventory, and assessment data.

B. Summary of Study Data

1. Livestock Actual Use

Below is the summary of actual use for the years 1975 to 2005. Since 1989 the number of AUMs authorized has been 609 AUMs which is lower than the number authorized between 1975 to 1988.

<u>Year</u>	<u>AUMs Used</u>	<u>% Used</u>	<u>AUMs Allowed</u>
1975	961	101%	955
1976	961	101%	955
1977	955	100%	955
1978	564	59%	955
1979	955	100%	955
1980	587	61%	955
1981	216	23%	955
1982	107	14%	758
1983	278	37%	758
1984	342	45%	758
1985	390	52%	758
1986	324	43%	758
1987	299	39%	758
1988	297	39%	758
1989	197	32%	609
1990	218	36%	609
1991	180	30%	609
1992	176	29%	609
1993	318	52%	609
1994	239	39%	609

<u>Year</u>	<u>AUMs Used</u>	<u>% Used</u>	<u>AUMs Allowed</u>
1995	332	55%	609
1996	224	37%	609
1997	224	37%	609
1998	223	37%	609
1999	103	17%	609
2000	182	30%	609
2001	181	30%	609
2002	192	32%	609
2003	204	33%	609
2004	235	35%	609
2005	86	14%	609

2. Precipitation

Olaf Knolls and Sullivan Tank precipitation gauges were used in this evaluation. Precipitation amounts vary due to extremes in elevation found in the allotment. Yearly moisture accumulations range from a maximum of 13-inches on the higher elevations to a minimum average of nine inches on the lower northern portion of the allotment. Most of the allotment is in a 12-inch precipitation zone; and between the two rain gauges 14-16% comes during the fall, 38% during the winter, 18-22% during the springs, and 25-30% during the summer.

Recent drought has and is still playing a major role in modifying the vegetative community as below average annual precipitation has been the norm for six out of the last nine years. Both winter and summer precipitation has been below average at both rain gauges during the same period.

The Sullivan Tank precipitation gauge is located 10 miles to the northeast of the Last Chance allotment. Table 2 lists yearly seasonal averages for that precipitation gauge. The fall annual average is 1.74 inches, winter is 4.71 inches, spring is 2.20 inches, summer is 3.76 inches, and annual precipitation is 12.41 inches.

The Olaf Knolls precipitation gauge is located approximately six miles to the west of the Last Chance allotment. Table 3 depicts the yearly seasonal averages for that precipitation gauge. The fall annual average is 1.36 inches, winter is 3.31 inches, spring is 1.92 inches, summer is 2.17 inches, and annual precipitation is 8.77 inches.

Table 2															
Sullivan Tank Precipitation Rain Gauge Number: 25															
Year	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Fall % Avg	78	90	81	65	50	127	134	88	154	112	199	51	32	51	115
Winter % Avg	212	205	212	48	102	85	36	138	32	100	41	93	44	97	87
Spring % Avg	172	91	75	170	140	153	32	86	139	174	163	56	68	56	199
Summer % Avg	50	121	123	117	169	150	188	81	89	89	85	77	169	75	103
Annual % Avg	137	143	142	93	122	123	95	104	85	111	98	76	84	77	116
Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Fall % Avg	133	130	89	137	158	80	147		108	72	115	29	288	86	101
Winter % Avg	242	75	195	99	80	128	31	77	98	42	95	77	117	13	42
Spring % Avg	120	90	85	84	80	83	114	12	131	5	114	62	137	142	34
Summer % Avg	38	33	110	36	173	239	93	72	20	21	120	160	60	73	66
Annual % Avg	143	73	135	83	119	147	81	53	82	33	109	93	127	64	56

Table 3															
Olaf Knolls Precipitation Rain Gauge Number: 08															
Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Fall % Avg		40	24	73	49	159	139	59	39	165	68	212		293	10
Winter % Avg	56	61	68	56	131	311	74	149	91	115	132	35	85	117	33
Spring % Avg	136	40	77	153	201	79	77	273	27	30	131	76	53	190	6
Summer % Avg	143	143	168	50	79	23	32	81	77	136	218	246	85	68	16
Annual % Avg	86	73	88	78	120	165	74	145	65	109	143	124	65	148	19
Year	2003	2004	2005	2006	2007	2008									
Fall % Avg	24	43	490	77	135										
Winter % Avg	84	105	281	17	28	73									
Spring % Avg	187	31	133	159	27	15									
Summer % Avg	64	83	108	76	106										
Annual % Avg	92	74	238	72	64	31									

3. Utilization

Utilization is the portion or amount of a key plant species current year's growth that is consumed or destroyed by animals.

Utilization data on key plant species from 1982-2000 is shown in Table 4. The Key Species Grazed Class method was used to collect the data. Utilization was read at or around the designated key area for each pasture.

In table 4 the shaded area shows where the limits (by percentage) were exceeded.

Table 4																
KA #1	1982	1984	1985	1987	1988	1989	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bottlebrush squirreltail	27	19	25	15	21	11	11	24	28	24	20	25	30	32	17	20
Poa	34	18	44	30	36	14	19	24	29	9	14	35	22	29	15	16
Cliffrose	18	14	15	35	30	25	26	28	28	23	23	30	34	32	9	10
Buckwheat	29	16	15	10	25	9	14	17	18	10	16	35	31	29	13	13
KA #2	1983	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Epne	12	8	20	43	46	54	46	40	26	35	32	10	15	13	9	
Cliffrose	25	28	25	52	44	51	44	43	31	39	15	13	17	13	10	

4. Trend

The trend of an area may be judged by noting changes in vegetation attributes such as species composition, density, cover, production, and frequency. Vegetation data is collected at different points in time on the same key area, and results are compared to detect change. (Analysis assumes the use of a binomial confidence limits table to evaluate significant differences in frequency readings for different years.)

Trend monitoring was conducted at two key areas over the AMP area, using the pace-frequency method. Cover data was collected to determine the percent of bare ground, litter, rock and live basal vegetation. Ground cover was determined by dividing the total number of hits for all categories except bare ground by the total number of hits (including bare ground) See page 73 of TR 1734-4. In addition, the occurrence frequency of all plant species was collected. A trend up, down, or static refers to the direction of change to the key plant frequency at the key area.

Monitoring data (1982 to 2004) from the Last Chance allotment, shown in Table 5, indicates that the drought (1998 to 2004) has influenced trends on both key areas. This is evidenced by comparing the trend of the frequency data from 2000 with the 2004 data which shows some species decreased due to the drought.

The overall trend from the base year indicates one key species improved, and 8 remained static. Ground cover showed an improving trend on both key areas. Live vegetative cover also improved on both key areas. (For specific information, see Appendix "D" pace frequency analysis tables).

Table 5								
Key Area #1 located in the Upper Pasture								
Cover Categories	years plot were read						Trend	
	1982	1986	1991	1995	2000	2004		
Bare Ground	37	35	36	34	36	21	↑	
Litter	49	43	37	50	33	68	↑	
Rock	11	20	23	13	25	3	↓	
Basal Cover	2	2	3	4	5	7	↑	
% Ground Cover	63	65	64	66	64	79	↑	
Key Species								
Cliffrose	11	6	7	8	8	10	→	
Bottlebrush squirreltail	0	3	5	6	5		→	
Needlegrass				1			→	
Mutton bluegrass	2	12	13	19	15	1	→	
Buckwheat		18	16	14	20	35	↑	
Green Mormon Tea	1	3	3	3	2	0	→	
Key Area #2 located in the Lower Pasture								
Cover Categories	years plots were read							Trend
	1982	1984	1989	1992	1995	2000	2004	
Bare Ground	30	25	25	26	26	31	16	↑
Litter	55	48	47	55	58	47	71	↑
Rock	15	26	27	16	13	18	7	↓
Basal Cover	1	3	3	4	4	5	6	↑
% Ground Cover	71	76	75	74	74	69	84	↑
Key Species								
Cliffrose	1	1	2	3	4	2	0	→
Apache-plume	1						1	→
Green Mormon Tea	1	1	1	2	1	1	1	→

5. Ecological Site Inventory

The “Dry Weight Rank” vegetative sampling method was used to measure composition, which is the proportion (percentage) of various plants in relation to the total at a particular area. This vegetation attribute is also used to describe ecological sites. An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. It is the product of all the environmental factors responsible for its development. Ecological sites have developed a characteristic kind and amount of vegetation. The natural plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in annual production (*Ecological Site Inventory*, BLM, 2001). While the natural plant community of a particular ecological site is recognized by characteristic *patterns* of species associations and community structure, the *specific species* present from one location to another may exhibit natural variability. The natural plant community is not a precise assemblage of species for which the proportions are the same from place to place or even in the same place from year to year. Variability is the rule rather than the exception.

The distinctive plant communities associated with each ecological site (including the variability which frequently occurs) can be identified and described, and are called ecological site descriptions. These ecological site descriptions (or guides) are provided by the Natural Resource Conservation Service. The ecological site’s potential for change in composition over time was considered along with other vegetation attributes to quantify desired plant community objectives for each key area. The potential composition is determined by the applicable soil type and precipitation zone. These potentials are described in the Ecological Site Guides.

Ecological (successional) status is the present state of the vegetation at an ecological site in relation to the potential natural community (PNC). PNC may include “acclimatized or naturalized nonnative species” (*Interpreting Indicators of Rangeland Health*, BLM, 2005 and *Ecological Site Inventory*, BLM, 2001). PNC differs from “historic climax plant community” in that an historic climax plant community is “the plant community that existed before European immigration and settlement” (*Ecological Site Inventory*, BLM, 2001). The BLM uses “potential natural community” terminology rather than “historic climax plant community” because PNC recognizes past influences by man. It is an expression of the relative degree to which the kinds, proportions, and amount of plants in a plant community resemble that of the PNC for the site.

Table 6 compares the most recent key species composition data with the base year at key areas in relation to allowable percent composition from the site-guide and the DPC objectives. (See appendices for specific ecological site information.)

Table #6					
Key Area	Plant Species	Site-Guide Allowable Percent Composition	Composition		Desired Percent Composition Objective
			2000	2004	
1	Bottlebrush squirreltail	0-10	1%		1-5%
	Mutton bluegrass	0-25	3%		3-10%
	Needlegrass	0-5			0-3%
	Cliffrose	0-10	5%	9%	5-10%
	Green Mormon Tea	0-5	3%		0-5%
	Apache-plume	-	2%	9%	2-10%
	Buckwheat	-	16%	15%	5-15%
	Big sagebrush	0-10	45%	13%	0-10%
	Pinyon	0-5	9%	13%	0-5%
2	Needlegrass	3-5%			0-5%
	Blackbrush	85-90%	81%	90%	80-95%
	Green Mormon Tea	1-3%	1%		1-3%
	Cliffrose	2-3%			1-3%
	Apache-plume	included in Cliffrose			0-3%

6. Special Status Species

California Condor: The California Condor was listed as endangered in 1967. In the late 1970's, the species was reduced to a population of less than 25 birds. The decision was made to bring all of the wild condors into captivity to begin a captive breeding program, the last wild condor was secured in April of 1987. In 1996, California condors were re-introduced into Arizona in the Vermillion cliffs, under the ESA's 10J rule (non-essential experimental). Subsequent condor releases have occurred annually, with additional releases in 1998 and 1999 (16 condors) from the Hurricane Cliffs northeast of Diamond Butte.

As of July 14, 2008, there were 63 condors in the wild in northern Arizona. The reintroduced population as a whole appears to be stable and is increasing. Two pairs of Arizona condors incubated eggs in 2004. Both eggs hatched and two chicks were visually confirmed. The reintroduction continues annually as captive-reared birds are released along the Vermilion Cliffs. Each released condor is equipped with radio telemetry or GPS satellite transmitters and numbered wing tags to allow observers to track their movements.

Condors range widely, easily covering over 100 miles in a day. Their current range includes the entire Arizona Strip, throughout the Grand Canyon, into adjacent Utah and Nevada, and south of the Grand Canyon in Arizona. 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. They have also been seen flying over Fredonia. Condors are strictly scavengers and prefer to eat large, dead mammals such as mule deer, elk, pronghorn,

bighorn sheep, cattle, and horses. While the condors now find much of their food on their own, carcasses of dairy calves are provided near the Vermilion Cliffs release site in order to provide carrion which is contaminant free. Condors are especially vulnerable to lead poisoning.

Mexican spotted owls (*Strix occidentalis lucida*) are a federally threatened species. They are known to nest in Zion and Grand Canyon National Parks near Arizona Strip BLM lands. To date, no spotted owls have been found to nest within the Monument or on the Arizona Strip District, although a confirmed sighting of an owl occurred in 2007 just north of Colorado City and feathers collected in 2008 from Paria Canyon were confirmed as being from a Mexican spotted owl.

The Mexican spotted owl requires steep, narrow canyons with microsites that remain cool during most of the day. They can also use mixed conifer stands. There is no mixed conifer within the Last Chance allotment and canyons on the Monument are generally too open and hot to support Mexican spotted owls. An extremely small portion of this allotment, approximately two percent, contains habitat designated as potential Mexican spotted owl habitat by the Spotskey-Willey habitat model.

Sensitive Species

Bald eagles may occur on this allotment. The bald eagle was delisted from the Federal Endangered Species Act (ESA) in June 2007. This species is not known to nest anywhere on the BLM's Arizona Strip District. The bald eagle is a seasonal (winter) migrant that forages in and around the Kaibab Plateau. Bald eagles are both scavengers and predators.

The American peregrine falcon was delisted from the Federal ESA in October 1999. There are monitoring requirements developed by the USFWS to assess the status of the species regionally. Historic and active nests are monitored annually by BLM biologists on the Arizona Strip District. Falcons may fly over and forage on the Last Chance allotment. Optimum peregrine falcon habitat is considered to be steep cliffs overlooking woodlands, riparian habitats, or other areas supporting abundant avian prey species. Peregrines return to breeding areas in Arizona from mid-February to mid-March. Egg laying occurs from mid-March through mid-May, and the young can fledge from May through August.

The ferruginous hawk is known from the BLM's Arizona Strip District, yet not from this allotment. However, suitable habitat exists. Western burrowing owls are known from northern Arizona and suitable habitat occurs within this allotment. However, no specific data occurs regarding occupancy or use for foraging.

Loggerhead shrikes range across the Arizona Strip. Habitat requirements include tree or shrub nesting substrate, perches for hunting and territory advertisement, open foraging areas, and prey impaling sites. Their habitat requirements are adequately met on this allotment. Range wide, the loggerhead shrike is in decline due primarily

to loss and degradation of suitable habitat. Arizona Strip District habitat has not been altered to the degree of most of the shrike's range. This species is expected to occur on this allotment, but population data is not available.

There is high potential for the spotted bat, western small-footed myotis, fringed myotis, big free-tailed bat, and Townsend's big-eared bat to occur on this allotment. All five species have been captured and recorded as part of a monitoring program on surrounding allotments, yet no monitoring has occurred within the Last Chance allotment. Although Townsend's big-eared bat is not listed as a species of concern by the BLM or AGFD, it is locally rare and closely monitored.

7. Wildlife Habitat

Habitat for mule deer on this allotment is identified by the AGFD as yearlong in the middle bench area of the allotment and summer on the upper bench of the Grand Wash Cliffs. None of the area is considered critical. Deer population data is not collected specifically for this allotment, but is collected by AGFD for Game Management Unit (GMU) 13B of which it is part.

GMU 13B, which covers Arizona Strip BLM managed lands west of the Hurricane Cliffs, is famous for producing large antlered "trophy" class mule deer bucks. Despite low deer densities throughout the unit, good numbers of deer can typically be found in the higher elevations, generally over 4,000 feet. In the southern portion of the unit, from approximately Hidden Canyon south, hunters can find deer in the "Parashant" area of Mount Dellenbaugh and Snap point and all points in between. Other areas include Grassy Mountain, the Hidden Rim and Whitmore Point.

Deer are opportunistic feeders and will actually eat most plants. However, in winter the deer diet tends to favor shrubs, and the shrub cliffrose is the most important deer winter browse species in this allotment. The frequency of cliffrose in the two key areas of this allotment does not show significant change. This would be expected with a low density deer herd. AGFD perform annual game surveys and the 13B population trend/status of mule deer appears stable. See Appendix E for survey results.

Bighorn sheep are historically native to this area, but were extirpated in the early 1900's. Restoration efforts by AGFD and BLM were begun in 1983 and have been funded largely by hunters. Eighty-three bighorn sheep were released into the Grand Wash Cliffs Bighorn Sheep Habitat Area from 1983 to 1996. An additional 22 bighorn were released in 1999. The Grand Wash Cliffs Habitat Area, which supports approximately 90 bighorn, consists of approximately 113,360 acres. The population is generally stable and more than 87% of the suitable bighorn sheep habitat is unoccupied. Available water for the bighorn is thought to be the primary limiting factor.

Desert bighorn eat a wide variety of vegetation. Their diet varies by season, but in general, grasses are preferred, and forbs are important. In the winter months, as well as when there is a general scarcity of grass, shrub use increases. Two wildlife water catchments in the Grand Wash Cliffs Habitat Area were re-constructed in May of 2004. No water developments in this allotment are known to be regularly used by bighorn.

8. Riparian/Fisheries Habitat

There is no riparian/fisheries habitat in this allotment.

9. Wild Horse and Burro Habitat

There are no wild horses or burros in this allotment.

10. Lithology and Soils

Lithology

The Last Chance allotment consists of Kaibab limestone hills on the west edge of a plateau including escarpments and a canyon at its north end.

Soils

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

- 25 Goesling loam, 1 to 5 percent slopes (stream terrace), Moenkopi; Loamy Upland (Gravelly), 13" to 17"
- 45 Mellenthin-Rock outcrop-Torriorthents complex, 10 to 70 percent slopes (hills) Kaibab; Mellenthin=Shallow Loamy, 9" to 13"; Torriorthents=Breaks, 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"
- 52 Meriwhitica-RO-Strych complex, 35 to 70 percent slopes, warm, (scarps, cliffs, canyon walls), basalt, limestone, sandstone, gypsite, shale, conglomerates; Meriwhitica=Breaks (calcareous), 9" to 13"; Strych=Loamy Upland (calcareous), 9" to 13"
- 76 Tassi-Risno complex, 5 to 35 percent slopes, (benches), limestone, sandstone; Tassi=Shallow Upland (calcareous), 9" to 13" ppt
- 93 Yumtheska-Katzine-Rock Outcrop complex, 2 to 30 percent slopes (hills) limestone; Yumtheska=Limestone Slopes (PJ-Woodland), 13" to 17"; Katzine=Loamy Upland (gravelly) PJ-Woodland, 13" to 17"
- 95 Yumtheska- Natank complex, 10 to 45 percent slopes (plateau, mesa), limestone; Yumtheska=Limestone Slopes (PJ-Woodland), 13" to 17"; Natank=Clay Loam Upland (gravelly) PJ-Woodland, 13" to 17"

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

1. Issues relating to Rangeland Health and Guidelines for Grazing Administration

- a. **There was an expressed concern that wildlife may not have safe access to both Upper and Lower Last Chance Springs.**

Water is an important habitat component for wildlife, including mule deer, in this allotment. The allotment's livestock use has sometimes inappropriately conflicted with the water needs of wildlife, particularly at corrals with a taller fence surrounding the waters deer access could be restricted.

The status of the existing L. C. Point Spring development and the BLM wildlife water catchment in T. 35 N., R. 13 W., Section 6 is not known due to difficulty in getting to them because of the topography.

Regarding Upper Last Chance Spring, the AGFD has built a new pipe enclosure fence around source. This sturdy fence will preclude livestock from accessing the source of the spring and the wildlife drinker area. On April 28, 2004, there was very little water in a small pool hidden in a little cave-like aperture. However, the proximity of the water to the rocky outcrop and the small size of the fenced enclosure may expose wildlife to a greater potential for predation.

At Lower Last Chance Spring, there is wildlife access to the spring and there was water at source on November 2, 2005, (see photo page 50, this document). However, there is not good safe access to water inside the corral aside from the gate (which is open except during the gathering of livestock) for wildlife due to the height of the corral fence. Water flows were not measured during recent field trips, however, flows measured at trough during September 1980 yielded approximately ½ gallon per minute.

When this same waterlot was visited again with the S&G team on April 28, 2004, conditions were about the same except drier, and additional problems were noted. For example, a small stack of hay was present, and the one water trough, which deer had access to, was dry. The permittee was present and stated he was currently trapping his cattle at the site and feeding the cattle hay while they were confined to the corral pens. From a wildlife perspective, such cattle trapping and holding prevents reasonable wildlife access to water.

b. A concern was expressed that there is no water at spring sources.

At Upper Last Chance Spring, water was at the source on January 12, 2004, also on April 28, 2004, but a lesser amount. There has been a pipe fence placed around the source to keep livestock out of the spring area.

When Lower Last Chance Spring was visited on January 12, 2004, very little water was present at the spring source. On April 28, 2004, the spring site was not visited, but was reportedly dry. The current drought conditions may be a major factor in the low flows. No excess water was present. Lower Last Chance Spring was visited again on November 2, 2005 and there was a small pool of water at the source.

V. Conclusions

A. Pertaining to Objectives

1. Land Use Plan Objectives

Grand Canyon – Parashant National Monument Resource Management Plan²

Watershed / Soil Stability

DFC-VM-04

Vegetative communities will provide sufficient plant cover and litter accumulation to protect soils from wind and water erosion and enhance nutrient cycling and productivity, even during drought years.

DFC-WS-06

The natural hydrologic functions of all watersheds will be intact.

DFC-WS-07

Soils will exhibit infiltration, permeability, and erosion rates appropriate for the soil type, climate, and landform.

DFC-WS-08

Physical soil crusts will show an increase in organic cover including cryptobiotic colonies, moving them towards being organic crusts.

These objectives are being met over most of the allotment. However, due to wildfire on the west mountainous area during 2005, the native vegetation has been replaced with non-native annual vegetation, such as cheatgrass. These areas are showing recovery. Standards and Guides field assessments, done by an interdisciplinary team, indicate that litter and vegetation is present to protect the soils from wind and

² Similar RMP objectives have been grouped together with one conclusion per grouping.

water erosion. Soil and vegetative condition and watershed function were judged to be at acceptable levels.

Ecological Processes

DFC-VM-05

Ecological processes and functions will be protected, enhanced, and/or restored by allowing tools that are necessary and appropriate to mitigate adverse impacts of allowable uses and undesirable disturbances, and contribute to meeting the Standards for Rangeland Health and NPS Vital Signs and enhance Monument values.

DFC-WF-01

Ecological conditions will be within the range of natural variability and will be functional for dependant animal species.

DFC-WF-12

The natural biological diversity of fish, wildlife, and plant species will be maintained or, where necessary and feasible, restored throughout the Monument. Habitats will be managed on an ecosystem basis, ensuring that all parts of the ecosystem and natural processes are functional.

These objectives are being met. Ecological processes, functions, and condition as well as wildlife habitat needs were considered in developing the DPC objectives for this allotment. Site visits to the allotments determined that soils are within normal parameters and functioning properly or are making significant progress toward functioning properly as evidenced by analyses and supporting documentation referenced herein, and by on site observation. Plant communities include native trees, shrubs, perennial grasses, and annual and biennial forbs.

Invasive Plants

DFC-VM-06

Invasive plant species will be contained, controlled, or eliminated and native species restored to meet desired plant community (DPC) objectives.

This objective is being met to the extent feasible. Noxious plants are monitored and treated as resources allow. To this date, no noxious weeds have been located on this allotment. In developing the DPC objectives, the focus will not be solely on removal of invasive species but rather on enhancing the current species that exist. Invasive plants issues will continue to be addressed as technology and funding allows. In an allotment several miles to the west a research project is ongoing that is testing ways to control red brome.

Fuel Loads

DFC-VM-07/DFC-FM-06

Each vegetation community is maintained within its natural range of variation in plant composition, structure, and function, and fuel loads are maintained below levels that are considered to be hazardous.

This objective is being met to the extent feasible. DPC objectives for the allotment have been set within the site potential as described in the ecological site guides provided by NRCS. There are no fuels reductions planned for this allotment. However, if the technology and funding become available, then ways to treat cheatgrass and reduce the fuel loads below levels that are considered hazardous might be addressed.

No Net Loss

DFC-VM-15

There will be no net loss of total acres within sagebrush communities (i.e., long-term or permanent removal from the landscape). A no net loss objective will not preclude restoration, rehabilitation, or related management actions.

DFC-VM-37

There will be no net loss in acres of Transition plant communities (i.e., long-term or permanent removal from the landscape). A no net loss objective will not preclude restoration, rehabilitation, or related management actions.

These objectives are being met. Effects to native plant communities are evaluated in all project-level NEPA analyses.

Livestock Grazing

DFC-GM-02.

Livestock use and associated management practices will be conducted in a manner consistent with other resource needs and objectives to ensure that the health of rangeland resources is preserved or improved so that they are productive for all rangeland values. Where needed, public rangeland ecosystems will be improved to meet objectives.

DFC-GM-04.

Monument values will be maintained, protected, and improved.

This objective is being met. DPC objectives have been developed, and livestock grazing is being managed to maintain or improve the ecological condition of the allotment and protect monument values. This was accomplished by setting the allowable AUMs, season of use, and allowable utilization level followed by

monitoring to determine effectiveness. These actions will ensure rangeland resources including Monument values (i.e. T&E and Special Status Species, wildlife habitat, native vegetation, watershed function, and soil productivity) are preserved or improved.

Desired Plant Community

DFC-GM-01

Healthy, sustainable rangeland ecosystems will be maintained or improved to meet Arizona's Standards for Rangeland Health and Vital Sign Standards on NPS-administered lands, and produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds.

DFC-VM-03

Native vegetative communities will be protected. A mosaic of native perennial and non-invasive annual vegetative communities will be present across the landscape with diversity of species, canopy, density, and age class reflecting its local ecological site potential and naturally occurring habitat conditions.

DFC-VM-14

*Sagebrush (primarily *Artemisia tridentata*) communities will consist of a healthy, diverse mosaic of different height and age structures with a thriving community of native grasses and forbs. Mosaics may include stands of young and old sagebrush, openings (ranging from bare ground to short or sparse vegetation to high-density grasslands), wet meadows, seeps, healthy streamside (riparian) vegetation, and other interspersed shrub and woodland habitats.*

DFC-VM-16

Treatment objectives in sagebrush communities will focus on restoring natural disturbance processes, such as by using fire, increasing vegetative ground cover of native grasses and forbs, and removing invasive non-native plants.

DFC-VM-18

Existing stands of sagebrush will have a balance between shrub and perennial grass cover, for open to moderate shrub canopy cover (5 to 25%), and multiple height classes. This mosaic will include young, sparse stands to support Vesper sparrows and lark sparrows, and older, dense stands to benefit Brewer's sparrows, sage sparrows, black-throated sparrows, gray flycatchers, and sage thrashers.

DFC-VM-19

Sagebrush communities will include small, grassy openings to support long-billed curlews and burrowing owls.

DFC-VM-20

Sagebrush communities will include large, continuous blocks (≥ 300 acres) of unfragmented sagebrush habitat, including mosaics of open to moderate shrub canopy cover (5 to 25%) and multiple age and height classes to benefit sage-dependent species.

DFC-VM-21

Sagebrush communities will include openings of short vegetation surrounded by sagebrush for ground foraging by sage thrashers, loggerhead shrikes, Brewer's sparrows, and sage sparrows.

DFC-VM-22

Sagebrush communities will include openings of short vegetation (2 to 8 in.) with wide visibility to provide breeding habitat for long-billed curlews, and burrowing owls.

DFC-VM-23

Sagebrush communities will include native grass and forb cover in balance with open to moderate (5 to 25%) shrub canopy cover and within ecological site potential. Perennial grass components will be at or above 10%. Native forb composition will be at or above 5%.

DFC-VM-24

Fragmentation of sagebrush habitat will be less than 50% of the treatment area.

DFC-VM-25

Healthy, diverse woodland communities will consist of a mosaic of trees, shrubs, grasses, and forbs. Mosaic patches can include stands of young and old pinyon-juniper, openings, wet meadows, seeps, and other interspersed shrub habitats. The communities will be composed of a variety of different height structures and age classes, with a thriving understory community of native grasses, forbs, and shrubs.

DFC-VM-27

Treatment objectives in the pinyon-juniper vegetation communities will focus on restoring the natural disturbance regime; increasing vegetative ground cover of native grasses, forbs, and shrubs; and removing non-native invasive species.

DFC-VM-28

Stands of pinyon-juniper will include a balance between tree, shrub, and perennial grass cover to support pinyon jay and mule deer. This mosaic will include stands of old growth pinyon-juniper to support juniper titmouse; large openings of grasses, forbs and shrubs to support mule deer and provide foraging habitat for raptors such as sharp-shinned hawk, northern goshawk, Coopers hawk, American kestrel, and red-tailed hawk; and areas of sparse to dense tree canopy cover to support pinyon jay.

DFC-VM-29

Individual old growth trees will be present and will be protected during treatment implementation.

DFC-VM-34

Endemic plant species and associated communities such as black brush, Joshua tree, Mojave yucca, and cacti will be present along with other shrubs, grasses, and wildflowers. These communities can include stands of young and old shrubs, sparse vegetation, scattered to larger expanses of black brush to various mixes of black brush, Joshua trees, pinyon-juniper, yucca, and shrub habitats.

DFC-VM-36

Priority plant species and associated communities such as black brush, Joshua tree, Mojave yucca, and cacti will be present along with other shrubs, grasses, and wildflowers. These communities can include stands of young and old shrubs, sparse vegetation, scattered to larger expanses of black brush to various mixes of black brush, Joshua trees, pinyon-juniper, yucca, and shrub habitats.

DFC-WF-17

Mule deer habitat in pinyon-juniper woodland sites will include a healthy diverse mosaic of trees, shrubs, grasses, and forbs.

These objectives are being met. The allotment supports a diversity of wildlife (including avian species, reptiles, and large and small mammals), and provides forage for livestock, recreational opportunities, and functional watersheds. The DPC objectives that have been developed and addressed for this allotment consider these public values. Communities of healthy diverse habitat including vertical and horizontal structures, vegetative age classes, and endemic species are present throughout the allotment.

Wildlife Habitat

DFC-WF-02

Native wildlife communities will be protected. A complete range of diverse, healthy, and self-sustaining populations of native animal species will occupy all available suitable habitats.

This objective is being met. DPC objectives consider the needs of endemic wildlife species and their habitat. Objectives for this allotment have been developed and addressed that incorporate wildlife needs.

Habitat Connectivity

DFC-WF-06

Habitat connectivity and wildlife movement between ecological zones will be maintained.

This objective is being met through continued wildlife population and habitat monitoring. Habitat connectivity and wildlife movement are taken into consideration for all project level planning, including travel management.

Wildlife Forage Needs

DFC-WF-30

On BLM-administered lands, forage in desert bighorn sheep habitat areas will include at least 20% grasses, 20% forbs, and 20% palatable shrub species CBW, where consistent with site potential.

This objective is being addressed. Sustainability needs such as appropriate forage composition for desert bighorn sheep were taken into consideration when the DPC objectives for this allotment were developed. Impacts to wildlife, including bighorn sheep, and their forage needs are taken into consideration and analyzed during all project-level planning.

Fences

DFC-WF-05

Fences will be the minimum necessary for effective livestock control or other administrative purposes. Fences will be wildlife passable, consistent with the species found in the area.

DFC-WF-20

All fences in mule deer habitat will be deer passable.

These objectives are being addressed. A fence inventory that encompasses the entire Arizona Strip District (including this allotment) is near completion. Results will identify where fence modification is needed. Additionally, a mule deer management plan is being jointly developed by the BLM and AGFD. This plan will outline objectives to better manage this species.

Healthy Wildlife Populations

DFC-WF-03

Forage, water, cover, and space will be available to wildlife of sufficient quantity and quality to support productive and diverse wildlife populations.

DFC-WF-13

Mule deer habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-28

Desert bighorn habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-35

Desert cottontail habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-37

Migratory bird habitats will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

DFC-WF-45

Carnivore habitat will provide the necessary forage, water, and shelter components for healthy, self-sustaining populations within the range of natural variability.

These objectives are all being addressed. Sustainability needs (such as forage, cover, and shelter) for wildlife including mule deer, bighorn sheep, migratory birds, and carnivores were taken into consideration when the DPC objectives for this allotment were developed. Wildlife waters are inspected by the BLM and AGFD and maintained/repared as funding allows. A mule deer management plan is being jointly developed between the BLM and AGFD. This plan will outline objectives to better manage this species. Wildlife population and habitat monitoring will continue. Impacts to wildlife (including mule deer, bighorn sheep, migratory birds, and carnivores) and their sustainability needs are taken into consideration and analyzed during all project-level planning.

Wildlife Population Numbers

DFC-WF-14

On BLM administered lands, mule deer populations will be at or near maximum levels sustainable for the habitat.

DFC-WF-29

On BLM-administered Lands, desert bighorn sheep populations will be at or near maximum levels sustainable for the habitat.

DFC-WF-36

Desert cottontail rabbits will be present in sufficient quantity to provide an adequate prey base for raptors, carnivores, and other predatory species, as well as ample recreational opportunities for hunting and wildlife viewing.

DFC-WF-38

Migratory birds that nest in the Monument will have resources of sufficient quantity and quality to provide for nesting sites and to fledge young successfully.

These objectives are being addressed. Sustainability needs such as forage, cover, shelter, and nesting sites, for mule deer, bighorn sheep, and migratory birds have been taken into consideration when developing DPC objectives for this allotment. A mule deer management plan, which will outline objectives to better manage this species, is being jointly developed by the BLM and AGFD. Annual mule deer population surveys will continue and the results will provide data to assist in management of this and other species.

Wildlife Waters

DFC-WF-04

All waters will be safely accessible to wildlife.

DFC-WF-18

Water sources within mule deer habitat will be safely accessible to deer and other wildlife.

DFC-WF-19

On BLM administered lands, water sources within mule deer habitat will be spaced no more than 3 miles apart.

DFC-WF-31

Water sources within bighorn sheep habitat areas will be safely accessible to bighorn and other wildlife.

DFC-WF-32

On BLM-administered lands, water sources within bighorn sheep habitat will be spaced no more than 4 miles apart.

DFC-WF-43

Water sources within game bird habitats will be safely accessible by all wildlife.

These objectives are all being met. Wildlife and livestock water catchments are inspected and repaired/maintained as funding allows; those found to be hazardous to wildlife are modified. A mule deer management plan, which will outline objectives to better manage this species, is being jointly developed by the BLM and AGFD.

Also, the catchments located within the allotment are now fenced with a pipe fence designed by AGFD to allow deer and wildlife free access but preclude livestock.

Threatened and Endangered Species Habitat

DFC-TE-03

The Monument will provide a block of remote, contiguous habitat that will serve as refugia for populations of special status species.

DFC-TE-21

Habitat areas for special status raptors will provide sufficient forage and cover attributes to support thriving populations of the species.

DFC-TE-23

Potential roosting and nesting sites (for special status raptors) will be abundant.

These objectives are all being met. Quantity and quality of habitat for special status species are taken into consideration for all project-level planning, including applications for new trails, roads, or projects that bisect contiguous habitat and/or may affect the habitat needs for these species. Sustainability needs such as prey items, forage, cover, roosting and nesting sites, and quantity of suitable habitat for special status raptors and riparian-dependent special status bird species have also been taken into consideration when developing the DPC objectives for this allotment.

Healthy Threatened and Endangered Populations

DFC-TE-20

Special status raptor populations will be healthy and self-sustaining throughout their range.

DFC-TE-25

Rodent populations, as a prey base (for special status raptors), within the Monument will be abundant.

DFC-TE-28

Peregrine falcon, ferruginous hawks, common black hawks, northern goshawks, and burrowing owls will be sufficiently abundant so that there will be no need to list these species.

These objectives are being met. Quantity and quality of habitat for special status species, including the desert tortoise, are taken into consideration for all project-level planning, including applications for new trails, roads, or projects that bisect contiguous habitat and/or may affect the habitat needs for these species. Sustainability needs such as prey items, forage, cover, roosting and nesting sites, and quantity of suitable habitat for special status raptors, including peregrine falcon,

ferruginous hawks, and burrowing owls have also been taken into consideration when developing the DPC objectives for this allotment. Common black hawks and northern goshawks are not known from this allotment.

No Net Loss of Threatened and Endangered Species Habitat

DFC-TE-04& DFC-TE-08

There will be no net loss in the quality or quantity of special status species habitat throughout the Monument.

DFC-TE-22

No net loss will occur in the quality and quantity of suitable habitat for special status raptors within the Monument.

DFC-TE-29

No net loss will occur in the quality and quantity of suitable habitat for riparian-dependent special status bird species within the Monument.

These objectives are all being met. Quantity and quality of habitat for special status species are taken into consideration for all project-level planning, including applications for new trails, roads, or projects that bisect contiguous habitat and/or may affect the habitat needs for these species. Sustainability needs such as prey items, forage, cover, roosting and nesting sites, and quantity of suitable habitat for special status raptors and riparian-dependent special status bird species have also been taken into consideration when developing the DPC objectives for this allotment.

Condors

DFC-TE-27

The experimental non-essential population of California condor will be at or above 150 individuals, viable, and stable to increasing in number.

This objective is being met. The BLM works cooperatively with the U.S. Fish and Wildlife Service, AGFD, and the Peregrine Fund to continue the highly successful California condor reintroduction program on the Arizona Strip. The BLM provides financial and in-kind assistance to this program. Sustainability needs such as forage and cover for the California condor were taken into consideration when the DPC objectives for this allotment were developed.

Wilderness Characteristics

DFC-WC-02

Areas where wilderness characteristics will be maintained will be ecologically sustainable and resilient to natural and human-caused disturbances.

This objective is being met. Wilderness characteristics are taken into consideration for all project-level planning.

Recreation and Visitor Services

DFC-RR-01

Recreation and visitor services will be managed to provide varying levels of structured recreation opportunities that offer a range of specific benefits, activities, and experiences within outdoor settings.

DFC-RR-05

The excellent opportunities that exist to enjoy remote, rustic settings that provide moderate challenge and solitude in the Specialized TMAs will be maintained/enhanced.

DFC-RR-06

In Backways and Specialized TMAs, recreation opportunities associated with somewhat remote settings, such as exploring backcountry roads, vehicle camping, hunting, sightseeing, recreation aviation, and picnicking will be maintained/enhanced on existing roads, provided they will be compatible with the protection and enhancement of sensitive resource values, where appropriate.

DFC-RR-07

In the Primitive TMA, high quality recreation opportunities associated more with primitive recreation experience opportunities and non-motorized uses such as camping, sightseeing, hiking, horseback riding, and hunting, will be maintained/enhanced, provided they will be compatible with the protection and enhancement of sensitive resource values, where appropriate.

These objectives are being met because a wide variety of recreation experiences are available to local community members and regional visitors within the Parashant SRMA in this allotment.

Visual Resources

DFC-VR-01

Public lands will be managed in a manner, which will protect the quality of the scenic (visual) values of these lands. (43 U.S. Code [USC] 1701, Section 102 (a) (8)).

DFC-VR-03

The region's scenic beauty, open space landscapes, and other high-quality visual resources will be maintained within the Monument.

The objectives for management of visual resources in this allotment are being met. Visual resources are taken into consideration for all project-level planning.

2. Specific Resource Objectives

Last Chance Allotment Management Plan Objectives:

Key Area Number 1: located in the upper pasture

Squirreltail/mutton bluegrass (Sitanion hystrix/Poa fendleriana) increase frequency from 2% to 6%.

Objective not met. Currently at 1%. However, prior to the drought Bottlebrush squirreltail/Poa frequency was 15% in 1986, 18% in 1991, 25% in 1995, and 20% in 2000.

Buckwheat (Eriogonum species) maintain frequency at 19 to 20%

Objective met, currently at 35%.

Cliffrose (Cowania mexicana) maintain frequency at 10 to 11%

Objective met, currently at 10%.

Vegetation Cover (basal) increase cover from 2% to 6-8%

Objective met, currently at 7%.

Summary for Key Area #1:

A determination at the site was made by the IAT that standard number one was being met. The soils did exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform. Based on the annual/perennial vegetation, litter or rock etc., there is adequate ground cover (ground cover had changed from 63% to 79%) to prevent accelerated erosion on the site, and signs of accelerated erosion were minimal.

Key Area Number 2: located in the lower pasture

Mormon tea (Ephedra viridis) increase frequency from 1% to 3%

Objective attainment is unknown (study plot size used was inadequate for the variable being measured)³. Frequency is at 1% , which at the 95% confidence interval means that it's real frequency could actually be anywhere between 0-4%.

³ Statistically measuring changes at 95% confidence intervals allows for measurement errors of more than what is stated by the objectives. For example in the objective increase Cliffrose from 1% to 3%, as stated before, frequency measurements of basal cover at 3%, at a 95% confidence level, means that a difference in sampling variations would allow for any reading from 0-6% to be static.

Cliffrose (Cowania mexicana) increase frequency from T-1% to 3%

Objective attainment is unknown (study plot size used was inadequate for the variable being measured). Frequency is a 0% , which at the 95% confidence interval means that it's real frequency could actually be anywhere between 0-4%.

Apache-plume (Fallugia paradoxa) maintain frequency at 1%

Objective met, currently at 1%

Warm-season grasses increase frequency from 0% to 5%

Not met. However, the objective is not realistic as the ecological site guide does not list any warm season grass for this site, and there are none present.

Vegetation Cover increase frequency from T-1% to 3%

Objective met, basal cover is at 6%.

Summary for Key Area #2:

A determination at the site was made by the IAT that standard number one was being met. The soils did exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform. Based on the annual/perennial vegetation, litter or rock etc., there is adequate ground cover (ground cover had changed from 71% to 84%) to prevent accelerated erosion on the site.

Frequency studies were designed to detect changes in plant occurrence, and not for establishment of objectives or measurement of their attainment. Further, plot size used to monitor frequency objectives were inadequate for the variable being measured. Therefore, these frequency objectives should be replaced with the following DPC objectives.

Desired Plant Community Objectives:

The following is an evaluation of the new DPC objectives (developed during this assessment process) to determine status, and determine if current grazing management practices would preclude achievement by 2020. These DPC objectives replace existing frequency objectives, listed previously in this document and in the AMP. (As discuss later some of these DPC objectives may only be attainable if some type of land treatment is completed in the future.)

Key Area No. 1, located in the Upper Pasture, the ecological site is a Limestone Slopes 13-17" precipitation zone (pz)

Increase Bottlebrush squirreltail composition by dry weight to 1-5%
Not met. Currently at 0%.

Increase Mutton bluegrass composition by dry weight to 3-10%
Not met. Currently at 0%.

Increase Needlegrass composition by dry weight to 0-3%
Met. Currently at 0%

Maintain Cliffrose composition by dry weight of 5-10%
Met. Currently at 9%

Maintain Green Mormon Tea composition by dry weight of 0-5%
Met. Currently at 0%.

Maintain Apache-plume composition by dry weight of 2-10%
Met. Currently at 9%

Maintain Buckwheat composition by dry weight of 5-15%
Met. Currently at 15%

Maintain Big sagebrush composition by dry weight of 0-10%
Not met. Currently at 13%

Maintain Pinyon-Juniper composition by dry weight of 0-5%
Not met. Currently at 13%

Summary for Key Area #1:

Five of the nine objectives are being met. Two objectives not meeting involve Pinyon-Juniper and big sagebrush, which are present at a higher percent CBW than the members of the field tour would like to see. The only possible means of attaining these objectives would be through some type of land treatment.

The other two objectives not meeting involve grasses (bottlebrush squirreltail and mutton bluegrass), which prior to the drought were meeting (1% and 3% respectively). Both species of grasses respond to precipitation fluctuations, particularly timing and amount, and it is believed that with adequate precipitation they will respond.

The IAT team believed that livestock grazing are not factors in DPC achievement at this key area; but progress to attainment would only be affected by the land treatments and/or drought. Drought could cause the CBW of big sagebrush and pinyon to decrease due to loss of some of these species, which would allow grasses to fill in the interspaces etc.

Key Area No. 2, located in the Lower Pasture, the ecological site is a Loamy Upland (Cal) 10-14" precipitation zone (pz)

Maintain Needlegrass composition by dry weight of 0-5%

Met. Currently at 0% (Needlegrass is present on the site, but did not occur in transect)

Maintain Blackbrush composition by dry weight of 80-95%

Met. Currently at 90%

Increase Green Mormon Tea composition by dry weight to 1-3%

Not met. Currently at 0% (Mormon tea is present on the site, but did not occur in transect)

Increase Cliffrose composition by dry weight to 1-3%

Not met. Currently at 0% (Cliffrose is present on the site, but did not occur in transect)

Maintain Apache-plume composition by dry weight of 0-3%

Met. Currently at 0% (Apache-plume is present on the site, but did not occur in transect)

Summary for Key Area #2:

Three of the five objectives are being met. The two shrub objectives not meeting pertain to green Mormon tea and cliffrose. Due to the patchy nature of plants these plants did not occur in the study plots, however, they are present in the plant community (see photos on pages 46 and 47); and maybe at a composition rate similar to what is expected based on the ecological site guide. Regardless members of the field tour still wanted to see more green Mormon tea and cliffrose on the site and acknowledged that these objectives would never be met without some form of land treatment. The IAT team understood that the current plant composition is 93% similar to the expected plant community, which currently is at PNC and that a land treatment would affect other plant composition particularly blackbrush. Reducing the composition of blackbrush with a land treatment would result in it not meeting the DPC objectives or DFC objectives from the LUP (the LUP objective, DFC-VM-37, states, "There will be no net loss in acres of Transition plant communities . . .", which blackbrush is part of).

The IAT team also noted that there were areas just off the transect location, where cliffrose and green Mormon tea were more abundant. (See background of 2nd and 3rd photos below taken during field trip April 28, 2004.) The IAT team agreed that livestock grazing was not the impeding factor in DPC achievement.





Based on the analysis of the monitoring data (i.e., precipitation, utilization, ecological status, and vegetative trend) and on site visits, livestock grazing appears not to be impeding DPC achievement; instead, progression may be affected by drought.

Wildlife and Special Status Species:

Specific objectives from the Arizona Strip Desert Bighorn Sheep Management Plan

BS1 Enhance and maintain forage, water, and cover conditions on 720 square miles of bighorn sheep habitat so that watersheds are in proper functioning condition, ecological processes are maintained, water quality standards are met, and threatened and endangered species habitat is conserved. Manage this habitat to support an average density of no more than four sheep per square mile within each habitat area by the year 2010.

This objective is being met. Sustainability needs such as appropriate forage, water, and cover for desert bighorn sheep were considered when the DPC objectives for these allotments were developed. Impacts to wildlife, including bighorn sheep, and their forage needs are taken into consideration and analyzed during all project-level planning. The BLM, in partnership with AGFD and the Bighorn Sheep Society, has prioritized the repair needs of water catchments and is implementing repairs annually. The number of water catchments repaired each year is based on funding availability.

***BS2** Increase populations of desert bighorn sheep to fully occupy 720 square miles of suitable habitat on the Arizona Strip at an average density of no more than four bighorn per square mile by the year 2010. Maximum populations for the four desert bighorn habitat areas would be 886 for the Virgin and Beaver Dam Mountains, 700 for the Grand Wash Cliffs, 820 for Kanab Creek, and 432 for the Paria-Vermillion Cliffs area. The maximum population for the Arizona Strip would be 2880 desert bighorn.*

This objective is being met. Supplemental transplants of bighorn sheep are scheduled pending funding availability.

Parashant Habitat Management Plan (HMP)

***MD1** Identify factors suppressing mule deer population recovery and, if possible, the cause(s) of the decline in the HMP area by 1998. Where possible, eliminate or reduce the impacts of limiting factors to initiate herd recovery.*

Met. Deer populations in this area are stable.

***MD2a** Enhance and maintain forage, water, and cover conditions on 365,000 acres of mule deer habitat to support 2,200 deer yearlong in the HMP area by the year 2010.*

Met. Grazing systems are designed to maintain forage quantity and quality. The vegetative resource is monitored to insure condition and trends are appropriate for the site. In addition, land treatments are designed to provide mosaic patterns incorporating seed mixtures that take into account wildlife needs. Watering facilities are designed to take into account wildlife needs, but may require additional monitoring to insure compliance. These measures are taken into account on an allotment basis, which when considered on a whole, make up the HMP area.

***MD2b** Identify and manage for key forage and cover species in mule deer habitat, particularly crucial summer range, based on DPC and establish key areas by 2000.*

Met. Cliffrose, Mormon tea, and apache-plume are some of the key forage species. Key areas, established in the early 1980's, reflect wildlife forage needs. This allotment contains no crucial summer or winter range.

Range program objectives for this allotment compliment well this objective in providing cover. DPC objectives for this allotment are excellent for wildlife in that they incorporate a significant shrub component which is appropriate for deer.

MD3a Increase the number of mule deer in the HMP area by at least 100 percent over the 1993 estimated population of 400 head by 2010.

Not monitored. AGFD, the agency which is responsible for population management, monitors deer populations on a GMU basis, not a “habitat management plan” basis.

MD3b Increase mule deer production and maintain an average fawn survival within AGFD species management guidelines for mule deer.

Met. AGFD reports a five year average of 40.6 fawns per 100 does in Unit 13B, although continued drought may lower this average.

MD3c Increase and maintain post harvest buck to doe ratios within AGFD species management guidelines for mule deer.

Met. AGFD’s most recent estimate of the buck doe ratio in GMU 13B is 79 bucks per 100 does. The five year average is 55 bucks per 100 does.

B. Response to Issues

1. Issues relating to Rangeland Health and Guidelines for Grazing Administration

- a. There was an expressed concern that wildlife may not have safe access to both Upper and Lower Last Chance Springs.

To reduce the predation potential at Upper Last Chance Spring water could be piped away from source to a new location and fenced to allow only wildlife access.

Lower Last Chance Spring has very little accessible water at the source for wildlife, so there needs to be greater emphasis on providing safe reliable access at livestock watering facilities.

The BLM, AGFD, and grazing permittee should get together and develop a new cooperative agreement to resolve the issue of safe wildlife access to water inside corral.

- b. A concern was expressed that there is no water at spring sources.

Water flows are very low, less than ½ gallon per minute at the Lower Last Chance Spring trough. However, there is some water available at the spring source in a small pool as noted on November 2, 2005 (see photo below).

The Lower Last Chance spring is a base water for the livestock operation on this allotment. Water that is collected for livestock use at the Lower Last Chance spring is collected downhill and below at least the upper spring source where the photo (below) was taken. Further, this is essentially a legal issue concerning water rights that involves the State of Arizona and so is beyond the scope of this document and will have to be dealt with at a higher level.



C. SUMMARY_(Meeting Arizona Standards for Rangeland Health)

1. Standard 1. Upland Sites.

Ground cover, including litter was improving at both key areas, and plants, litter, and rock were present in pattern, kind, and amount sufficient to prevent accelerated erosion. The vegetative cover (basal) at the key areas was similar to or higher than what is suggested in the ecological site guides. All key areas are considered to be meeting or progressing towards attainment of Standard 1

2. Standard 2. Riparian-Wetland sites

There are no riparian areas in the Last Chance Allotment.

3. Standard 3. Desired Resource Conditions.

On the allotment, only 57% (8 out of 14) of the key area DPC objectives are being met. However, of the six not meeting four of the DPC objectives pertain to reducing big sagebrush and pinyon-juniper at key area #1; and increasing green Mormon tea and cliffrose at key area #2.

At Key Area 1 the IAT wanted DPC objectives that would result in a reduction of pinyon-juniper and sagebrush, which would require a vegetation treatment. For pinyon-juniper the site guide allows 0-10% CBW, it currently is at 13%, and the DPC objective is set at 0-5%. Similarly, the site guide for sagebrush allows 10-25% CBW, it currently is at 13%, and the DPC objective is set at 0-10%. At key area #1, the DPC objectives are close to what the site guide suggests that they should be.

At Key Area 2, members of the field tour wanted to see more green Mormon tea and cliffrose, based on these species not being present in the transect data for the key area. Increasing the CBW of green Mormon tea and cliffrose would require the removal of blackbrush by a vegetation treatment. The site guide allows for 85-90% CBW of blackbrush, and it currently is at 90% (PNC). Reducing the composition of blackbrush with a vegetation treatment would result in it not meeting the DPC objectives or DFC objectives from the LUP (the LUP objective, DFC-VM-37, states, "There will be no net loss in acres of Transition plant communities . . .", which blackbrush is part of). The site guide allows for 1-3% CBW for green Mormon tea, it currently is at 0%, it had been at 1%. In addition, the site guide allows cliffrose CBW of 2-3%, and it currently is at 0%. However, looking at the blackbrush site as a "whole" and not just the area where the transect was run, Mormon tea and cliffrose are present in the plant community. Due to the patchy nature of plants these species may be similar, at the community level, to what is listed in the site guides regarding their CBW (see photos pages 46 and 47 this document).

Members of the field tour realized that a land treatment at either site would send the plant community back to a very early seral stage. In addition, this type of treatment would require a separate NEPA documentation to insure that monument values are protected. However, at both key areas, the IAT determined that livestock are not the causal factor in these plant species not meeting the DPC objectives.

In conclusion, at both key areas the IAT wanted changes to the plant community that would result in a major departure from the site guides and require a major vegetative treatment, most likely fire because of the topography of the area. Implementing a vegetative treatment (i.e. using fire) would set both areas back to an early seral stage that would decrease pinyon-juniper and sagebrush meeting those DPC objectives at key area #1; but at key area #2 increasing green Mormon tea and cliffrose after fire would not be as easy because of lower precipitation. At both key areas after a vegetative treatment, attainment of the "other" DPC objectives because of the low precipitation would be questionable. Again as mentioned above, those species identified as not meeting (requiring a vegetative treatment to push them towards meeting the DPC objectives) are already close to what they should be based on the site guide and considering the patchy nature of plants in the plant community as a whole.

Aside from the DPC objectives mentioned above (associated with a vegetation treatment), about 80% of the remaining DPC objectives are being met. Monitoring data (1982 to 2004) from the Last Chance allotment, shown in Table 5, indicates that drought (1998 to 2004) has influenced trends on both key areas. Looking at the data between 2000–2004, at key area one, two species had a downward trend; at key area two, one species had a downward trend. However, when comparing trend of key species to the base year, one key species showed an improving trend, and 8 remained static. Live vegetative cover also improved on both key areas. (For specific information, see Appendix “D” pace frequency analysis tables). An assessment of key areas relative to criteria for meeting standards, and indicators of rangeland health, resulted in a determination that key areas are progressing towards meeting standard #3. Influences such as the amount and timing of precipitation have affected the frequency of plant species and other vegetation attributes; past and recent wildfire too has had an impact. Actual grazing use over the last 16 years (1989-2005) was only about 34% of grazing permittees normal operation. Between 1982 and 2000, utilization levels were only above the 50% allowable two times (1990, and 1991) on key species. As such, the IAT determined based on supporting documentation and on site observation that progression is being made towards meeting the desired resource conditions, re-sprouting of native plant species is occurring, which is moving the community in the desired direction, and thus progressing towards meeting standards #1 and 3.

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
- (x) 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.

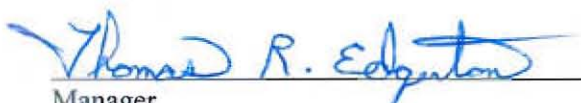
VI. Recommendations

- A. Renew the ten-year grazing permit on Last Chance allotment with current terms and conditions.

- B. Continue with current grazing practices established in the AMP. Continue to improve the reliability of waters and adding new waters to facilitate livestock distribution when necessary in all pastures to insure grazing system can function as designed, so that timing of use and duration of use would have the greatest potential to improve vegetation conditions.
- C. Carry forward the new key area DPC objectives established in this evaluation into the AMP.
- D. Remove all unauthorized structures, facilities, and garbage.
- E. As agreed to during the S&G field trip, the permittee, BLM, and AGFD should meet to work out the details of providing safe and reliable access to water for all wildlife, and if necessary update cooperative agreements and provide needed maintenance to management facilities and spring developments.
- F. Consider piping water away from wildlife drinker at Upper Last Chance Spring to a new location and fence. Relocating the wildlife drinker may reduce the perceived potential for wildlife predation at current drinker location, due to its proximity to rock ledge and small size of enclosure.
- G. Follow BLM policy concerning feeding of certified weed-free hay on public lands when livestock are held in corrals.
- H. Depending on workloads and funding, review the potential for some type of vegetative treatment in the Last Chance allotment in view of the fact that it is within the monument boundaries. If a vegetative treatment is feasible and a proposal implemented then the DPC objectives develop in this assessment would be valid and should be carried forward. If a vegetative treatment is not an option then drop listed DPC objectives in this assessment that are tied to a land treatment action.

AUTHORIZED OFFICER CONCURRENCE:

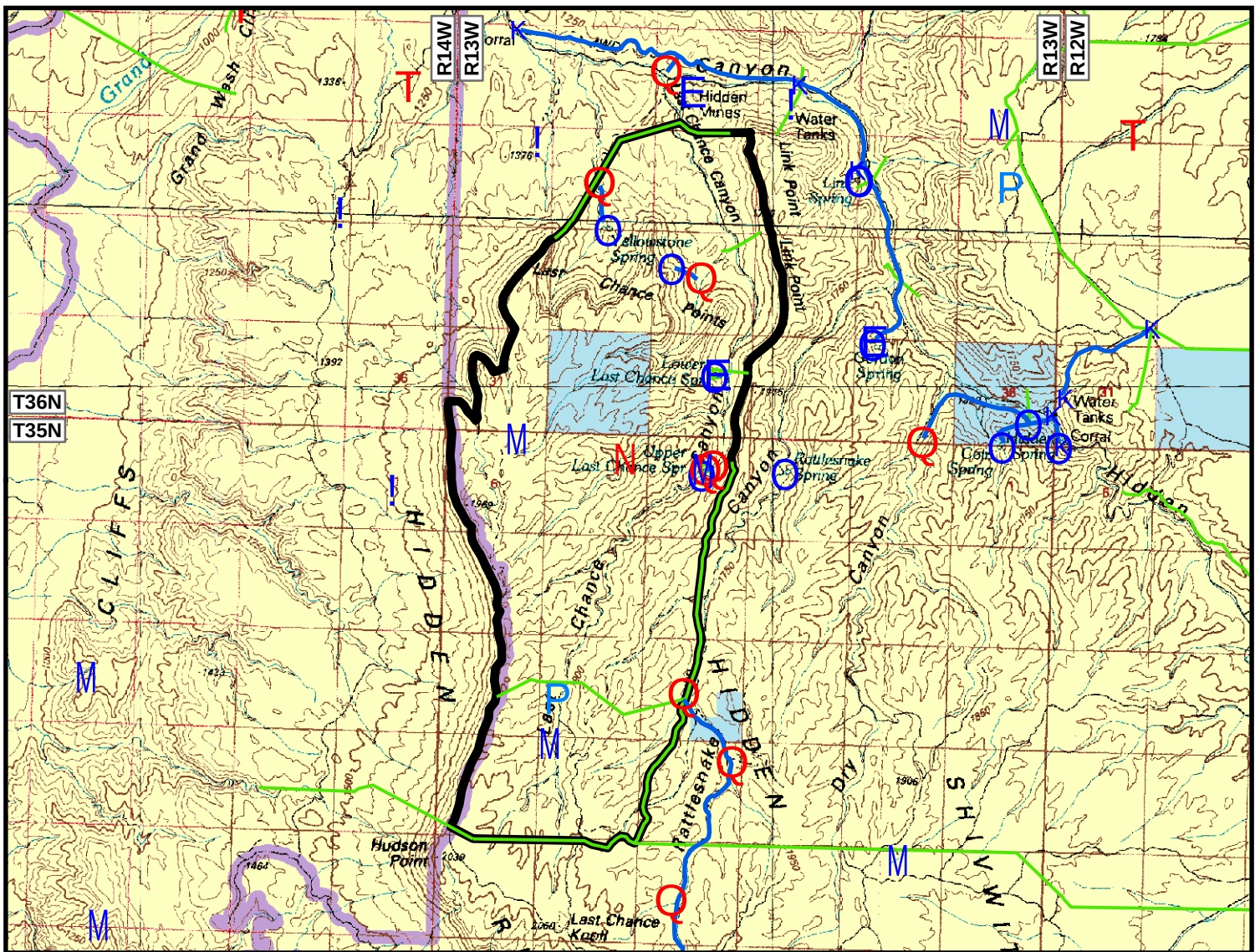
- ☒ I concur with the conclusions and recommendations as written.
- ☐ I do not concur.
- ☐ I concur, with the following modifications:



Manager
Grand Canyon-Parashant National Monument

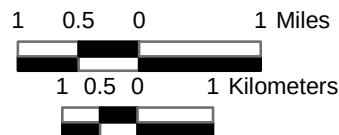
1/4/10

Date



Last Chance Allotment

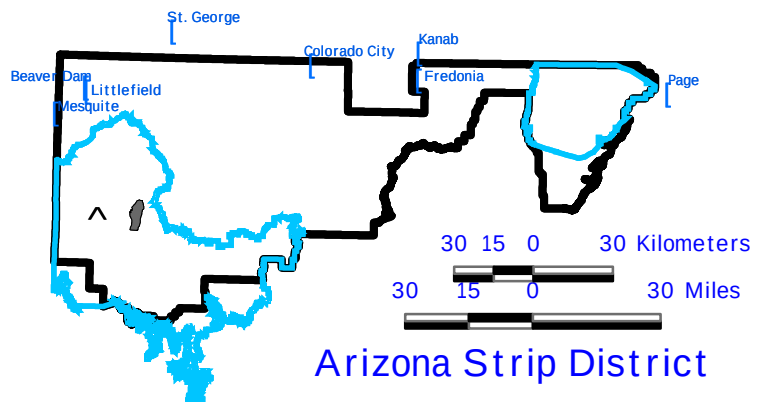
Bureau of Land Management
Arizona Strip District



1:100,000

- ! Noxious Weeds
- P Livestock Catchment
- S Key Area
- ~ Fence
- ~ Pipeline
- Monument Boundary
- Allotment Boundary
- Wilderness Boundary
- Ownership**
- BLM
- Forest Service
- Indian Reservation
- National Park
- Private
- Recreation Area
- State

- T Fenced Reservoir
- Q Trough
- N Undeveloped Spring
- T Unfenced Reservoir
- K Water Storage Tank
- ! Well
- M Wildlife Catchment
- E Wildlife Drinker
- I Windmill
- R Cattleguard
- 3 Corral
- O 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
September 10, 2008

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." 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	Project Coordinator (BLM)
Karen Jensen	Wildlife Biologist, Team Lead (BLM)
Larry Gearhart	Wilderness/Recreation Specialist (BLM)
Diana Hawks	Recreation, Wilderness, and Cultural Resources Team Lead (BLM)
Ken Beckstrom	Vegetation/Grazing Administration (BLM)
Phil Seegmiller	Vegetation/Grazing Administration (BLM)
Brian Bock	Soils and Watershed (BLM)
Robert Smith	Soil Scientist/Watershed Management (BLM)
Luke Thompson	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)

Rangeland Resource Team

Commodity Interests

Bill Gubler, Grazing Rancher, St. George, UT	Kent McComb, Grazing Retired, St. George, UT
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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
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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
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Alternates

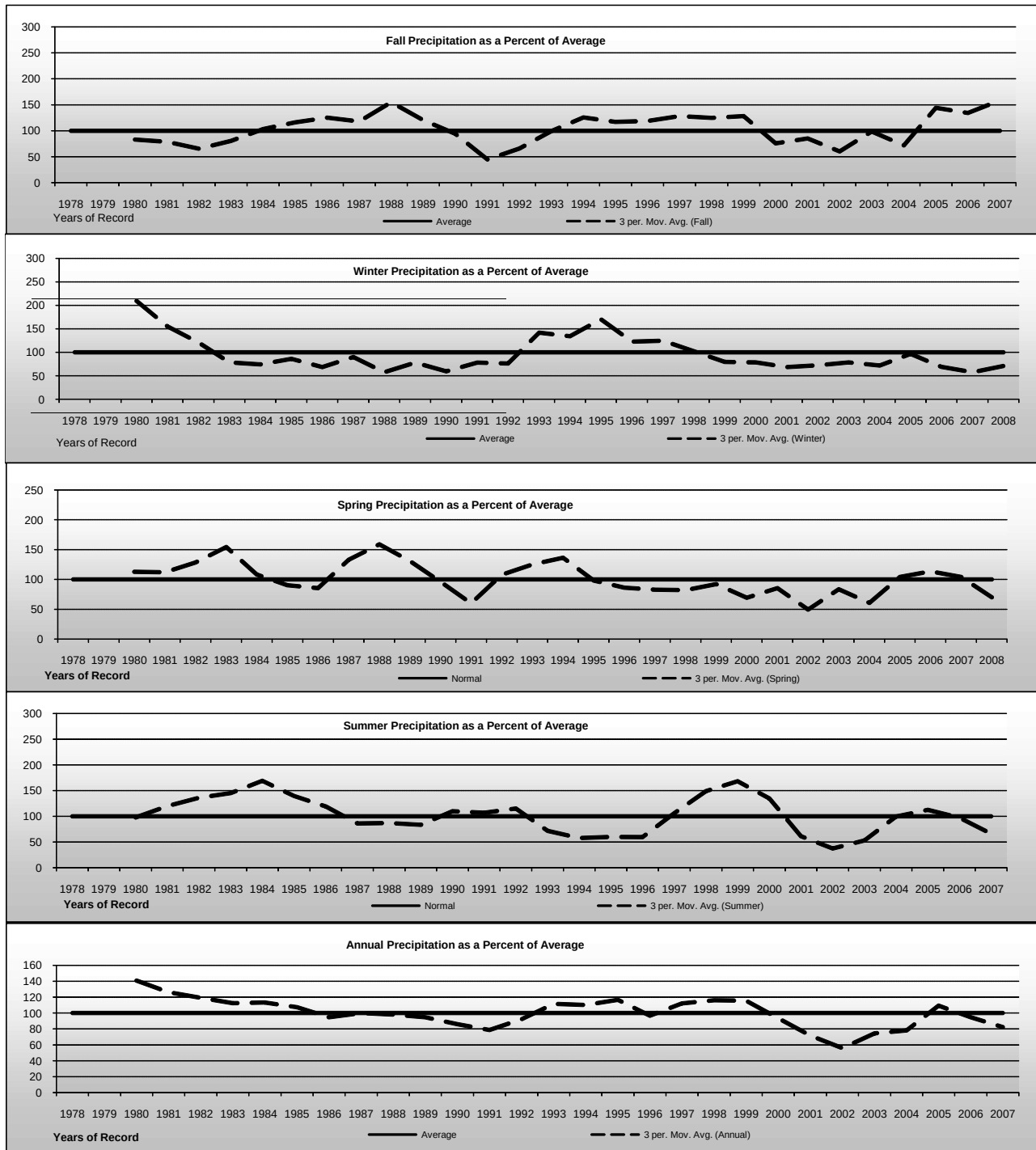
Maggie Sacher, Commodity Interests	Paul Weaver Non-Commodity Interests
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Appendix C:

Precipitation Data

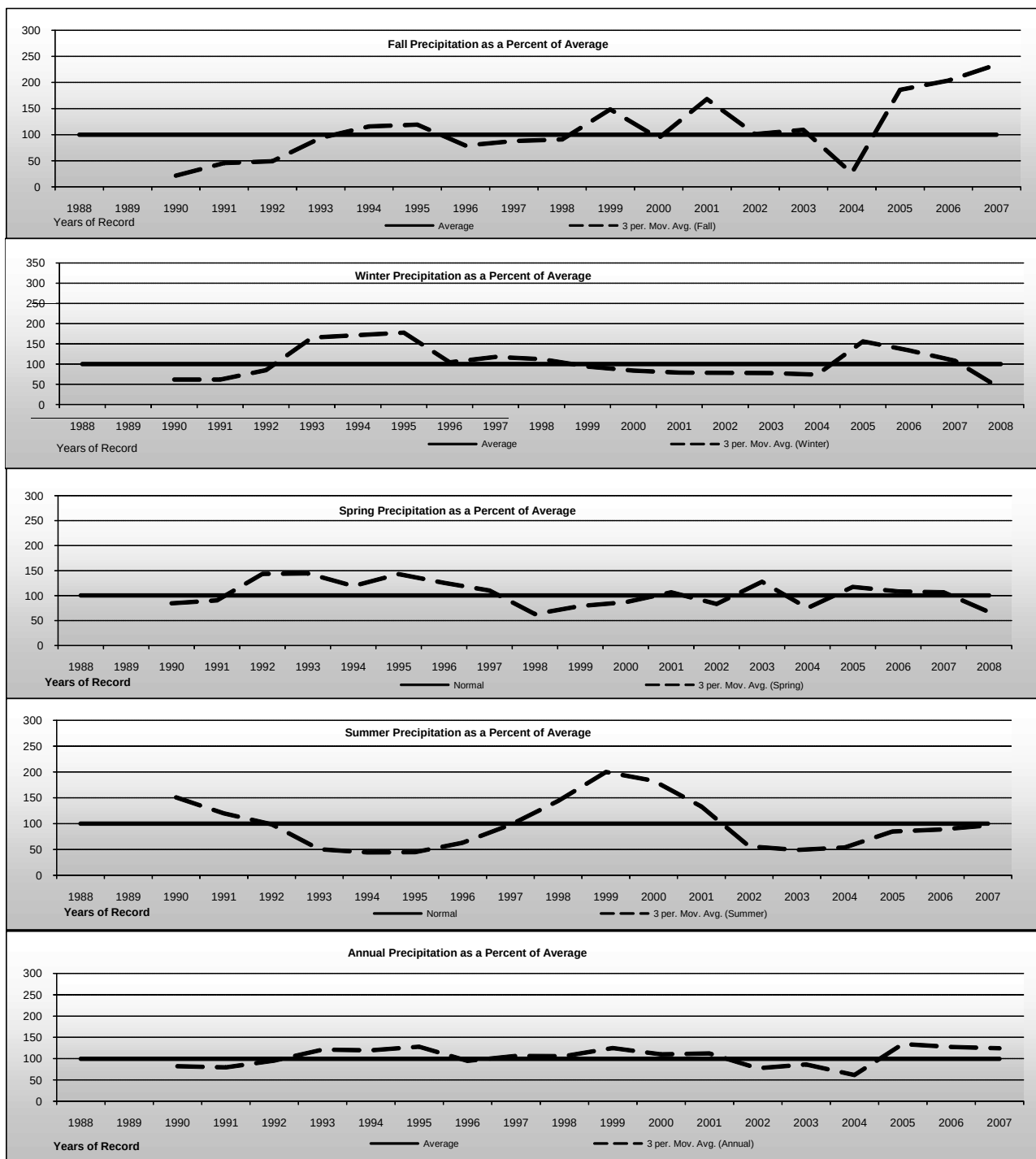
Sullivan Tank						PRECIPITATION RAIN GAUGE NUMBER: 25				
Annual Average	1.74	4.71	2.20	3.76	12.41					
Year	Fall	Winter	Spring	Summer	Annual	Fall % Avg	Winter % Avg	Spring % Avg	Summer % Avg	Annual % Avg
1978	1.4	10.0	3.8	1.9	17.0	78	212	172	50	137
1979	1.6	9.6	2.0	4.5	17.8	90	205	91	121	143
1980	1.4	10.0	1.6	4.6	17.7	81	212	75	123	142
1981	1.1	2.3	3.7	4.4	11.5	65	48	170	117	93
1982	0.9	4.8	3.1	6.4	15.1	50	102	140	169	122
1983	2.2	4.0	3.4	5.7	15.2	127	85	153	150	123
1984	2.3	1.7	0.7	7.1	11.8	134	36	32	188	95
1985	1.5	6.5	1.9	3.1	13.0	88	138	86	81	104
1986	2.7	1.5	3.1	3.3	10.6	154	32	139	89	85
1987	1.9	4.7	3.8	3.3	13.8	112	100	174	89	111
1988	3.5	1.9	3.6	3.2	12.2	199	41	163	85	98
1989	0.9	4.4	1.2	2.9	9.4	51	93	56	77	76
1990	0.6	2.1	1.5	6.4	10.5	32	44	68	169	84
1991	0.9	4.6	1.2	2.8	9.5	51	97	56	75	77
1992	2.0	4.1	4.4	3.9	14.3	115	87	199	103	116
1993	2.3	11.4	2.6	1.4	17.8	133	242	120	38	143
1994	2.3	3.5	2.0	1.3	9.0	130	75	90	33	73
1995	1.6	9.2	1.9	4.1	16.8	89	195	85	110	135
1996	2.4	4.7	1.8	1.4	10.3	137	99	84	36	83
1997	2.8	3.8	1.8	6.5	14.8	158	80	80	173	119
1998	1.4	6.1	1.8	9.0	18.3	80	128	83	239	147
1999	2.6	1.4	2.5	3.5	10.0	147	31	114	93	81
2000		3.6	0.3	2.7	6.6		77	12	72	53
2001	1.9	4.6	2.9	0.8	10.1	108	98	131	20	82
2002	1.3	2.0	0.1	0.8	4.2	72	42	5	21	33
2003	2.0	4.5	2.5	4.5	13.5	115	95	114	120	109
2004	0.5	3.7	1.4	6.0	11.5	29	77	62	160	93
2005	5.0	5.5	3.0	2.3	15.8	288	117	137	60	127
2006	1.5	0.6	3.1	2.8	8.0	86	13	142	73	64
2007	1.8	2.0	0.8	2.5	7.0	101	42	34	66	56
2008		7.4	0.8		8.1		157	34		66

Sullivan Tank		Rain Gauge #	25
Percent of Average by Season.			
Fall	Winter	Spring	Summer
14%	38%	18%	30%



Olaf Knolls PRECIPITATION RAIN GAUGE NUMBER: 08										
Annual Average	1.36	3.31	1.92	2.17	8.77					
Year	Fall	Winter	Spring	Summer	Annual	Fall % Avg	Winter % Avg	Spring % Avg	Summer % Avg	Annual % Avg
1988		1.8	2.6	3.1	7.5		56	136	143	86
1989	0.5	2.0	0.8	3.1	6.4	40	61	40	143	73
1990	0.3	2.3	1.5	3.6	7.7	24	68	77	168	88
1991	1.0	1.8	2.9	1.1	6.8	73	56	153	50	78
1992	0.7	4.3	3.9	1.7	10.6	49	131	201	79	120
1993	2.2	10.3	1.5	0.5	14.5	159	311	79	23	165
1994	1.9	2.5	1.5	0.7	6.5	139	74	77	32	74
1995	0.8	5.0	5.2	1.8	12.7	59	149	273	81	145
1996	0.5	3.0	0.5	1.7	5.7	39	91	27	77	65
1997	2.3	3.8	0.6	3.0	9.6	165	115	30	136	109
1998	0.9	4.4	2.5	4.7	12.6	68	132	131	218	143
1999	2.9	1.2	1.5	5.3	10.9	212	35	76	246	124
2000		2.8	1.0	1.9	5.7		85	53	85	65
2001	4.0	3.9	3.7	1.5	13.0	293	117	190	68	148
2002	0.1	1.1	0.1	0.3	1.7	10	33	6	16	19
2003	0.3	2.8	3.6	1.4	8.1	24	84	187	64	92
2004	0.6	3.5	0.6	1.8	6.5	43	105	31	83	74
2005	6.7	9.3	2.6	2.4	20.9	490	281	133	108	238
2006	1.1	0.6	3.1	1.6	6.3	77	17	159	76	72
2007	1.8	0.9	0.5	2.3	5.6	135	28	27	106	64
2008		2.4	0.3		2.7		73	15		31

Olaf Knolls Rain Gauge # 08			
Percent of Average by Season.			
Fall	Winter	Spring	Summer
16%	38%	22%	25%



Appendix D:

Vegetation Data

Pace Frequency Information:

PACE FREQUENCY TREND ANALYSIS							
ALLOTMENT: LAST CHANCE							
PASTURE:							
	KEY AREA 1						
COVER CATEGORIES	years plots were read						Trend
	1982	1986	1991	1995	2000	2004	
Bare Ground	37	35	36	34	36	21	
Litter	49	43	37	50	34	68	
Rock	11	20	23	13	25	3	
Vegetation (basal cover)	2	2	3	4	5	7	
% Ground Cover	63	65	64	66	64	79	
FREQUENCY OF GRASSES							
Bottlebrush squirreltail	0	3	5	6	5		
Needlegrass				1			
Mutton bluegrass	2	12	13	19	15	1	
Other Perennial Grass (PPGG)	0		1	2			
FREQUENCY OF FORBS							
other annual (FORB)	0			5		1	
other annual grass (AAGG)						62	
Buckwheat	9	2					
Other perennial forb (PPFF)			1	2		10	
FREQUENCY OF SHRUBS							
Cliffrose	11	6	7	8	8	10	
Serviceberry	1	3	4	5	1	2	
Gambel oak						1	
Broom snakeweed	4	20	23	13	9	2	
Big sagebrush	23	25	29	30	27	13	
Cholla	0	0	2	1	2	3	
Buckwheat		18	16	14	20	35	
Goldenhead	2	5	4	5	4		
Juniper		1	1	1		8	
Pinyon	6	4	3	3	2	14	
Apache-plume	2	4	4	5	3	4	
Scrub oak	1	2	3	3	2		
Green Mormon Tea i	1	3	3	3	2	0	
Fremont's mahonia							
Silktassel	1	0	1	1	1		
Other shrubs (SSSS)		5	2	2			

PACE FREQUENCY TREND ANALYSIS								
ALLOTMENT: LAST CHANCE								
PASTURE:								
	KEY AREA 2							
COVER CATEGORIES	years plots were read							Trend
	1982	1984	1989	1992	1995	2000	2004	
Bare Ground	30	25	25	26	26	31	16	
Litter	55	48	46	55	58	47	71	
Rock	15	26	27	16	13	18	7	
Vegetation (basal cover)	1	3	3	4	4	5	6	
% Ground Cover	71	76	75	74	74	69	84	
FREQUENCY OF FORBS								
other annual grass (AAGG)							7	
other perennial forb (PPFF)						1	40	
FREQUENCY OF SHRUBS								
Cliffrose	1	1	2	3	4	2	0	
Desert almond	1						0	
Green Rabbitbrush		4	5	5	4	4		
Blackbrush	90	86	90	92	87	85	77	
Cholla	1	2	3	4	4	5		
Anderson Wolfberry		2	1		1	2		
Rubber rabbitbrush							0	
Yucca	1	2	2	3	3	2	1	
Juniper	2	1	1	1	1		0	
Pinyon		1	1	1	1		0	
Apache-plume	1						1	
Green Mormon Tea	1	1	1	2	1	1	1	
Fremont's mahonia								
Other shrubs (SSSS)							0	

Ecological Site Information:

Ecological Site Information				
Key Area #	1	Allotment:	Last Chance	
		Pasture:	Upper Pasture	
		Range Site:	Limestone Slops 13-17	
Plant Species	Site-Guide Allowable Percent Composition	First Reading Percent Composition Base Year	Second Reading Percent Composition	Desired Percent Composition Objective
Grasses	10-45%	3%	0%	
Bottlebrush squirreltail	0-10	1%		1-5%
Mutton bluegrass	0-25	3%		3-10%
Needlegrass	0-5			0-3%
Carex	-			
Forbs	1-5%		40%	1-5%
other annual grass (AAGG)	-		38%	
Filaree	-		2%	
Mustard	-		0%	
Mariposa lily	-		0%	
other annual (FORB)	-			
Buckwheat	0-5			
Other perennial forb (PPFF)	0-5			
Shrubs/Trees	10-45/30-45%	97%	60%	
Big sagebrush	10-25	45%	13%	0-10%
Green Mormon Tea	0-5	3%		0-5%
Cliffrose	0-10	5%	9%	5-10%
Pinyon	0-5	9%	13%	0-5%
Apache-plume	-	2%	9%	2-10%
Broom snakeweed	0-5	2%		
Cholla	-	7%	1%	
Silktassel	-	3%		
Serviceberry	0-5	3%		
Buckwheat	-	16%	15%	5-15%
Gambel oak	-	3%		
Goldenhead	-	1%		
Pricklypear	-			
Juniper	0-5			
Scrub oak	0-5			
Manzanita	-			
Similarity		60%	40%	
Status		Late	Mid	

Ecological Site Information				
Key Area # 2		Allotment: Last Chance		
		Pasture: Lower Pasture		
		Range Site: Loamy Upland (Cal) 10-14		
Plant Species	Site-Guide Allowable Percent Composition	First Reading Percent Composition Base Year	Second Reading Percent Composition	Desired Percent Composition Objective
Grasses	3-6%			
Needlegrass	3-5%			0-5%
Forbs	0-2%		6%	0-2%
other annual (FORB)	1%			
other annual grass (AAGG)	-		6%	
other perennial forb (PPFF)	1%			
Shrubs	90-95%	100%	94%	
Blackbrush	85-90%	81%	90%	80-95%
Green Rabbitbrush	-	7%		
Cholla	1-2%	4%		
Yucca	3-5%	5%	2%	
Green Mormon Tea	1-3%	1%		1-3%
Pricklypear	-	2%		
Desert almond	-		2%	
Cliffrose	2-3%			1-3%
Anderson Wolfberry	-			
Rubber rabbitbrush	-			
Juniper	0-2%			
Pinyon	Group Juniper			
Apache-plume	Group Cliffrose			0-3%
Green Mormon Tea	-			
Hedgehog cactus	-			
	Similarity	91%	93%	
	Status	PNC	PNC	

Appendix E:

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	1000-1500
1986	41	29	18	1000-1500
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	<1000
1993	117	126	52	800-1000
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
2001	275	34	67	No Estimate
2002	118	46	20	No Estimate
2003	84	29	46	No Estimate
2004	102	34	57	No Estimate
2005	128	65	72	No Estimate
2006	143	68	64	No Estimate
2007	152	79	41	No Estimate