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

Ivanpah-Littletank

I. Introduction

The Ivanpah-Littletank 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 RRTs primary role is to assist BLM managers in assuring the S&Gs 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 October 22, 2003, and a field visit on November 12, 2003. At the conclusion of the field visit, the group determined the standards for rangeland health are being met.

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

II. Grazing Use

A. Total grazing privileges

Littletank
Active Grazing Use: 693 AUMs
Suspended Non-use: 0 AUMs

Ivanpah
Active Grazing Use: 601 AUMs
Suspended Non-use: 488 AUMs

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

B. Season(s) of use:

November 1, through May 15, on Ivanpah
May 16, through October 31, on Littletank.

C. Kind and class of livestock

134 Cattle
2 Horses

D. Percent federal range

Littletank 79%
Ivanpah 77%

III. Allotment Profile

A. Description

The Littletank allotment is located in the west central portion of the Arizona Strip approximately 50 miles south of St.George, Utah. Vegetation is mostly desert grassland, with some juniper trees scattered around the base of Diamond Butte in the northeast part of the allotment and along a low ridge that extends through the southwest side of the

allotment. The main road from St. George leading to Mount Trumbull crosses through its center. The only water on the allotment is provided by two large stockwater ponds near the center of the allotment and a livestock water catchment located on the northeast edge.

The Ivanpah Allotment lies approximately eight miles south and slightly west of the Littletank allotment. The eastern side of the allotment is desert grassland with some scattered juniper trees. To the west the vegetation turns to sagebrush and pinyon-juniper, with an understory of grasses and intermixed with cliffrose. The town of Mount Trumbull lies three miles east of the allotment while the west edge butts up against Poverty Mountain, a basalt mesa that runs off to the west. Water on the allotment is provided by two ponds, one on the east end of the allotment on private land, the second a mile to the west on state ground, and Poverty Spring, located on a piece of private ground at the base of Poverty Mountain and piped to various locations throughout the allotment.

B. Acreage

The allotments contain:

Little Tank
- 4356 acres of federal land
- 1609 acres of state land
- 0 acres of private land

Ivanpah
- 12,997 acres of federal land
- 1,279 acres of state land
- 680 acres of private land

C. Objectives

1. Land Use Plan Objectives

Program guidance decisions, as well as specific resource objectives for the Ivanpah-Littletank Allotments, are found in the Arizona Strip Resource Management Plan (RMP) and Implementation Plan (IP), Blackrock and Clayhole Habitat Management Plan (HMP), and the Ivanpah-Littletank Allotment Management Plans (AMP).

Arizona Strip Resource Management Plan, 1992 p. II-2

- Manage public lands in a manner that responds to the nation's need for domestic sources of energy, minerals, and livestock products from the public lands and the importance of these industries to local and regional economies.

- Manage livestock grazing to maintain productive rangelands which meet forage, watershed, and wildlife needs.

Shivwits Resource Area Implementation Plan (SRAIP)

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

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

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

WL06 Continue restoration of native wildlife into historic range by transplanting wildlife in cooperation with the Arizona Game and Fish Department.

WL20 Manage pronghorn habitat through the Habitat Management Plan (HMP) process to achieve and maintain viable populations in accordance with HMP objectives. Initial target levels are 400 in the Shivwits Resource Area.

RR-01 Continue authorizing the organized recreational events now occurring on the Resource Area.

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

RR-08 Manage the majority of the Resource Area for extensive recreation while maintaining its naturalness/remoteness. The exception to this is the Cedar Pockets campground.

RR-09 Commercial recreation permits would be issued to the extent that their cumulative impacts are consistent with the overall objectives of this plan and in the public interest.

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

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

2. Specific Resource Objectives

California Condor Recovery Plan

CC-1 Provide foraging habitat for California condors.

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

Clayhole Habitat Management Plan

O2. Provide quality habitat for 400 pronghorn antelope and allow for their expansion and utilization of potential antelope habitat within the Clayhole Habitat Area.

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

A2. Modify fences to allow free movement of pronghorn antelope within the CHA.

Black Rock Habitat Management Plan

VM1 Enhance wildlife forage conditions on all allotments with a downward or static trend to achieve DPC by 2010.

Ivanpah-Littletank Allotment Management Plan, written 1989.

Ivanpah Allotment

1. Increase available forage from current qualifications of 601 AUMs to the inventoried carrying capacity of 807 AUMs by 1999.

2. Reduce erosion and sediment yield in the NW pasture from 2.96 tons/acre/year to .10 tons/acre/year through erosion control dikes and land treatment and seeding of 2800 acres of pinyon-juniper and sagebrush by 1999.
3. Maintain or improve browse and cool season forage condition in all pastures since this allotment will largely be used during winter-spring seasons.

Littletank Allotment

Maintain or improve browse and warm season forage condition in all pastures since this allotment will largely be used during summer-fall seasons.

Key Area Objectives are based on the number of "hits" or frequency that key species appeared in 200 pace frequency frames.

1. Ivanpah South pasture: Increase frequency of Key Species from 51 in 1985 to 60 in1999.
2. Ivanpah NW pasture: Increase frequency of Key Species from 92.5 in 1987 to 110 in 1999.
3. Ivanpah North Cabin pasture: Increase frequency of Key Species from 163 in 1986 to 185 in 1999.
4. Ivanpah South Cabin pasture: Increase frequency of Key Species from 96 in 1986 to 137 in 1999.
5. Littletank NE pasture: Increase frequency of Key Species from 64 in 1985 to 80 in 1999.
6. Littletank NW pasture: Increase frequency of Key Species from 82 in 1984 to 100 in 1999.
7. Littletank SW pasture: Increase frequency of Key Species from 126 in 1987 to 150 in 1999.
8. Littletank SE pasture: Increase frequency of Key Species from 127 in 1986 to 150 in 1999.

Desired Plant Community Objectives developed during this process

The Desired Plant Community (DPC) objectives developed for this evaluation were developed by an interdisciplinary team of specialists. They focus on the ecological site and its potential which reflects the biodiversity of the area. Objectives are expressed in terms of Composition by Weight (CBW) using the Dry Weight Rank method to measure change. DPC is a variation of the Potential Natural Community (PNC) which identifies the plants capable of and most likely to be found growing on the site.

Ivanpah

Key Area #2: South Pasture (Basalt Slopes 13"-17"pz)
Manage the current vegetative community as outlined below.
Maintain galleta grass at 25 to 35 percent CBW through 2020.
Maintain needle and thread grass from 6% to 15% CBW by 2020.
Maintain side oats grama at 10 to 15 percent CBW through 2020.

Rational: While the ecological site guide allows only 10 percent galleta grass which is both a desirable forage plant and good watershed cover, it currently makes

up 28 percent of the composition. Both needle and thread grass and side oats grama are within the range of the site guide. By managing these three species at their current composition or slightly higher should insure keeping the site productive and close to its potential natural community.

Key Area #5: Salt Pasture (Shallow Loamy 10"-14" pz)
Manage the current vegetative community as outlined below.
Maintain cliff rose at 1 to 5 percent CBW through 2020.
Maintain needle and thread grass at 5 to 15 percent CBW through 2020.
Maintain galleta grass at 25 to 35 percent CBW through 2020.
Increase sand dropseed from a trace to 5 percent CBW by 2020.
Maintain blue grama at 5 to 15 percent CBW through 2020.
Maintain side oats grama at 2 to 10 percent CBW through 2020
Maintain Indian rice grass at 2 to 5 percent through 2020.

Rational: 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 and have the site at close to its potential.

Key Area #8: Northwest Pasture (Shallow Loamy 9"-13" pz)
Manage the current vegetative community as outlined below.
Maintain cliff rose at 1 to 5 percent CBW through 2020.
Maintain blue grama at 45 to 60 percent CBW through 2020.
Maintain galleta grass at 4 to 15 percent CBW through 2020.
Increase sand dropseed from a trace to 5 to10 percent CBW by 2020.
Increase squirrel tail from 1 percent to 5 to10 percent CBW by 2020.

Rational: The Ecological Site guide limits blue grama to 15 percent, but it actually makes up over 50 percent of the current vegetative composition on the site. Since it is a good watershed cover and an adequate forage species it's proposed that we maintain it at its current level. If precipitation increases to near historic averages, both sand dropseed and squirreltail should increase. A concern, however, is that this site was treated by chaining and seeding in the 1960's and now appears to be losing some of its productivity as sagebrush is reinvading. Sagebrush currently makes up 24 percent of the composition. If it increases to over 35 percent it should be treated with a herbicide or a prescribed burn to maintain the vegetative diversity of the site.

Key Area #10: South Cabin (Shallow Loamy 9"-13" pz)
Manage the current vegetative community as outlined below.
Maintain blue grama at 5 to 15 percent CBW through 2020.
Maintain galleta grass at 20 to 30 percent CBW through 2020.
Maintain squirrel tail at 1 to5 percent CBW through 2020.
Maintain sand dropseed at 15 to 20 percent CBW by 2020.
Maintain needle and thread grass at 10 to 20 percent CBW by 2020.
Maintain ring muhly at 1 to 5 percent CBW by 2020.

Rational: This site was treated with the herbicide Spike several years ago and currently is rated in potential natural community. It contains good plant diversity at present and therefore the goal is to maintain it in its present condition.

Key Area #12: North Cabin (Shallow Loamy 9"-13"pz)
Manage the current vegetative community as outlined below.
Maintain fourwing saltbush at 2 to 5 percent CBW through 2020.
Maintain winterfat at 2 to 5 percent CBW through 2020.
Maintain needle and thread grass at 20 to 30 percent CBW through 2020.
Maintain galleta grass at 5 to 15 percent CBW through 2020.
Maintain blue grama at 20 to 30 percent CBW through 2020.
Maintain sand drop seed at 1 to 5 percent CBW through 2020.
Maintain black grama at 5 to 15 percent CBW through 2020.

Rational: The current vegetative composition is near PNC. By maintaining this composition or possibly increasing some species such as winterfat and four wing saltbush slightly the vegetative diversity of the site will remain high as will its productivity.

Little Tank

Key Area #3: North East Pasture (Shallow Loamy 10"-14" pz)
Manage the current vegetative community as outlined below.
Maintain Mormon tea at 5 to 10 percent CBW through 2020.
Maintain winterfat at 1 to 5 percent CBW through 2020.
Maintain galleta grass at 35 to 50 percent CBW through 2020.
Maintain blue grama at 2 to 5 percent CBW through 2020.
Maintain sand dropseed at 5 to 10 percent CBW through 2020.
Maintain squirreltail at 5 to 10 percent CBW through 2020.
Maintain Indian ricegrass at 1 to 5 percent CBW through 2020.
Maintain black grama at 1 to 5 percent CBW through 2020.

Rational: This site contains a good variety of desirable vegetative species. While the composition ratio is not quite what the ecological site guide calls for, galleta grass is much higher than the guide allows, it does provide good watershed conditions and desirable forage.

Key Area #5: South East Pasture (Shallow Loamy 10"-14"pz)
Manage the current vegetative community as outlined below.
Maintain winterfat at 1 to 5 percent CBW through 2020.
Maintain galleta grass at 25 to 40 percent CBW through 2020.
Maintain blue grama at 5 to 15 percent CBW through 2020.
Maintain needle and thread grass at 5 to 15 percent CBW through 2020.

Maintain sand dropseed at 5 to 15 percent CBW through 2020.
Increase Indian rice grass and squirreltail from a trace to 1 to 5 percent CBW by 2020.

Rational: This site contains a good variety of native desirable vegetative species. Galleta grass is higher in the composition than the ecological site guide identifies, but it is a desirable species and serves as good watershed protection. The cool season grasses Indian rice and squirrel tail should increase in the composition, but it depends to a great extent on the timing and amount of precipitation received.

Key Area #7: South West Pasture (Shallow Loamy 10"-14" pz)
Management the current vegetative community as outlined below.
Increase fourwing saltbush from a trace to 2 to 5 percent CBW by 2020.
Maintain cliffrose at 2 to 5 percent CBW through 2020.
Maintain blue grama at 15 to 20 percent CBW through 2020.
Maintain needle and thread grass at 15 to 20 percent CBW through 2020.
Maintain galleta grass at 10 to 15 percent CBW through 2020.
Maintain sand dropseed at 10 to 20 percent CBW through 2020.
Maintain squirreltail at 5 to 10 percent CBW through 2020.
Maintain black grama at 4 to 10 percent CBW through 2020.
Increase Indian rice grass from 1 percent to 5 to 10 percent CBW by 2020.

Rational: The desirable native plant diversity at this site is very good. By maintaining it the site will stay in its potential natural community. If fourwing saltbush and Indian ricegrass can be increased somewhat in would even improve the site.

Key Area #8: North West Pasture (Shallow Loamy 10"-14" pz)
Manage the current vegetative community as outlined below.
Maintain fourwing saltbush at 5 to 10 percent CBW through 2020.
Maintain Mormon tea at 1 to 5 percent CBW through 2020.
Maintain blue grama at 15 to 25 percent CBW through 2020.
Maintain sand dropseed at 15 to 25 percent CBW through 2020.
Maintain galleta grass at 5 to 15 percent CBW through 2020.
Maintain black grama at 1 to 5 percent CBW through 2020.
Maintain squirrel tail at 1 to 5 percent CBW through 2020.

Rational: This site contains a good variety of native desirable vegetative species. Both blue grama and sand dropseed exist in the community in greater abundance than identified in the ecological site guide and as both are desirable for watershed protection and forage the goal is to maintain them at current levels. The other key species exist within the parameters identified in the site guide.

D. Key Species

Key species on the allotments include browse: fourwing saltbush, winterfat, Mormon tea, and cliffrose; warm season grasses: sand dropseed, galleta grass, sideoats grama, blue grama and black grama; cool season grasses: Indian ricegrass, squirreltail, and needle and thread grass.

E. Grazing System

The two allotments are grazed by one herd of livestock. The cattle are on Ivanpah from November 1 through May 14, then moved to Littletank to graze from May 15 to October 31. Each allotment is divided into several pastures with the Salt, South and NW pastures of Ivanpah being used in the late fall and winter each year as they contain a majority of shrubs and browse. North and South Cabin pastures are alternately grazed in the spring, one year early the next late.

In the Littletank allotment the NE pasture is grazed each year from December 15 through May 15 by approximately 15 replacement heifers. The entire herd is rotated through the other pastures spending two months in each the NW and SW pastures and six weeks in the SE pasture.

F. Other uses

1. Special Status Species

Plants:
None

Animals:
Endangered Species

California condor (*Gymnogyps californianus)*

California condors are federally listed as endangered and a population of these condors was re-introduced to the Arizona Strip in 1996. This population is designated as experimental non-essential under section 10(j) of the Endangered Species Act. Condors are strictly scavengers and may either fly over or feed within this allotment. Condors have been seen flying over Fredonia and are capable of flying long distances in a single day.

Threatened Species:

Bald eagle (*Haliaeetus leucocephalus)*

Bald eagles are proposed for de-listing and are winter migrants to the Arizona Strip. In winter they are commonly seen in the Fredonia/Kanab area. They do not nest

here, but may fly over or feed within this allotment. Bald eagles are both predators and scavengers.

BLM Sensitive and State Species of Concern

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

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

Ferruginous hawks (*Buteo regalis)* and western burrowing owls (*Athene cunicularia hypugea*) are known to use habitat similar to that found on this allotment, though specific sightings have not been recorded for any of these species. Burrowing owls have been seen in nearby Johnson Wash.

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

No sensitive reptiles or amphibians are known or suspected to occur on this allotment.

2. Other Wildlife Species

The Ivanpah and Littletank allotments are in the Arizona Game and Fish Department's Game Management Unit 13B. Mule deer (*Odocoileus hemionus*), and pronghorn antelope *(Antelocapra americana)* are big game animals that can be found in these allotments.

Nongame wildlife found on the allotment are typical of the area including a variety of small mammals, grassland birds, raptors, and reptiles.

3. Recreation

The Ivanpah and Little Tank Allotments are considered to have recreation values for their geology, scenic view sheds, and remoteness. General recreation activities

might include: Sight seeing, horseback riding, hiking, camping, hunting, rock collecting, photography, bird watching and nature study.

Ivanpah

Off Highway Vehicles: This allotment falls in an area classified as Limited to Existing Roads and Trails.

Recreation Opportunity Spectrum: This allotment was classified as having the following Recreation Opportunity Spectrum Classes in it: Semi Primitive - Motorized, and Semi-Primitive Non-Motorized.

Special Management Areas: This allotment lies partially in the Grand Canyon-Parashant National Monument, has no designated wilderness, no wild and scenic river resources, and no designated recreation trails.

VRM: The area within this allotment has been classified as a VRM Class 4.

Little Tank

Off Highway Vehicles: This allotment falls in an area classified as Limited to Existing Roads and Trails.

Recreation Opportunity Spectrum: This allotment was classified as having the following Recreation Spectrum Classes in it: Semi Primitive - Motorized, and Roaded Natural

Special Management Areas: None, it has no designated wilderness, no Wild and Scenic River Resources, and no designated recreation trails.

VRM: The area within this allotment has been classified as a VRM Class 4

G. Issues brought out in scoping

1. Issues relating to Rangeland Health

a. The suspension of AUMs in Ivanpah were voluntary when the AMP was first written and were to be restored after implementation of the AMP. The AMP has not been fully implemented and the AUMs have not been restored.

b. Watershed improvement projects to control erosion in the NW pasture of Ivanpah, proposed in the the AMP, have never been completed.

c. Scotch thistle, a noxious weed, has been found on both Ivanpah and Littletank.

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, which identify terms and conditions for management on public lands within the Ivanpah - Littletank Allotments. If the current livestock grazing practices are determined to be causing non-attainment of Standards then they will be modified to comply with the Guidelines for Grazing Administration. This assessment will also evaluate and update existing Activity Plan objectives to ensure multiple use objectives are tied to the indicators for rangeland health.

B. Summary of Studies Data

1. Livestock Actual Use

Actual grazing use is turned in by the permittee each year by March 10, for the previous twelve months grazing use. Actual use is the number of livestock that grazed on the allotment and the time period that they were there. It is shown here as animal unit months or AUM's. Following is the actual use turned in on the Ivanpah and Littletank allotments for the last eighteen years.

Year	AUM's on Littletank	%Use	AUM's on Ivanpah	%Use
1986	667	96	653	109
1987	604	87	670	111
1988	738	106	594	99
1989	746	108	586	98
1990	666	96	648	108
1991	647	93	579	96
1992	585	84	588	98
1993	736	106	598	99
1994	794	114	545	91
1995	383	55	702	117
1996	577	83	614	102
1997	589	85	676	112
1998	710	102	499	72
1999	477	69	823	119
2000	672	97	604	100

Year	AUM's on Littletank	%Use	AUM's on Ivanpah	%Use
2001	611	88	674	112
2002	860	124	632	105
2003	561	81	539	90

2. Precipitation

Precipitation data is collected for the Ivanpah allotment at the Alcorn rain gauge located in the east central portion of the Ivanpah allotment. Data for the Littletank allotment is collected at the Holgate rain gauge located on the fence line between the north side of the Littletank Allotment and the Mainstreet Allotment. Following is the average annual summery for each rain gauge. For more detailed precipitation data see the appendices.

Average	Fall	Winter	Spring	Summer	Annual
Alcorn	1.60"	3.84"	2.30"	4.77"	12.51"
Holgate	1.65"	3.20"	1.87"	4.22"	10.94"

3. Utilization

The Key Forage Species Grazed Class method was used to collect the data. Utilization is read at or near the key area established in each pasture. Utilization was read on four locations on the Littletank Allotment from 1989 through 1993, then again in 2003. In 1990 the average utilization in the southwest pasture was 57%. Other utilizations have ranged between 49% in the southwest pasture in 1991 to 15% in the southeast pasture in 2003. Utilization on the Ivanpah allotment was read in five locations beginning in 1989 through 1993, with several readings in 1995, 1999 and 2000. The highest utilization was 35% in the northwest pasture in 1995 and the North Cabin pasture in 1994. This data is displayed in appendix D.

4. Trend

The vegetation monitoring data is collected at different points in time on the same site (key area), reading and recording these studies every few years and then comparing these back to the original baseline data to detect any change. Baseline data was established at these study sites in the early 1980's and was read every two to four years until 1995. It was again read in 2004

Trend monitoring was conducted at nine key areas over the allotments. Trend data was collected using the pace-frequency of bare ground, litter, rock, composition, and live vegetation. In addition, it measures the occurrence frequency of forage and non-forage species. A trend up, down, or static refers to the direction of change to the forage plant frequency at the key area, which is toward or away from the stated objective. If the change is less than ten points either up or down from the base data it is considered static. (See Appendix D for specific frequency and trend information).

Pace Frequency Trend summaries for Ivanpah pastures:

Key Area#10, South Cabin Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1982	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	1.5	21.5	up
Indian ricegrass*	yes	.5	0	static
Squirrel tail*	yes	28	4.5	down
Blue grama*	yes	9	14	static
Galleta *	yes	21	27	static
Sand dropseed *	yes	.5	18.5	up
Three awn	yes	1	23.5	up
Ring Muhly	yes	31	12	down
FORBS				
Globemallow	yes	0	16.5	up
Perennial forbs	yes	.5	4.5	static
Annual forbs	yes	0	2	static
SHRUBS & TREES				
Fourwing saltbush*	yes	0	2	static
Big sagebrush	yes	56	19	down
Snake weed	yes	4	9	static
Rabbit brush	yes	0	.5	static
Shrubby buckwheat	yes	0	1	static
Wolf berry	yes	0	.5	

Key Area#8, North West Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1984	% Frequency 2004	Trend
GRASSES				
Squirrel tail*	yes	3.5	.5	static
Blue grama*	yes	69	72	static
Galleta*	yes	10	8.5	static
Sand dropseed*	yes	0	1	static
Three awn	yes	1	4.5	static
Needle & thread*	yes	0	2	static
Mutton grass*	yes	0	1	static
FORBS				
SHRUBS & TREES				
Juniper	yes	3	7.5	static
Big sagebrush	yes	51	34.5	down
Snake weed	yes	22	7	down
Algertia	yes	.5	1.5	static
Cliffrose*	yes	3.5	3	static

Key Area#2, South Pasture – Baslt Slopes (13"-17" pz)

Species	In Site Guide	% Frequency 1982	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	2	12	up
Indian ricegrass*	yes	5.5	0	static
Squirrel tail*	yes	1	0	static
Blue grama*	yes	.5	0	static
Black grama*	yes	.5	1.5	static
Sideoats grama*	yes	38	13.5	down
Galleta*	yes	0	23	up
Three awn	yes	12.5	10	static
FORBS				
Globemallow	yes	0	2	static
Perennial forbs	yes	.5	4.5	static
SHRUBS & TREES				
pinyon & juniper	yes	25	28.5	static
algerita	yes	1	.5	static
Snake weed	yes	7	10.5	static
Rabbit brush	yes	0	2	static
Shrubby buckwheat	yes	0	.5	static
Green ephedra	yes	.5	2	static
Prickly pear	yes	4	13	static
Cliffrose*	yes	1	0	static
Yucca	yes	0	2.5	static

Key Area#12, North Cabin Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1983	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	25	40	up
Squirrel tail*	yes	40	.5	down
Blue grama*	yes	20	44	up
Black grama*	yes	.5	15	up
Galleta*	yes	12.5	7	static
Three awn	yes	8.5	2	static
Sand dropseed*	yes	.5	4	static
Fluff grass	yes	0	.5	static
FORBS				
Globemallow	yes	0	3	static
Perennial forbs	yes	3	0	static
SHRUBS & TREES				
Pinyon & juniper	yes	0	1	static
Algerita	yes	.5	0	static
Snake weed	yes	0	18	up
Rabbit brush	yes	13	8	static
Green ephedra	yes	0	.5	static
Prickly pear	yes	0	.5	static
Wolfberry	yes	2	0	static
Fourwing saltbush*	yes	.5	2	static
Winterfat*	yes	2	1.5	static

Key Area#5, Salt Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1990	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	3	6.5	static
Squirrel tail*	yes	2.5	2	static
Blue grama*	yes	20	14.5	static
Siedoats grama*	yes	12	7	static
Galleta*	yes	30	35	static
Three awn	yes	9	10.5	static
Sand dropseed*	yes	.5	1.5	static
Indian ricegrass*	yes	10	7.5	static
FORBS				
Globemallow	yes	1	4	static
Perennial forbs	yes	38	15	down
Annual forbs	yes	0	22	up
SHRUBS & TREES				
Pinyon	yes	8.5	9.5	static
Juniper	yes	15	17	static
Big sagebrush	yes	.5	0	static
Snake weed	yes	27	20	static
Skunk bush	yes	1.5	0	static
Green ephedra	yes	3	3.5	static
Prickly pear	yes	8	5.5	static
Cliffrose*	yes	0	1	static
Yucca	yes	1.5	1.5	static
Live oak	yes	1.5	.5	static

Pace Frequency Trend Summaries for Little Tank Pastures:

Key Area#3, North East Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1981	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	1.5	0	static
Squirrel tail*	yes	0	14	up
Blue grama*	yes	3	1.5	static
Galleta*	yes	31	57	up
Three awn	yes	0	8	static
Sand dropseed*	yes	0	6	static
Indian ricegrass*	yes	0	3	static
Black grama*	yes	0	1	static
FORBS				
Globemallow	yes	0	6.5	static
Annual forbs	yes	0	32.5	up
SHRUBS & TREES				
Mormon tea*	yes	5.5	11.5	static
Snake weed	yes	0	3	static
Wolfberry	yes	0	1.5	static
Winterfat*	yes	1	1	static
Douglas rabbitbrush	yes	14	14.5	static
Prickly pear	yes	2	2	static
Yucca	yes	1	.5	static

Key Area#5, South East Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1982	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	4	6.5	static
Squirrel tail*	yes	21	.5	down
Blue grama*	yes	24.5	18	static
Galleta*	yes	42	41.5	static
Three awn	yes	12	4	static
Sand dropseed*	yes	11.5	8	static
Indian ricegrass*	yes	2.5	2	static
FORBS				
Globemallow	yes	3	18	up
Perennial forbs	yes	8.5	6	static
SHRUBS & TREES				
Douglas rabbitbrush	yes	.5	2	static
Snake weed	yes	4.5	12.5	static
Wolfberry	yes	1.5	6.5	static
Winterfat*	yes	0	2	static
Fourwing saltbush*	yes	.5	.5	static
Prickly pear	yes	0	.5	static
Juniper	yes	16.5	17 .5	static

Key Area#7 South West Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1983	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	27	37.5	up
Squirrel tail*	yes	5	10	static
Blue grama*	yes	40	33	static
Galleta *	yes	8	12	static
Three awn	yes	3.5	11	static
Sand dropseed *	yes	6.5	20	up
Indian ricegrass*	yes	0	1	static
Black grama*	yes	3.5	12	static
Sideoats grama*	yes	24	8.5	down
Hairy tridens	yes	0	3.5	static
Fluff grass	yes	0	.5	static
FORBS				
Globemallow	yes	1	8	static
Perennial forbs	yes	0	7	static
SHRUBS & TREES				
Wolfberry	yes	4.5	3.5	static
Snake weed	yes	4.5	5	static
Green ephreda	yes	1.5	6	static
Apacheplume	yes	7	6	static
Douglas rabbitbrush	yes	.5	0	static
Prickly pear	yes	3.5	6.5	static
Yucca	yes	7	7	static
Fourwing saltbush*	yes	.5	.5	static
Cliffrose*	yes	3	4	static

Key Area#8 North West Pasture – Shallow Loamy (10"-14" pz)

Species	In Site Guide	% Frequency 1984	% Frequency 2004	Trend
GRASSES				
Needle & Thread*	yes	.5	0	static
Squirrel tail*	yes	.5	2	static
Blue grama*	yes	33.5	27.5	static
Galleta*	yes	8	17	static
Three awn	yes	6	15	static
Sand dropseed*	yes	19.5	28	static
Indian ricegrass*	yes	5.5	0	static
Black grama*	yes	6	3.5	static
Sideoats grama*	yes	.5	0	static
FORBS				
Globemallow	yes	.5	26.5	up
SHRUBS & TREES				
Wolfberry	yes	4.5	3.5	static
Snake weed	yes	4.5	5	static
Green ephreda	yes	1.5	6	static
Apacheplume	yes	7	6	static
Douglas rabbitbrush	yes	.5	0	static
Prickly pear	yes	3.5	6.5	static
Yucca	yes	7	7	static
Fourwing saltbush*	yes	.5	.5	static
Cliffrose*	yes	3	4	static

* Key Species

5. Ecological Site Inventory

Ecological Status defined in terms of different Seral stages are the developmental stages of ecological succession. The following four ecological status classes correspond to percent similarity to the potential natural community and correlate with Seral stage ratings in the Land Use Plan. Also, the present state of all plant and soils of an ecological site relate to the potential natural community (See Appendices for specific ecological site information).

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

Ivanpah Allotment

Pasture	Ecological Site	Condition Rating	
North Cabin	Shallow Loamy (10"-14"pz)	73	Late Seral
South Cabin	Shallow Loamy (10"-14"pz)	76	PNC
Northwest	Shallow Loamy (10"-14"pz)	59	Late Seral
Salt	Shallow Loamy (10"-14"pz)	68	Late Seral
South	Basalt Slopes (13"-17"pz)	67	Late Seral

Little Tank Allotment

North East	Shallow Loamy (10"-14"pz)	52	Late Seral
South East	Shallow Loamy (10"-14"pz)	62	Late Seral
North West	Shallow Loamy (10"-14"pz)	65	Late Seral
South West	Shallow Loamy (10"-14"pz)	82	PNC

6. Special Status Species –

Plants: None

Animals:

Listed below are the federally listed Threatened or Endangered (T/E) animal species that may occur within or adjacent to these two allotments.

Bald eagle: Bald eagles have not been known to nest anywhere on the Arizona Strip. Their typical habitat components include bodies of water with fish, which are not available in these allotments. There have not been studies or data collected on bald eagles on the Arizona Strip. To date, this species has not been observed roosting, foraging, or flying over these allotments.

California condor: The re-introduction of condors to northern Arizona began with the release of six captive-reared birds on the Vermilion Cliffs in 1996. As of (May 16, 2006), there are (58) condors in the wild in northern Arizona. The re-introduced 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 have been visually confirmed.

The re-introduction 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.

California condors currently range across the entire Arizona Strip, throughout the Grand Canyon, into adjacent Utah and Nevada, and south of the Grand Canyon in Arizona. Condors range widely, easily covering over 100 miles in a day. Condors are most commonly observed near the release site on the Vermilion Cliffs, at Navajo Bridge near Marble Canyon, on the Kaibab Plateau, and near the South Rim of the Grand Canyon. Condors have not been observed flying over these allotments.

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.

BLM Sensitive and State Species of Concern

Sensitive species are usually rare within at least a portion of their range. Listed below are the sensitive animal species that may occur within or adjacent to the Ivanpah or Littletank Allotments.

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

Ferruginous hawks, Swainson's hawk, and western burrowing owls are known to use habitat similar to that found on these allotments, though specific sightings have not been recorded for any of these species.

Peregrine falcons also need to be mentioned here. Peregrines which were formally federally listed and then delisted in 1999, nest on large cliffs in several locations on the Arizona Strip, such as Kanab Creek and the Vermilion Cliffs. No nests are known on the Hurricane Cliffs, but peregrine falcons have been seen flying along the rim east of Diamond Butte and peregrines may be seen flying over and/or feeding in these allotments. Peregrines are primarily avian predators.

Herpetological inventories have not been done for these allotments. No sensitive reptiles or amphibians are known or suspected to occur on these allotments.

7. Other Wildlife Species

The Hurricane Valley provides habitat for a herd of from 100 to 150 pronghorn antelope (*Antilocapra americana*). This area is managed under the Clayhole HMP. However, the plan does not distinguish between pronghorn populations in the Clayhole and Hurricane Valleys. The Arizona Game and Fish Department manages the Clayhole Valley pronghorn herd within Game Management Unit (GMU) 13A and the Hurricane Valley herd within GMU 13B. The two GMUs have different management strategies and have separate hunts. Exchange between the two pronghorn herds is thought to be minimal.

Habitat for mule deer on these allotments is considered limited. Deer population data is not collected specifically for this allotment, but is collected for the Game Management Unit as a whole. Game Management Unit 13B (including these allotments) covers Arizona Strip BLM managed lands west of the Hurricane Cliffs.

Unit 13B 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.

The 13B population apparent trend/status is currently static. Recent drought and associated higher fawn and adult mortality make it difficult for the population to expand.

8. Riparian/Fisheries Habitat - None

9. Wild Horse and Burro Habitat - None

10. Lithology and Soils

a. Lithology

The allotments are underlain by mainly mudstone and gypsum of the Triassic Moenkopi Formation. Limestone of the Permian Kaibab Formation outcrops in drainages, and Tertiary basalt caps mesa tops. There are associated Quaternary alluvial fan and stream terrace deposits.

b. Soils

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

08 Barx fine sandy loam, 1 to 5 percent slopes, (fan terraces), mixed; Loamy Upland, 9" to 13"

09 Barx-Strych complex, 1 to 10 percent slopes, (fan terraces), mixed; Loamy Upland, 9" to 13" ppt

11 Bisoodi-Anasazi family complex, 1 to 8 percent slopes, (plateaus), limestone and sandstone; Bisoodi=Shallow Loamy, 9" to 13" ppt; Anasazi family=Sandy Loam Upland (calcareous), 9" to 13" ppt

14 Boquillas family-Showlow complex, 25 to 50 percent slopes, (basalt mesas), basalt, shale; Basalt Slopes, 13" to 17"

17 Chic-Teesto-RO complex, 1 to 30 percent slopes, (hills), basalt; Chic=Cinder Upland, 9" to 13" ppt; Teesto=Basalt Upland, 9" to 13" ppt

20 Dermala fam-Guy fam-Rock Outcrop complex, 10 to 40 percent slopes (mesa scarp) basalt; Basalt Slopes, 13" to 17"

33 Havasupai very gravelly loam, 1 to 5 percent slopes, (fan terrace), mixed alluvium; Limey Upland, 9" to 13" ppt

40 Ivanpatch fine sandy loam, 1 to 5 percent slopes, (fan terraces), mixed gyp-alluvium; Gypsum Fan, 9" to 13"

45 Mellenthin-Rock outcrop-Torriorthents complex, 10 to 70 percent slopes (hills) Kiabab; Mellenthin=Shallow Loamy, 9" to 13"; Torriorthents=Breaks, 9" to 13"

46 Mellenthin-Strych Complex, 4 to 25 percent slopes, cool, (plateaus, mesas), limestone; Mellenthin=Shallow Loamy, 9" to 13"; Strych=Loamy Upland, 9" to 13"

48 Mellenthin-Tanbark complex, 5 to 50 percent slopes, cool (mesas, hills) Kiabab, Harrisburg; Mellenthin=Shallow Loamy, 9" to 13"; Tanbark=Gypsum Hills, 9" to 13"

49 Mellenthin-Tanbark complex, 5 to 50 percent slopes, dry, (plateau, mesa, hill), SS, gypsite; Mellenthin=Limey Upland, 9" to 13"; Tanbark= Gypsum Hills, 9" to 13"

51 Meriwhitica-Rock outcrop-Strych complex, 35 to 70 percent slopes, (cliffs, canyons) Callville & Redwall limestones; Meriwhitica=Breaks, 9" to 13"; Strych=Loamy Upland, 9" to 13"

59 Padilla silt loam, 1 to 5 percent slopes, (fan terrace), mixed sedimentary; Clay Loam Upland, 9" to 13" ppt

61 Pocum-Spenlo complex, 1 to 10 percent slopes, (mesa), basalt; Pocum=Basalt Upland, 9" to 13"; Spenlo=Loamy Upland, 9" to 13" ppt

63 Radnik loam, 1 to 5 percent slopes (floodplain) mixed; Loamy Bottom, 9" to 13" ppt

72 Springerville-Delenbaw complex, 3 to 25 percent slopes (mesa) basalt; Springerville and Delenbaw=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

a. The suspension of AUMs in Ivanpah were voluntary when the AMP was first written and were to be restored after implementation of the AMP. The AMP has not been fully implemented and the AUMs have not been restored.

In 1981 a decision was issued to the permittee reducing the permitted use on the Ivanpah allotment from 1,089 AUM's to 807 AUM's based on a range survey conducted in the late 1970's. In 1982 the grazing use was reduced further to 601 AUM's based on an allotment management plan signed by the permittee in 1980. 488 AUM's were placed in suspended non-use. After four years the permit was to be increased to 706 AUM's if justified by trend and utilization studies. Additional increases were to be given as range improvements were completed and if studies showed they were warranted.

In 1985 an evaluation was made of the allotment with a recommendation that the grazing preference of 601 AUM's be retained at that time because the study data were inconclusive.

Since then, pipelines have been extended to provide water in previously little used areas of the allotment, several thousand acres of both state and federal lands have been treated with herbicides to reduce sagebrush and increase vegetative diversity, other areas have had pinyon and juniper trees removed to allow browse and grass species to increase, and fencing has been completed to improve the management of livestock.

Utilization studies were read on three occasions between 1993 and 2000 in all pastures except Salt which was read only in 1993 and 1995. The following table shows the results.

SOUTH CABIN	2000	1999	1995	1994	1993
Stipa/Indian rice	---	37%	---	48%	58%
Galleta/black grama	---	15%	---	15%	17%
Sand droseed	---	26%	---	41%	41%
Blue grama	---	7%	---	13%	9%
AVERAGE		21%		28%	32%
NORTHWEST					
Blue grama	---	9%	33%	---	36%
Galleta	---	9%	27%	---	37%
Sand dropseed	---	26%	44%	---	50%
Squirrel tail	---	20%	44%	---	4%
Cliffrose/winterfat	---	20%	39%	---	38%
AVERAGE		20%	35%	---	33%
SOUTH					
Stipa/Indian rice	---	---	16%	17%	33%
Galleta/blue grama	---	---	17%	14%	13%/7%
Sideoats grama	---	---	14%	8%	---
Mormon tea/cliffrose	---	---	21%	6%/24%	--
AVERAGE	---	---	17%	15%	13%
NORTH CABIN					
Indian ricegrass	21%	---	---	42%	38%
Stipa	18%	---	---	46%	46%
Galleta	7%	---	---	7%	3%
Sand dropseed	12%	---	---	14%	8%
Fourwing	23%	---	---	44%	44%
Winterfat	15%	---	---	39%	45%
AVERAGE	17%	---	---	35%	34%
SALT					
Stipa/Indian rice	---	---	17%	---	11%
Blue grama/side oats	---	---	28%	---	5%
Galleta	---	---	10%	---	4%
Mormon tea/cliffrose	---	---	30%	---	9%
AVERAGE	---	---	20%	---	7%

Only the reading on stipa and Indian ricegrass in 1993 exceeded the fifty percent average use allowed per pasture each year. The highest utilization in 1999 and 2000, since most of the range improvements have been completed, was 37% on stipa and Indian ricegrass in 1999. The highest average pasture utilization was 35% in the Northwest pasture in 1995 and the North Cabin pasture in 1994.

Trend from 1982 to 2004 has mostly been static except for squirreltail trending down in the South Cabin and North Cabin pastures and Stipa trending up in the South Cabin, South, and North Cabin pastures.

b. Watershed improvement projects to control erosion in the NW pasture of Ivanpah, proposed in the AMP, have never been completed.

The Ivanpah AMP proposed treating 2300 acres of sagebrush and clearing pinyon and juniper trees off an additional 800 acres, reseeding these areas and constructing three erosion control dikes to control severe erosion taking place in the NW pasture. BLM was responsible for completing these projects while the permittee was to complete other range improvements. The permittee responsibilities have been completed, but due to time and money constraints the BLM projects have not been completed.

c. Scotch thistle, a noxious weed, has been found on both Ivanpah and Littletank.

A weed inventory of both allotments disclosed that scotch thistle has become established in several places within each allotment. These infestations have been treated several tines both with herbicides and cut down using shovels.

V. Conclusions

A. Pertaining to Objectives

1. Land Use Plan Objectives

Arizona Strip Resource Management Plan, 1992 p. II-2

- *Manage public lands in a manner that responds to the nation's need for domestic sources of energy, minerals, and livestock products from the public lands and the importance of these industries to local and regional economies.*

This objective is being met. The public lands within the allotments are productive and being used in conjunction with other lands to produce livestock each year that are sold to feedlots where they are prepared for market.

- *Manage livestock grazing to maintain productive rangelands which meet forage, watershed, and wildlife needs.*

This objective is being met. Forage production and wildlife requirements are being met. Watersheds are being maintained except for certain areas in the northwest pasture which contain some severely eroded gullies that can only be improved by mechanical means.

Shivwits Resource Area Implementation Plan For The Arizona Strip District Approved Resource Management Plan

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

This objective is being met. Utilization exceeded 50% in one pasture in 1990, but since then all utilizations have been in compliance.

RR-01 *Continue authorizing the organized recreational events now occurring on the Resource Area.*

No organized recreational events are occurring in this allotment, and none are proposed at this time.

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

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

RR-08 *Manage the majority of the Resource Area for extensive recreation while maintaining its naturalness/remoteness. The exception to this is the Cedar Pockets campground.*

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

RR-09 *Commercial recreation permits would be issued to the extent that their cumulative impacts are consistent with the overall objectives of this plan and in the public interest.*

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

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

This has been met except for the NW pasture of the Ivanpah Allotment which needs some rehabilitation work.

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

The Ivanpah allotment was classified in the RMP as category IV. This means that the watershed units currently are in satisfactory erosion condition but are susceptible to wind and water erosion following disturbance. The Little Tank allotment was classified as category I, meaning that the watershed units are in satisfactory erosion condition and are not especially susceptible to wind and water erosion.

The Ivanpah allotment will remain a category IV until rehabilitation projects are completed in the NW pasture. Little Tank will remain a category I.

2. Specific Resource Objectives

California Condor Recovery Plan

CC-1 *Provide foraging habitat for California condors.*

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

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

While this objective has not yet been met, the condor population appears to be stable and is increasing. Recent reports of at least two successful nests indicate that the birds are beginning to make progress towards self-sustaining populations. The condors at the Vermilion Cliffs are still very young birds, with many having just

recently reached sexual maturity. It may still be many years before the population objective reaches 150 individuals and at least 15 breeding pairs. There is no evidence that rangeland health on this allotment would inhibit the condor population from reaching this objective.

Clayhole Habitat Management Plan

O2. *Provide quality habitat for 400 pronghorn antelope and allow for their expansion and utilization of potential antelope habitat within the Clayhole Habitat Area.*

This objective is being met. Quality pronghorn habitat depends to a large extent upon available precipitation. In years with adequate rainfall, this allotment includes quality habitat areas. Without adequate rainfall, forbs become a limiting factor for pronghorn.

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

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

A2. *Modify fences to allow free movement of pronghorn antelope within the CHA.*

This objective is being met on a continuing basis. In 2002, BLM and AGFD inventoried fences in pronghorn habitat on the Strip to determine if the fences met agency wildlife fence standards; 43 fence data points pertaining to the Mainstreet Allotment were recorded. Eight of the 43 pronghorn fence points indicated the fence was acceptable (19%). Thirty-five were unacceptable (81%). Fence modifications are performed as quickly as funding and manpower permit.

Black Rock Habitat Management Plan

VM1 *Enhance wildlife forage conditions on all allotments with a downward or static trend to achieve DPC by 2010.*

Met. Trend has generally been static or upward.

Ivanpah-Littletank Allotment Management Plan, written 1989.
Ivanpah Allotment

1. *Increase available forage from current qualifications of 601 AUMs to the inventoried carrying capacity of 807 AUMs by 1999.*

This has not been met Current Trend studies would indicate that the AUMs could be restored, however utilization studies have only been read on the Ivanpah allotment three times since 1993. While most of these readings have been low, more current and frequent readings should be done before any adjustments are made.

2. *Reduce erosion and sediment yield in the NW pasture from 2.96 tons/acre/year to .10 tons/acre/year through erosion control dikes and land treatment and seeding of 2800 acres of pinyon-juniper and sagebrush by 1999.*

This has not been accomplished. The priority of this reclamation work should be raised as the objective was to be done by 1999 and as yet it has not.

3. *Maintain or improve browse and cool season forage condition in all pastures since this allotment will largely be used during winter-spring seasons.*

This objective has been met. Trend studies indicate that browse and cool season grasses are being maintained or in some instances are increasing.

Littletank Allotment

1. *Maintain or improve browse and warm season forage condition in all pastures since this allotment will largely be used during summer-fall seasons.*

This objective is being met. The browse and warm season grasses being maintained in good condition.

Key Area Objectives are based on the number of "hits" or frequency that key species appeared in 200 pace frequency frames.

1. *Ivanpah South pasture: Increase frequency of Key Species from 51 in 1985 to 60 in 1999.*

Not met. Frequency is at 50.

2. *Ivanpah NW pasture: Increase frequency of Key Species from 92.5 in 1987 to 110 in 1999.*

Not met. Frequency is at 88.

3. *Ivanpah North Cabin pasture: Increase frequency of Key Species from 163 in 1986 to 185 in 1999.*

Not met. Frequency is at 114.5.

4. *Ivanpah South Cabin pasture: Increase frequency of Key Species from 96 in 1986 to 137 in 1999.*

Not met. Frequency is at 87.5

5. *Littletank NE pasture: Increase frequency of Key Species from 64 in 1985 to 80 in 1999.*

This objective has been met. Frequency is currently at 95.

6. *Littletank NW pasture: Increase frequency of Key Species from 82 in 1984 to 100 in 1999.*

This objective is currently at 87. May be considered as progressing toward the objective. However in 1992 the frequency was read at 106.

7. *Littletank SW pasture: Increase frequency of Key Species from 126 in 1987 to 150 in 1999.*

This objective has not been met. Frequency is currently at 105.5.

8. *Littletank SE pasture: Increase frequency of Key Species from 127 in 1986 to 150 in 1999.*

This objective has not been met. Current frequency is 78.5.

In arriving at a conclusion to the results of the above objectives the following items were considered:

1. Livestock grazing: it has been light to moderate.

2. Precipitation: averaged 14.25" at the Alcorn station between 1978 and 1988 and

11.7" between 1993 and 2003. At the Holgate station precipitation averaged 12.3" from 1977 to 1987 and 9.5" from 1993 to 2003.

3. Other vegetation: the trend of most all vegetative species has been the same as that of the key species.

The conclusion is that the amount and timing of precipitation have influenced the frequency of the key species and other vegetation and livestock grazing has not had a significant impact. As precipitation was above average most of the time from the late 1970's through the late 1980's vegetation increased, then as average precipitation declined in the 1990's vegetation began to decline in frequency. The frequency objectives were set when the climate had been the most favorable for vegetative growth in possibly the last century.

The Desired Plant Community objectives listed under III.C.2. above, which were developed during this Standards and Guidelines process, are mostly to maintain the existing composition and should be met.

B. Pertaining to Issues

1. Issues relating to Rangeland Health

a. The suspension of AUMs in Ivanpah were voluntary when the AMP was first written and were to be restored after implementation of the AMP. The AMP has not been fully implemented and the AUMs have not been restored.

Current Trend studies would indicate that the AUMs could be restored, however utilization studies have only been read on the Ivanpah allotment three times since 1993. While most of these readings have been low, more current and frequent readings should be done before any adjustments are made.

b. Watershed improvement projects to control erosion in the NW pasture of Ivanpah, proposed in the AMP, have never been completed.

This has not been accomplished. The priority of this reclamation work should be raised as the objective was to be done by 1999 and as yet it has not.

c. Scotch thistle, a noxious weed, has been found on both Ivanpah and Littletank.

Continue to monitor the allotments for Scotch thistle and use mechanical, chemical and if the opportunity is right, biological treatments to control or eradicate it.

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:

[X] Meet all applicable standards for rangeland health

[ ] Are making significant progress toward meeting the applicable standards for rangeland health

Do not meet the standards for rangeland health for:

[ ] No. 1: Upland sites
[ ] No. 2: Riparian-Wetland sites
[ ] No. 3: Desired Resource Conditions

[ ] Have not been sufficiently documented to make a specific determination, but there is no reason to believe that current management would preclude meeting the standards for rangeland health.

VI. Recommendations

A. Renew the Ten Year Grazing Permit for the Ivanpah and Littletank allotments.

B. The rancher and the rangeland management specialist should coordinate closer on the grazing rotation of cattle on the Ivanpah allotment so that utilization studies are completed regularly and timely to determine if an adjustment in permitted use is warranted. Studies should be done for three consecutive years and then an evaluation done.

C. Determine if the watershed plan for the Northwest pasture of the Ivanpah allotment is feasible, necessary, and cost effective. If it is then incorporate it into the Annual Work Plan.

AUTHORIZED OFFICER CONCURRENCE:

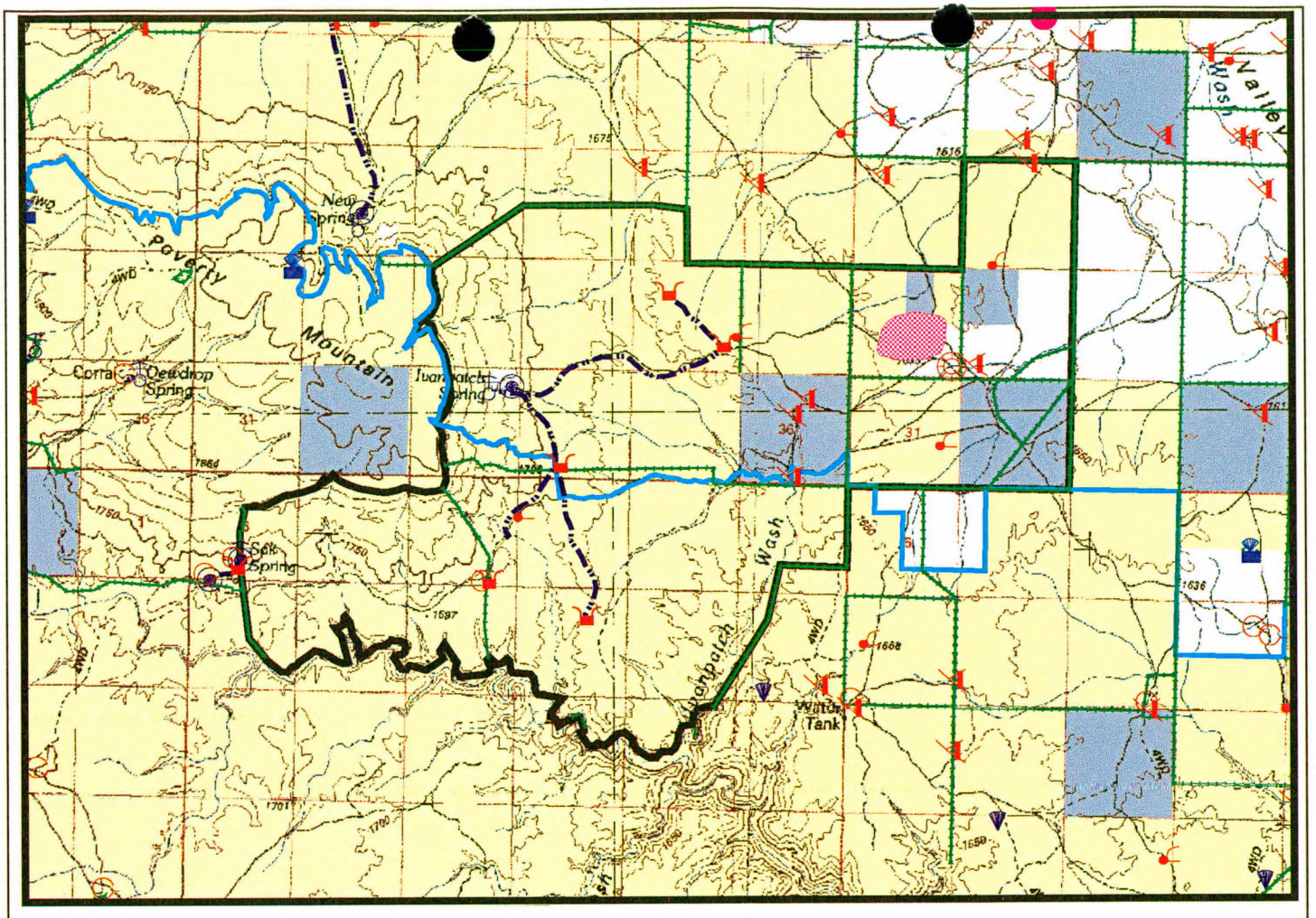
__X__ I concur with the conclusions and recommendations as written.

_____ I do not concur.

_____ I concur, with the following modifications:

Becky J. Hammond
Field Manager
Arizona Strip Field Office

November 1, 2006
Date



Ivanpah Allotment

Bureau of Land Management
Arizona Strip Field Office

1:100000

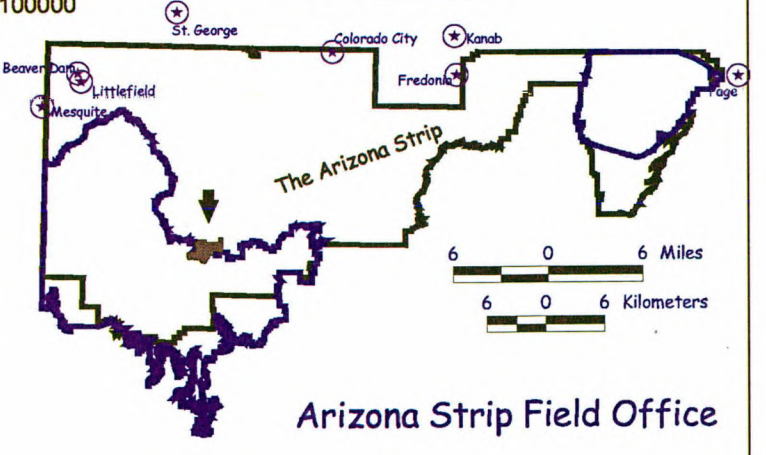
1 0 1 Miles

1 0 1 2 Kilometers

- Noxious Weeds
- Livestock Catchment
- Key Area
- Fence
- Pipeline
- Monument Boundary
- Allotment Boundary
- Wilderness Boundary

Ownership
- BLM
- Forest Service
- Indian Reservation
- National Park
- Private
- Recreation Area
- State

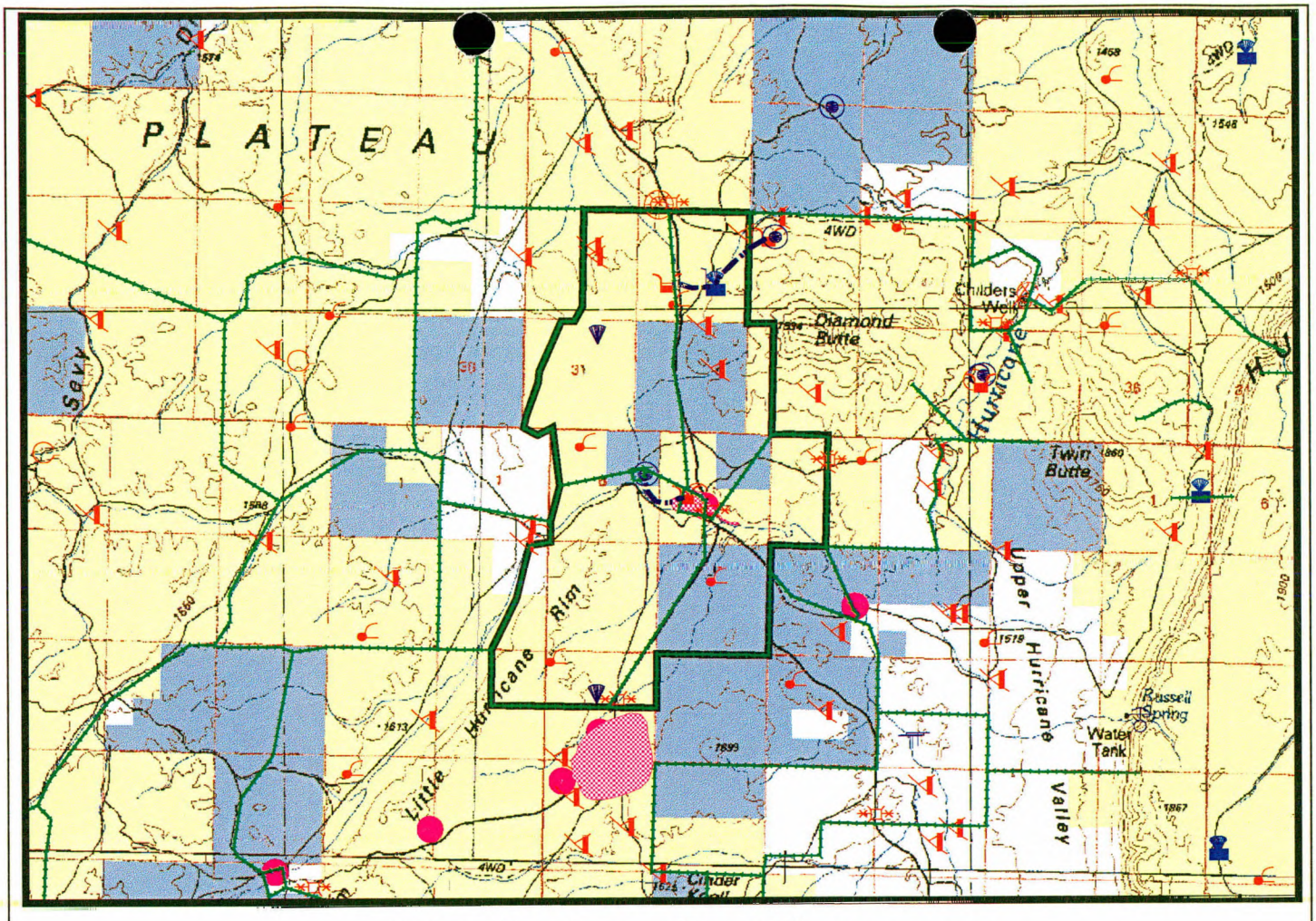
- Fenced Reservoir
- Trough
- Undeveloped Spring
- Unfenced Reservoir
- Water Storage Tank
- Well
- Wildlife Catchment
- Wildlife Drinker
- Windmill
- Cattleguard
- Corral
- Developed Spring



Arizona Strip Field Office

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
October 21, 2003



Little Tank Allotment

Bureau of Land Management
Arizona Strip Field Office

1:100000

1 0 1 Miles

1 0 1 2 Kilometers



Noxious Weeds
Livestock Catchment
Key Area
Fence
Pipeline
Monument Boundary
Allotment Boundary
Wilderness Boundary

Ownership
BLM
Forest Service
Indian Reservation
National Park
Private
Recreation Area
State

Fenced Reservoir
Trough
Undeveloped Spring
Unfenced Reservoir
Water Storage Tank
Well
Wildlife Catchment
Wildlife Drinker
Windmill
Cattleguard
Corral
Developed Spring

Arizona Strip Field Office

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

Produced by
Linda Price
November 11, 2003

Appendix A

ARIZONA STANDARDS FOR RANGELAND HEALTH AND
GUIDELINES FOR GRAZING ADMINISTRATION

INTRODUCTION

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

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

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

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

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

> "The guiding principles for standards and guidelines require that State or regional standards and guidelines address the basic components of healthy rangelands. The Department believes that by implementing grazing-related actions that are consistent with the fundamentals of §4180.1 and the guiding principles of §4180.2, the long-term health of public rangelands can be ensured.
>
> "Standards and guidelines will be implemented through terms and conditions of grazing permits, leases, and other authorizations, grazing-related portions of activity plans (including Allotment Management Plans), and through range improvement-related activities.
> "The Department anticipates that in most cases the standards and guidelines themselves will not be terms and conditions of various authorizations but that the terms and conditions will reflect the standards and guidelines.

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

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

FUNDAMENTALS AND DEFINITION OF RANGELAND HEALTH

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

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

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

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

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

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

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

". . . a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management" (Journal of Range Management, 48:279, 1995). Ecological sites result from the interaction of climate, soils, and landform (slope, topographic position). The importance of this concept is that the "health" of different kinds of rangeland must be judged by standards specific to the potential of the ecological site. Acceptable erosion rates, water quality, productivity of plants and animals, and other features are different on each ecological site.

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

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

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

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

STANDARD AND GUIDELINE DEFINITIONS

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

(1) are measurable and attainable; and

(2) comply with various Federal and State statutes, policies, and directives applicable to BLM Rangelands.

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

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

IMPLEMENTING STANDARDS AND GUIDELINES

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

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

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

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

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

ARIZONA STANDARDS AND GUIDELINES

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

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

Standard 1: Upland Sites

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

Criteria for meeting Standard 1:

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

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

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

As indicated by such factors as:

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

Signs of erosion
- flow pattern
- gullies
- rills
- plant pedestaling

Exceptions and exemptions (where applicable):

none

Guidelines:

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

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

Standard 2: Riparian-Wetland Sites

Riparian-wetland areas are in properly functioning condition.

Criteria for meeting Standard 2:

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

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

The checklist for riparian areas is in Technical Reference 1737-9 "Process for Assessing Proper Functioning Condition." The checklist for wetlands is in Technical Reference 1737-11 "Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas." These checklists are reprinted on the pages following the Guidelines for Standard 3.

As indicated by such factors as:

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

Exceptions and exemptions (where applicable):

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

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

Guidelines:

2-1. Management practices maintain or promote sufficient vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability, thus promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform.

2-2. New facilities are located away from riparian-wetland areas if they conflict with achieving or maintaining riparian-wetland function. Existing facilities are used in a way that does not conflict with riparian-wetland functions or are relocated or modified when incompatible with riparian-wetland functions.

2-3. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect ecological functions and processes.

Standard 3: Desired Resource Conditions

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

Criteria for meeting Standard 3:

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

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

As indicated by such factors as:

Composition
Structure
Distribution

Exceptions and exemptions (where applicable):

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

Guidelines:

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

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

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

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

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

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

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

serviceable waters are capable of providing for proper grazing distribution;

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

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

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

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

Appendix B

Interdisciplinary Assessment Team

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

Rangeland Resource Team

Commodity Interests

Bill Gubler,
Grazing
Rancher, St. George, UT

Bill Howes
Off Road Vehicle Use
Wizards Motorcycle Club

Kent McComb,
Grazing
Retired, St. George, UT

Non-Commodity Interests

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

Spence Esplin,
Historical
Retired, St. George, UT

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

Local Area Interests

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

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

Dennis Becenti
Native American Interests
Hopi and Navajo Tribes, AZ

Alternates

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

Paul Weaver
Non-Commodity
St. George, UT

Appendix C

Precipitation Data

Historical Precipitation Report

Field Office 110 **Rain Gauge Name:** Alcorn **Rain Gauge Number:** 01

Seasonal Precipitation Amounts						Annual Average					Percent of Normal				
Year	Fall	Winter	Spring	Summer	Annual	Fall	Winter	Spring	Summer	Annual	Fall	Winter	Spring	Summer	Annual
1978	1.76	10.00	2.40	2.65	16.81	1.76	3.85	2.27	4.67	12.55	100%	260%	106%	57%	134%
1979	3.85	5.10	2.77	3.86	15.58	1.76	3.85	2.27	4.67	12.55	219%	132%	122%	83%	124%
1980	0.35	5.90	2.62	5.45	14.32	1.76	3.85	2.27	4.67	12.55	20%	153%	115%	117%	114%
1981	0.92	1.72	3.85	7.05	13.54	1.76	3.85	2.27	4.67	12.55	52%	45%	169%	151%	108%
1982	1.12	3.98	1.92	8.80	15.82	1.76	3.85	2.27	4.67	12.55	64%	103%	84%	188%	126%
1983	3.06	3.84	2.46	6.87	16.23	1.76	3.85	2.27	4.67	12.55	174%	100%	108%	147%	129%
1986	2.61	1.10	3.11	6.07	12.89	1.76	3.85	2.27	4.67	12.55	148%	29%	137%	130%	103%
1987	1.38	2.38	2.76	4.10	10.62	1.76	3.85	2.27	4.67	12.55	78%	62%	121%	88%	85%
1988	4.05	2.13	3.78	2.55	12.51	1.76	3.85	2.27	4.67	12.55	230%	55%	166%	55%	100%
1989	0.64	2.68	1.13	2.10	6.55	1.76	3.85	2.27	4.67	12.55	36%	70%	50%	45%	52%
1990	0.29	1.86	2.00	6.42	10.57	1.76	3.85	2.27	4.67	12.55	16%	48%	88%	137%	84%
1991	0.48	4.00	1.34	5.33	11.15	1.76	3.85	2.27	4.67	12.55	27%	104%	59%	114%	89%
1992	0.91	4.75	6.30	3.09	15.05	1.76	3.85	2.27	4.67	12.55	52%	123%	277%	66%	120%
1993	2.10	9.78	3.38	1.74	17.00	1.76	3.85	2.27	4.67	12.55	119%	254%	149%	37%	135%
1994	1.81	2.94	2.50	3.25	10.50	1.76	3.85	2.27	4.67	12.55	103%	76%	110%	70%	84%
1995	1.96	6.19	5.35	3.00	16.50	1.76	3.85	2.27	4.67	12.55	111%	161%	235%	64%	131%
1996	0.12	3.88	0.87	2.63	7.50	1.76	3.85	2.27	4.67	12.55	7%	101%	38%	56%	60%
1997	2.13	3.38	2.24	7.13	14.88	1.76	3.85	2.27	4.67	12.55	121%	88%	99%	153%	119%
1998	1.63	4.32	1.30	10.00	17.25	1.76	3.85	2.27	4.67	12.55	93%	112%	57%	214%	137%
1999	2.47	1.28	0.75	7.45	11.95	1.76	3.85	2.27	4.67	12.55	140%	33%	33%	160%	95%
2000	0.00	2.75	0.25	3.25	6.25	1.76	3.85	2.27	4.67	12.55	0%	71%	11%	70%	50%
2001	2.83	3.92	0.88	5.12	12.75	1.76	3.85	2.27	4.67	12.55	161%	102%	39%	110%	102%
2002	0.37	1.38	0.00	2.75	4.50	1.76	3.85	2.27	4.67	12.55	21%	36%	0%	59%	36%
2003	1.50	3.00	1.28	3.72	9.50	1.76	3.85	2.27	4.67	12.55	85%	78%	56%	80%	76%
2004	0.81	2.56	1.49	4.39	9.25	1.76	3.85	2.27	4.67	12.55	46%	66%	66%	94%	74%
2005	7.38	8.00	2.37	2.63	20.38	1.76	3.85	2.27	4.67	12.55	419%	208%	104%	56%	162%
2006	1.00	1.13				1.76	3.85	2.27	4.67	12.55	57%	29%			

Historical Precipitation Report

Field Office 110 **Rain Gauge Name:** Holgate **Rain Gauge Number:** 15

Seasonal Precipitation Amounts						Annual Average					Percent of Normal				
Year	Fall	Winter	Spring	Summer	Annual	Fall	Winter	Spring	Summer	Annual	Fall	Winter	Spring	Summer	Annual
1977	1.18	7.62	2.40	3.00	14.20	1.74	3.23	1.86	4.03	10.86	68%	236%	129%	74%	131%
1978	3.02	4.59	2.77	3.82	14.20	1.74	3.23	1.86	4.03	10.86	173%	142%	149%	95%	131%
1979	0.34	7.66	2.05	3.65	13.70	1.74	3.23	1.86	4.03	10.86	20%	237%	110%	91%	126%
1980	1.04	1.67	3.93	6.91	13.55	1.74	3.23	1.86	4.03	10.86	60%	52%	212%	171%	125%
1981	0.97	2.82	1.15	5.80	10.74	1.74	3.23	1.86	4.03	10.86	56%	87%	62%	144%	99%
1982	2.42	2.59	2.07	5.44	12.52	1.74	3.23	1.86	4.03	10.86	139%	80%	111%	135%	115%
1983	1.54	0.99	0.96	7.45	10.94	1.74	3.23	1.86	4.03	10.86	88%	31%	52%	185%	101%
1984	0.83	4.39	2.00	2.99	10.21	1.74	3.23	1.86	4.03	10.86	48%	136%	108%	74%	94%
1985	3.19	0.39	2.00	7.16	12.74	1.74	3.23	1.86	4.03	10.86	183%	12%	108%	178%	117%
1986	1.82	3.57	2.27	4.12	11.78	1.74	3.23	1.86	4.03	10.86	104%	111%	122%	102%	108%
1987	4.21	1.40	2.08	3.02	10.71	1.74	3.23	1.86	4.03	10.86	242%	43%	112%	75%	99%
1988	2.28	2.47	1.18	3.09	9.02	1.74	3.23	1.86	4.03	10.86	131%	77%	64%	77%	83%
1989	0.72	1.22	1.77	4.11	7.82	1.74	3.23	1.86	4.03	10.86	41%	38%	95%	102%	72%
1990	0.61	3.20	1.14	3.58	8.53	1.74	3.23	1.86	4.03	10.86	35%	99%	61%	89%	79%
1991	0.80	3.00	4.70	3.51	12.01	1.74	3.23	1.86	4.03	10.86	46%	93%	253%	87%	111%
1992	1.60	6.90	2.63	5.87	17.00	1.74	3.23	1.86	4.03	10.86	92%	214%	142%	146%	157%
1993	2.00	2.38	1.37	0.00	5.75	1.74	3.23	1.86	4.03	10.86	115%	74%	74%	0%	53%
1994	2.00	2.38	1.37	1.75	7.50	1.74	3.23	1.86	4.03	10.86	115%	74%	74%	43%	69%
1995	1.25	7.50	1.25	2.75	12.75	1.74	3.23	1.86	4.03	10.86	72%	232%	67%	68%	117%
1996	2.25	2.25	0.63	3.87	9.00	1.74	3.23	1.86	4.03	10.86	129%	70%	34%	96%	83%
1997	2.00	1.60	1.70	5.38	10.68	1.74	3.23	1.86	4.03	10.86	115%	50%	92%	133%	98%
1998	1.25	3.37	2.65	8.35	15.62	1.74	3.23	1.86	4.03	10.86	72%	104%	143%	207%	144%
1999	1.50	1.10	3.90	2.25	8.75	1.74	3.23	1.86	4.03	10.86	86%	34%	210%	56%	81%
2000	0.00	1.62	0.13	2.75	4.50	1.74	3.23	1.86	4.03	10.86	0%	50%	7%	68%	41%
2001	4.20	5.80	0.38	5.63	16.01	1.74	3.23	1.86	4.03	10.86	241%	180%	20%	140%	147%
2002	0.25	1.25	0.25	1.75	3.50	1.74	3.23	1.86	4.03	10.86	14%	39%	13%	43%	32%
2003	1.38	2.68	1.69	4.38	10.13	1.74	3.23	1.86	4.03	10.86	79%	83%	91%	109%	93%
2004	0.50	2.25	1.11	3.01	6.87	1.74	3.23	1.86	4.03	10.86	29%	70%	60%	75%	63%
2005	6.00	7.19	2.31	1.50	17.00	1.74	3.23	1.86	4.03	10.86	344%	223%	124%	37%	157%
2006	1.13	1.00				1.74	3.23	1.86	4.03	10.86	65%	31%			

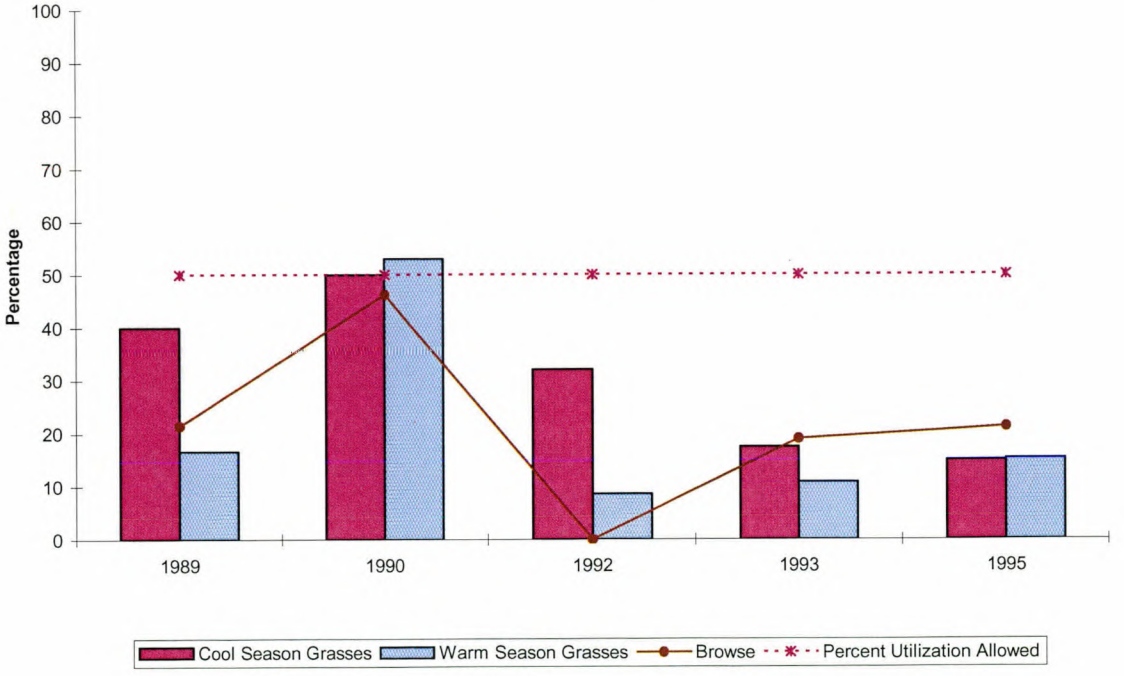
Appendix D

Vegetation Data

ARIZONA STRIP			UTILIZATION STUDY SUMMARY																	09/21/04
ALLOTMENT = IVANPAH			PASTURE = SOUTH			KEY AREA NUMBER = 2												Page 1		
Utilization expressed as a percent use for each species as of the particular year read.																				
Cool Season Grasses																				
	1989	1990	1992	1993	1995															
ORHY	40	50		17	15															
SIHY			32																	
CSGG																				
WARM SEASON GRASSES																				
HIJA	4		11	14	17															
BOGR		53	5																	
BOER					14															
WSGG	60			8																
BROWSE																				
ATCA		90																		
EPNE	21	42		6																
COME		50		24	21															
SSSS																				

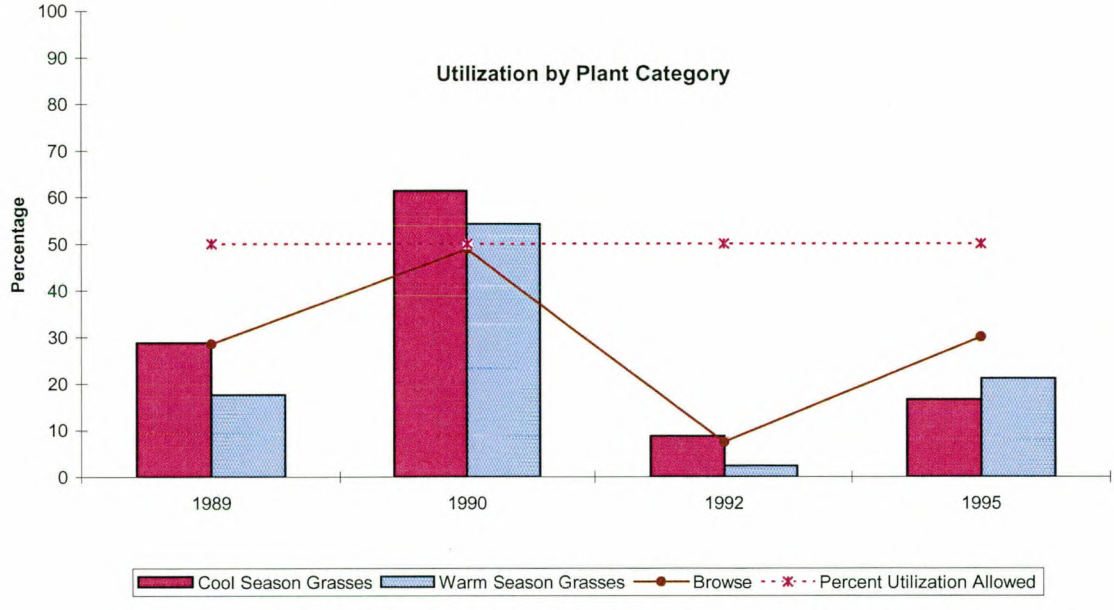
Allotment: IVANPAH **Pasture: SOUTH** **Key Area: 2**

Utilization by Plant Category



ARIZONA STRIP			UTILIZATION STUDY SUMMARY																	09/21/04
ALLOTMENT = IVANPAH			PASTURE = SALT				KEY AREA NUMBER = 5										Page 1			
Utilization expressed as a percent use for each species as of the particular year read.																				
Cool Season Grasses																				
	1989	1990	1992	1995																
ORHY	29	61	9	17																
CSGG																				
WARM SEASON GRASSES																				
HIJA	13	57	1	10																
BOGR			3	28																
WSGG	31	47																		
BROWSE																				
EPNE	28	49																		
COME	35	50	8	30																
SSSS																				

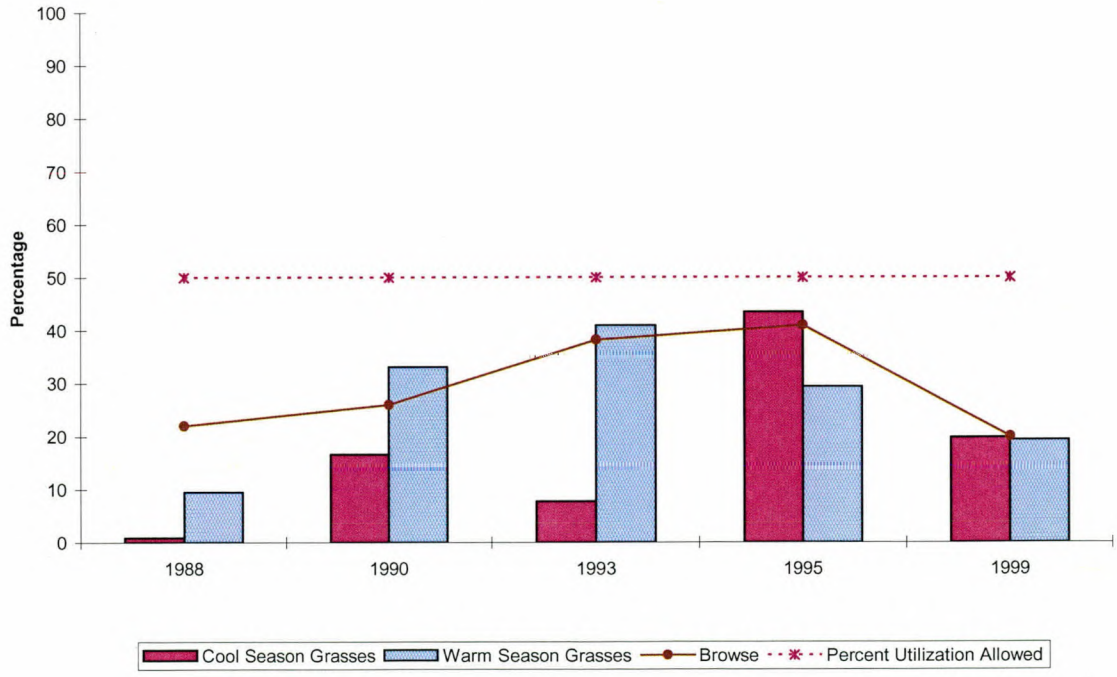
Allotment: IVANPAH **Pasture: SALT** **Key Area: 5**



ARIZONA STRIP			UTILIZATION STUDY SUMMARY																	09/21/04
ALLOTMENT = IVANPAH			PASTURE = NORTH WEST			KEY AREA NUMBER = 8											Page 1			
Utilization expressed as a percent use for each species as of the particular year read.																				
Cool Season Grasses																				
	1988	1990	1993	1995	1999															
SIHY	1	17	8	44	20															
CSGG																				
WARM SEASON GRASSES																				
HIJA	5	29	37	27	21															
SPCR	10	10	51		26															
BOGR	13	35	36	33	9															
WSGG																				
BROWSE																				
COME	22	26	38	41	20															
SSSS																				

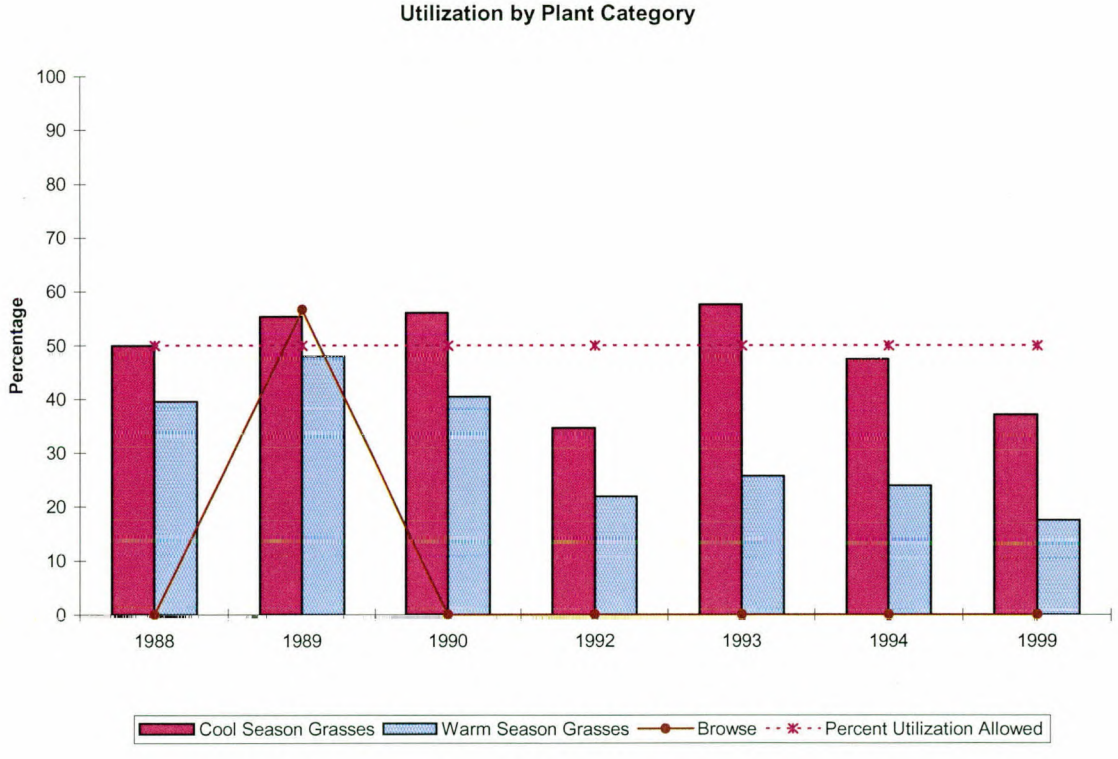
Allotment: IVANPAH **Pasture: NORTH WEST** **Key Area: 8**

Utilization by Plant Category



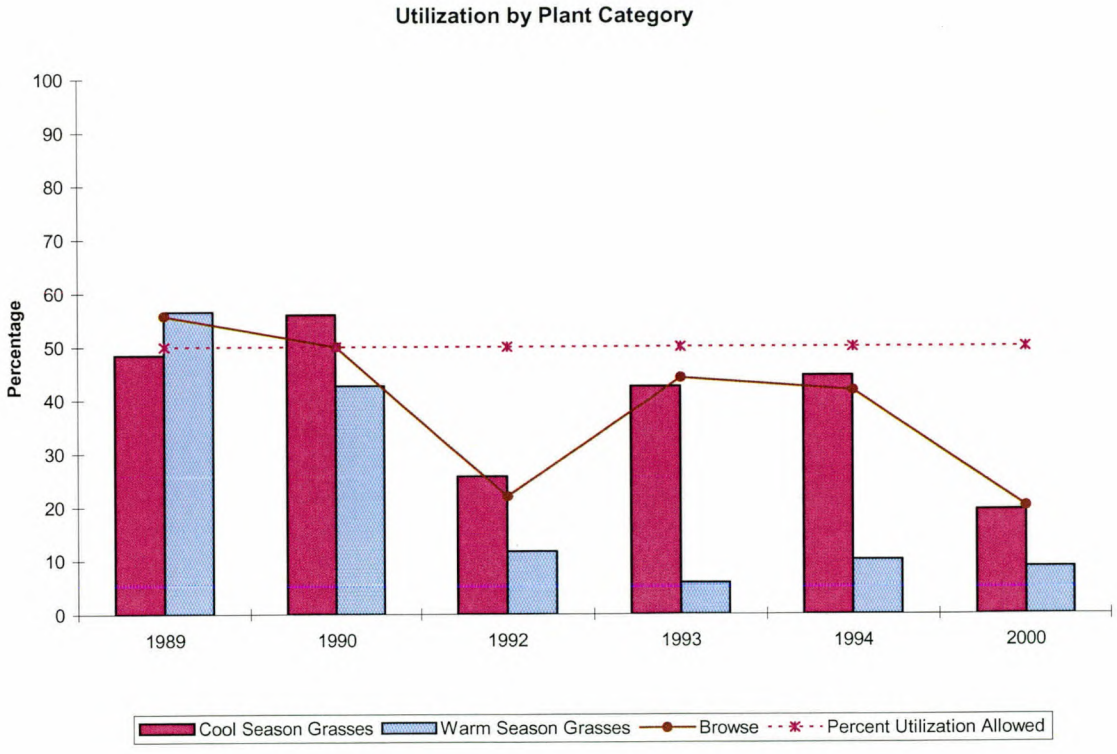
ARIZONA STRIP				UTILIZATION STUDY SUMMARY																	09/21/04
ALLOTMENT = IVANPAH				PASTURE = SOUTH CABIN				KEY AREA NUMBER = 10												Page 1	
Utilization expressed as a percent use for each species as of the particular year read.																					
Cool Season Grasses																					
	1988	1989	1990	1992	1993	1994	1999														
ORHY	56																				
SIHY	45	30	22																		
STIPA		59	59	35	58	48	37														
CSGG																					
WARM SEASON GRASSES																					
HIJA	36	46	38	22	17	15	15														
SPCR	59	70	55		41	41	26														
BOGR	39	54	37	22	9	13	7														
BOER		53	47																		
WSGG																					
BROWSE																					
CELA		57																			
SSSS																					

Allotment: IVANPAH **Pasture: SOUTH CABIN** **Key Area: 10**



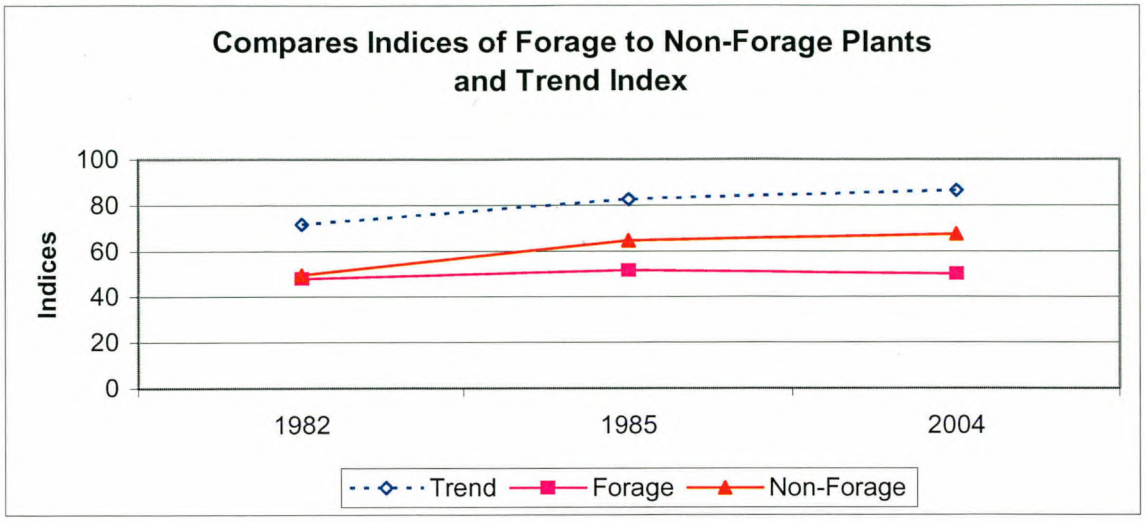
ARIZONA STRIP			UTILIZATION STUDY SUMMARY																	09/21/04
ALLOTMENT = IVANPAH			PASTURE = NORTH CABIN			KEY AREA NUMBER = 12												Page 1		
Utilization expressed as a percent use for each species as of the particular year read.																				
Cool Season Grasses																				
	1989	1990	1992	1993	1994	2000														
ORHY			35	38	42	21														
STIPA	48	56	22	46	46	18														
CSGG																				
WARM SEASON GRASSES																				
HIJA	53	39	15	3	7	7														
SPCR	61	47	9	8	14	12														
WSGG																				
BROWSE																				
CELA	50	47	25	45	39	15														
ATCA	63	54	17	44	44	23														
SSSS																				

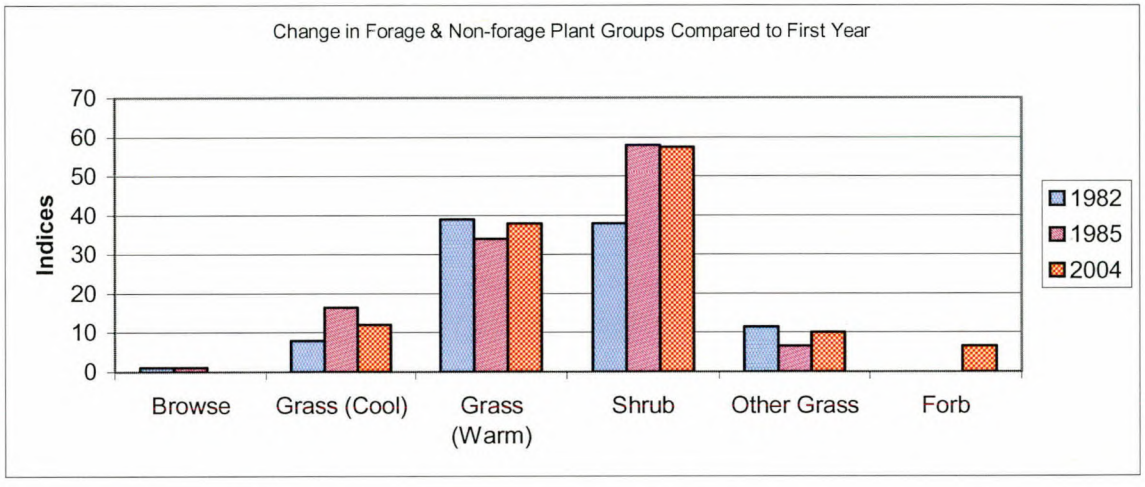
Allotment: IVANPAH **Pasture: NORTH CABIN** **Key Area: 12**

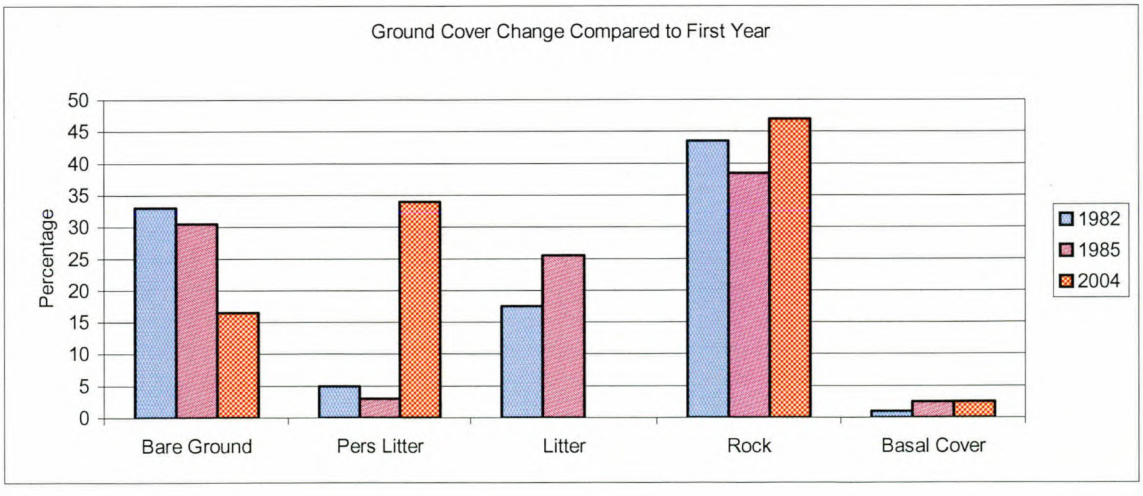


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: IVANPAH				PASTURE: SOUTH					KEY AREA: 2		
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1982	1985	2004	2007	2010	2013	2016	2019	2022	2025	2028
Bare Ground	33	31	17								
Pers Litter	5	3	34								
Litter	18	26									
Rock	44	39	47								
Basal Cover	1	3	3								
% Ground Cover	67	70	84								
BROWSE											
COME	1	1									
OTHER BROWS											
DESIRABLE GRASSES											
Cool Season											
ORHY	6	3									
SIHY	1	2									
STIPA	2	12	12								
Other Cool Season Grass											
Warm Season											
HIJA		15	23								
BOGR	1	1	2								
BOER	1	1									
BOCU	38	18	14								
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2	7	10	11								
CHVI8			2								
OPUNT	4	8	13								
ERIOG_SHRB			1								
YUCCA		1	3								
JUOS	25	32	19								
PIED			10								
EPVI	1	2									
BERBERIS	1	1	1								
PSCO2	1										
OTHERSHRUB		5									
OTHER GRASSES											
ARLO	12	7	10								
PPGG											
FORBS											
ASTRA			1								
SPHAE			2								
AAFF											
AAGG											
PPFF			4								

Allotment: IVANPAH **Pasture: SOUTH** **Key Area: 2**

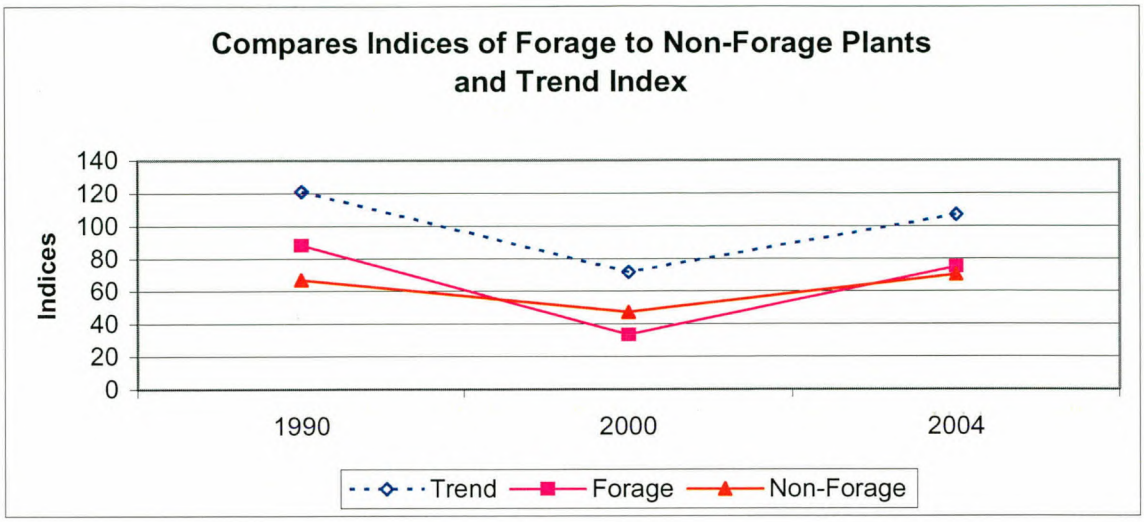


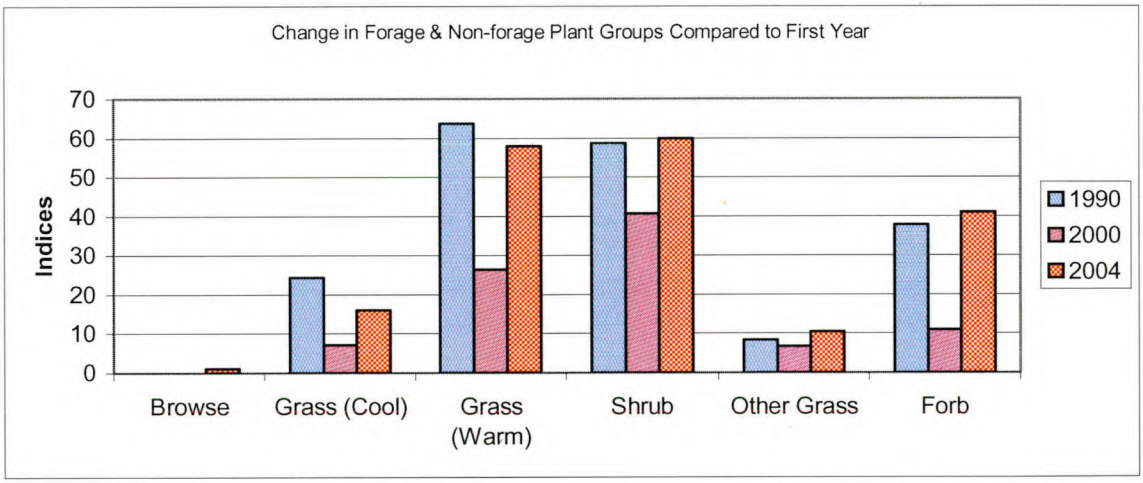


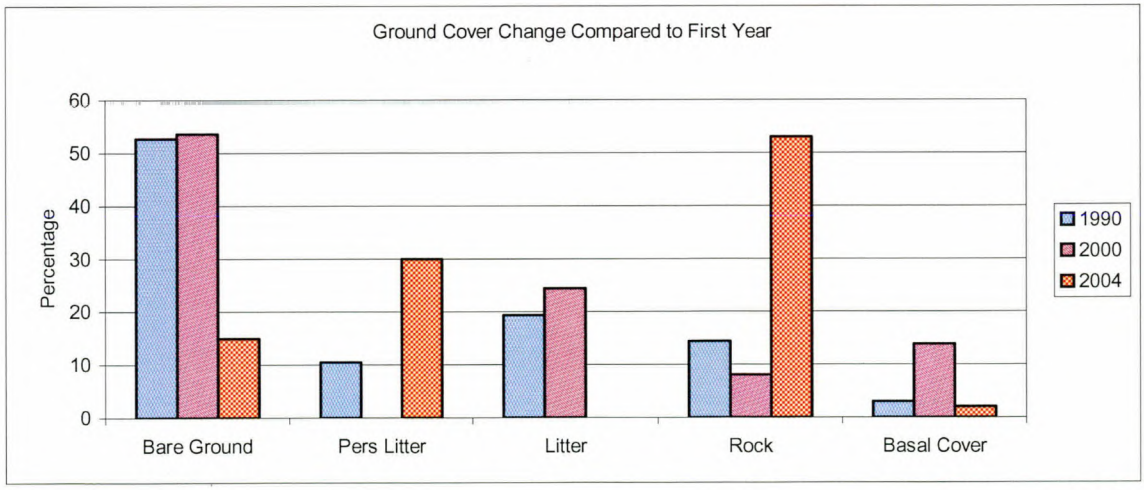


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: IVANPAH			PASTURE: SALT					KEY AREA: 5			
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1990	2000	2004	2007	2010	2013	2016	2019	2022	2025	2028
Bare Ground	53	54	15								
Pers Litter	10		30								
Litter	19	24									
Rock	14	8	53								
Basal Cover	3	14	2								
% Ground Cover	47	46	85								
BROWSE											
COME			1								
OTHER BROWS											
DESIRABLE GRASSES											
Cool Season											
ORHY	19	3	8								
SIHY	2		2								
STIPA	3	4	7								
Other Cool Season Grass											
Warm Season											
HIJA	30	6	35								
SPCR	0	0	2								
BOGR	20	13	15								
BOER		1									
BOCU	12	6	7								
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2	27	6	20								
CHVI8			4								
OPUNT	8	3	7								
ERIOG_SHRB			1								
YUCCA			2								
JUOS	15	15	17								
PIED	0	12	10								
RHTR	1										
QUTU	1		1								
EPVI	3	1									
YUBR	1	3									
OTHERSHRUB											
OTHER GRASSES											
ARLO	8	5	11								
PPGG		1									
FORBS											
SPHAE	1		4								
AAFF		0	16								
AAGG											
ERIOG			8								
PPFF	23	11	7								
SPURGE	14		7								

Allotment: IVANPAH **Pasture: SALT** **Key Area: 5**

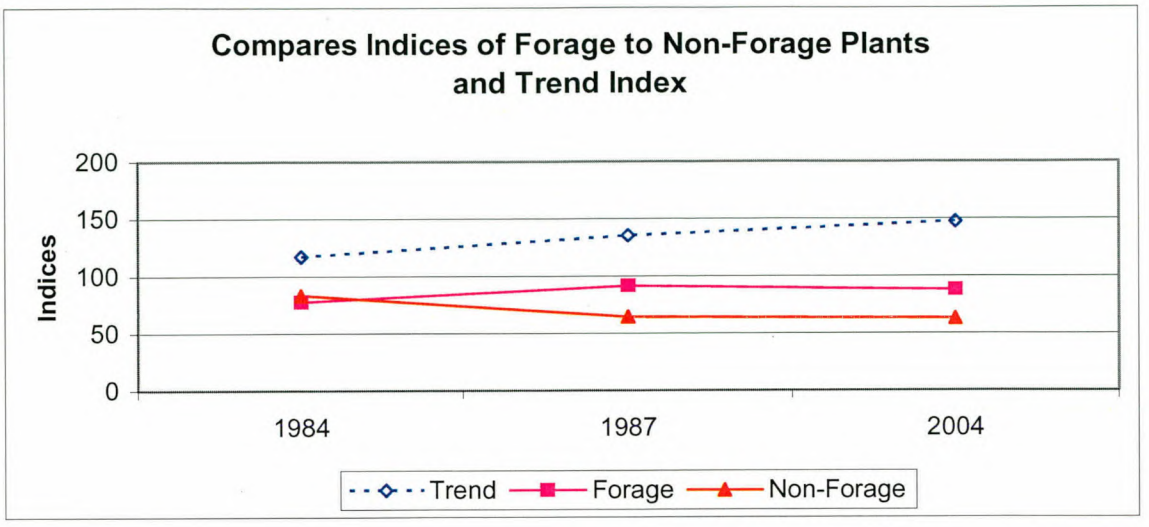


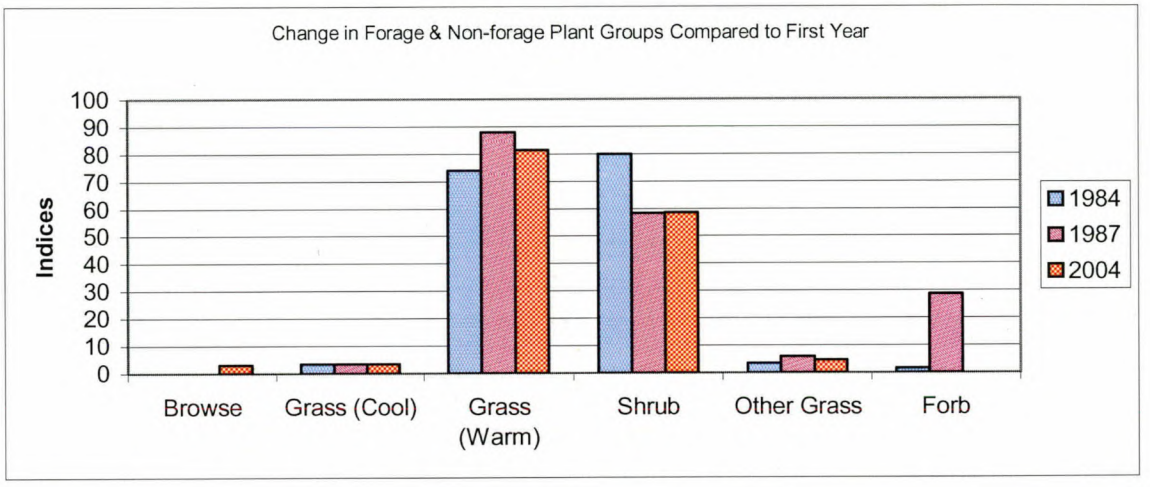


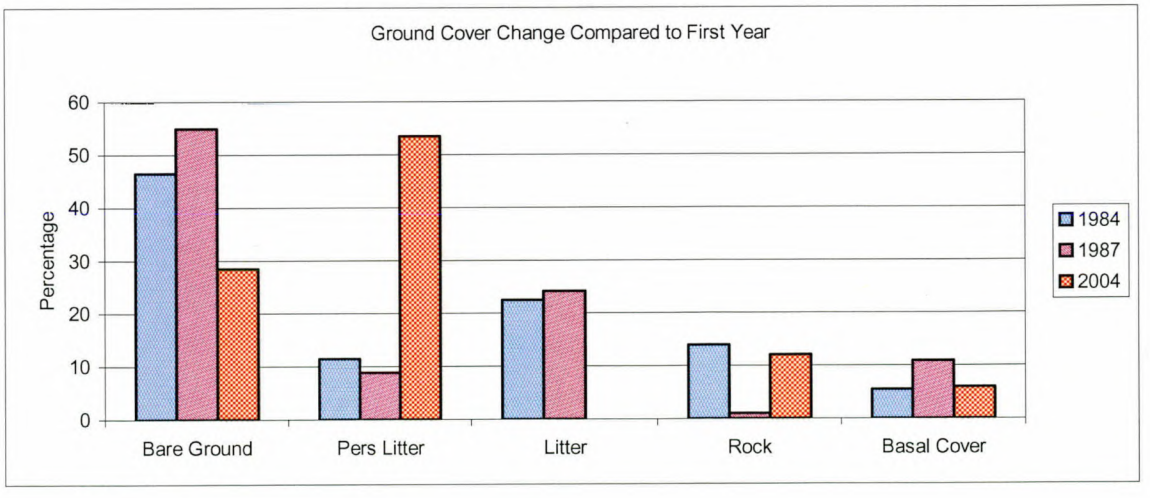


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: IVANPAH			PASTURE: NW				KEY AREA: 8				
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1984	1987	2004	2007	2010	2013	2016	2019	2022	2025	2028
Bare Ground	47	55	29								
Pers Litter	12	9	54								
Litter	23	24									
Rock	14	1	12								
Basal Cover	6	11	6								
% Ground Cover	54	45	72								
BROWSE											
COME			3								
OTHER BROWS											
DESIRABLE GRASSES											
Cool Season											
SIHY	4	3	1								
STIPA			2								
POA			1								
Other Cool Season Grass											
Warm Season											
HIJA	5	4	9								
SPCR		8	1								
BOGR	69	75	72								
BOER		1									
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2	22	14	15								
ARTR2	51	42	35								
JUOS	3	1	8								
BERBERIS			2								
OTHERSHRUB	4	0									
OTHER GRASSES											
ARIST	4	6									
ARLO			5								
FORBS											
SPHAE		2									
AAFF											
AAGG											
MUSTARD		19									
PPFF	2	0									
SPURGE		6									

Allotment: IVANPAH **Pasture: NW** **Key Area: 8**

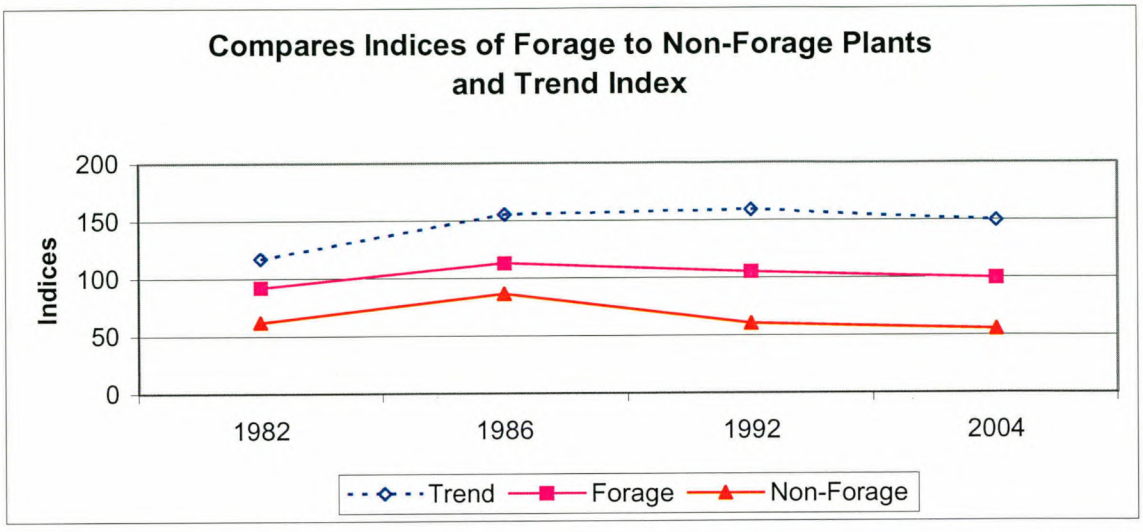


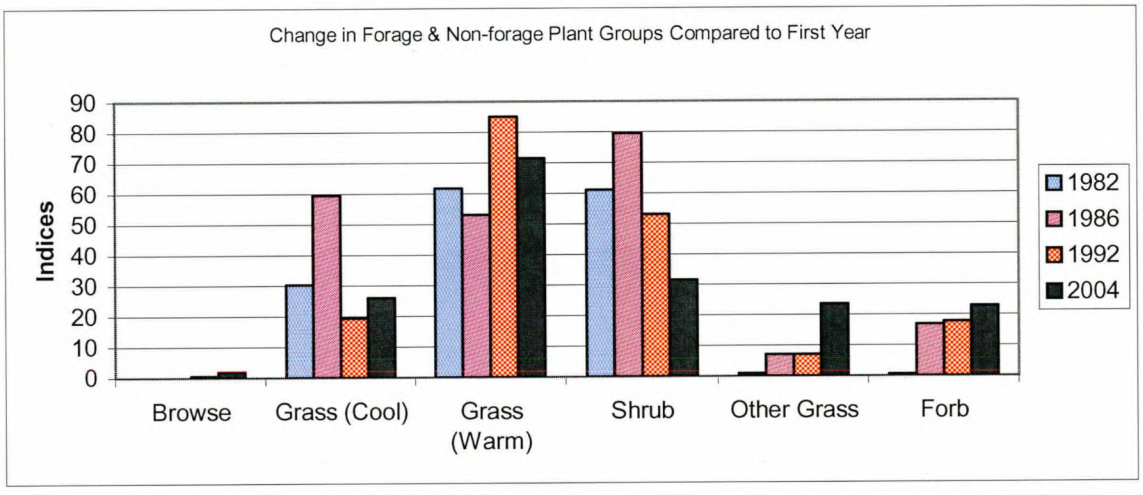


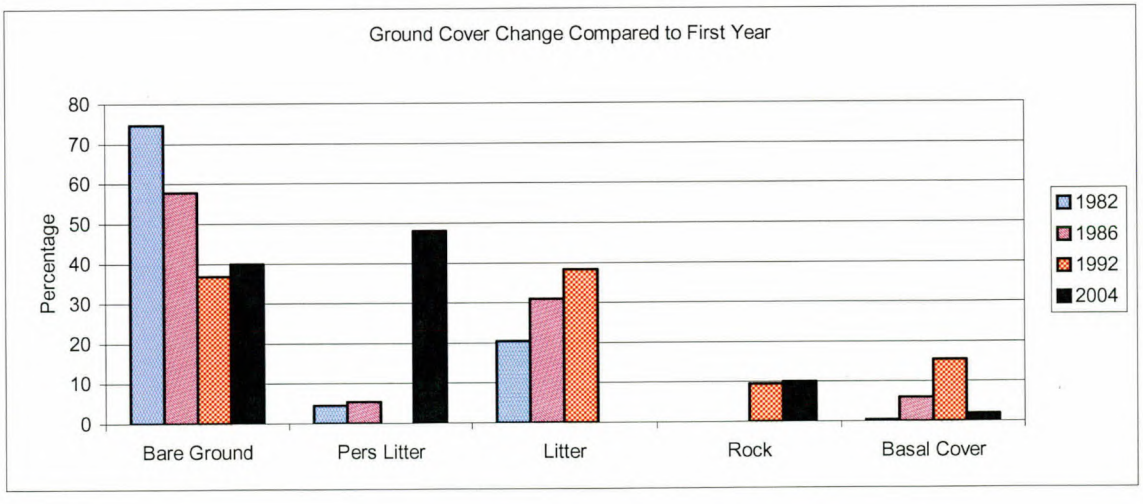


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: IVANPAH				PASTURE: S. CABIN				KEY AREA: 10			
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1982	1986	1992	2004	2007	2010	2013	2016	2019	2022	2025
Bare Ground	75	58	37	40							
Pers Litter	4	5		48							
Litter	20	31	38								
Rock			9	10							
Basal Cover	0	6	15	2							
% Ground Cover	25	42	63	60							
BROWSE											
ATCA2				2							
OTHER BROWS											
DESIRABLE GRASSES											
Cool Season											
ORHY	0	8	2								
SIHY	28	37	16	5							
STIPA	1	14	1	22							
Other Cool Season Grass											
Warm Season											
HIJA	21	17	26	27							
SPCR	0	3	14	19							
BOGR	9	17	10	14							
MUTO2	31	16	34	12							
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2	4	19	12	9							
CHVI8				1							
ARTR2	56	53	38	19							
OPUNT	0	1	1	2							
LYCIU				1							
ERIOG_SHRB				1							
OTHERSHRUB		6	1								
OTHER GRASSES											
ARIST	1	7									
ARLO			7	24							
PPGG											
FORBS											
ASTRA		1									
SAKA			3								
SPHAE		7	8	17							
AAFF			0								
AAGG											
PPFF	0	8	2	3							
SENEC			1	1							
SPURGE			1								
ASTER			2	3							

Allotment: IVANPAH **Pasture: S. CABIN** **Key Area: 10**

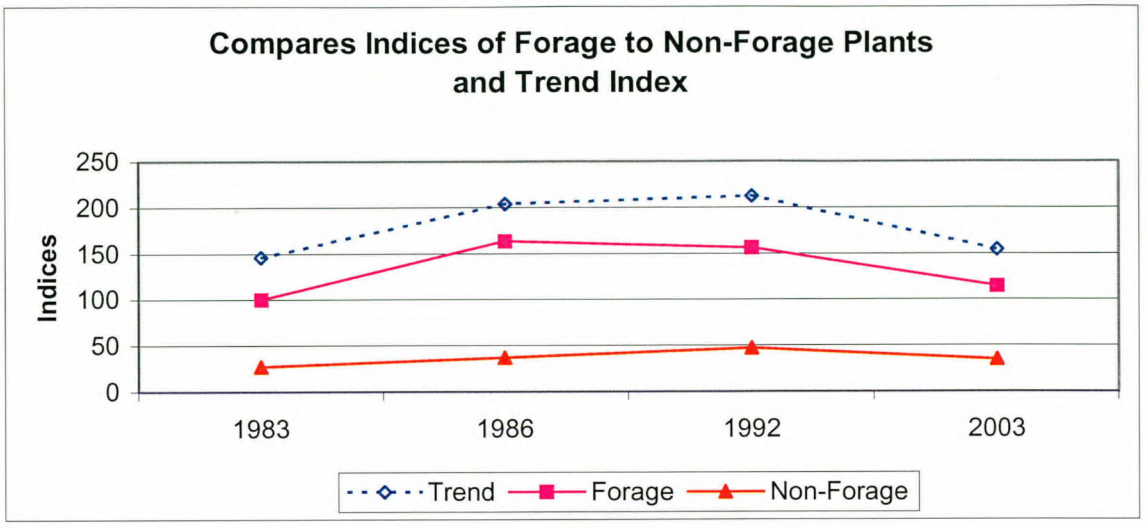


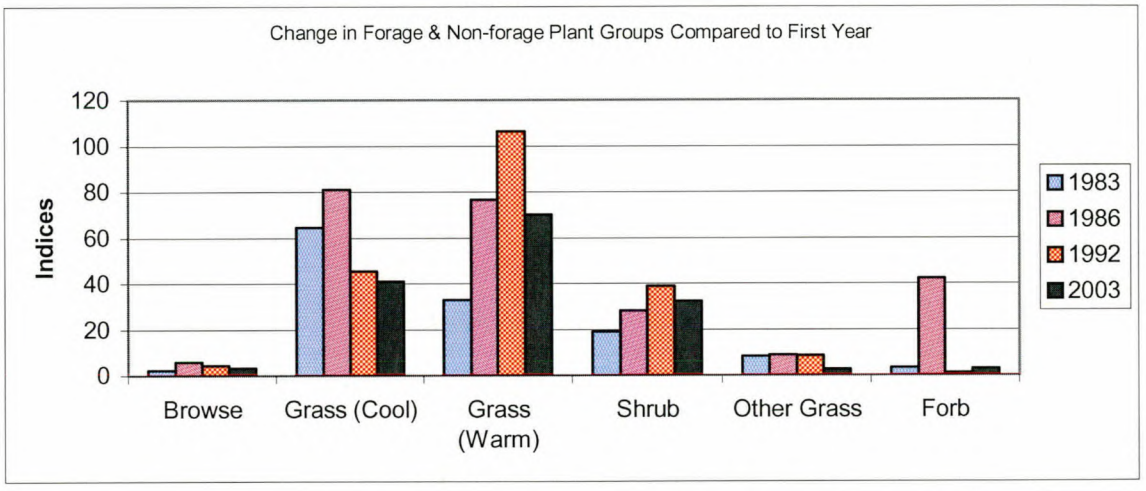


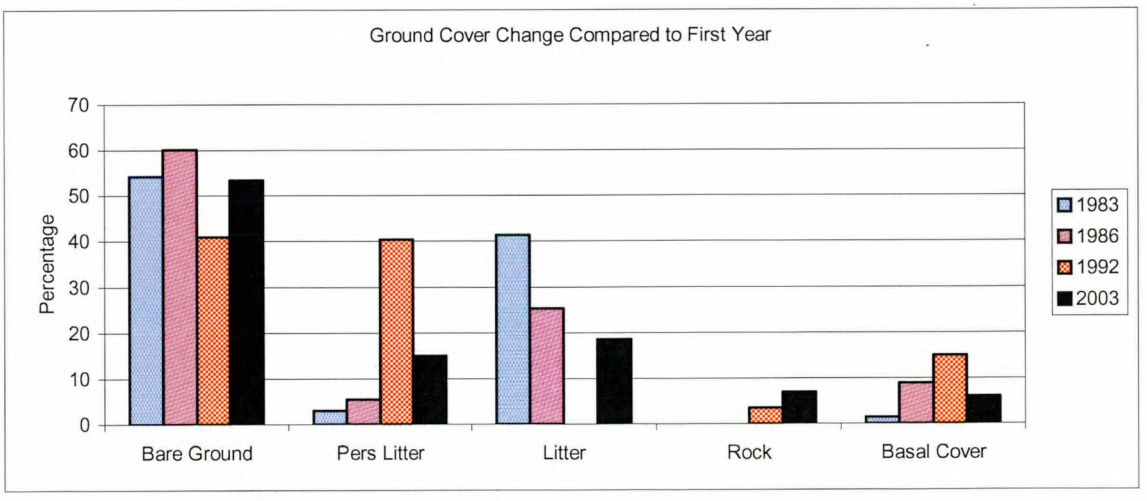


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: IVANPAH				PASTURE: N. CABIN					KEY AREA: 12		
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1983	1986	1992	2003	2006	2009	2012	2015	2018	2021	2024
Bare Ground	54	60	41	54							
Pers Litter	3	5	41	15							
Litter	41	25		19							
Rock			4	7							
Basal Cover	1	9	15	6							
% Ground Cover	46	40	59	47							
BROWSE											
CELA	2	5	3	2							
ATCA2	0	0	2	2							
OTHER BROWS											
DESIRABLE GRASSES											
Cool Season											
ORHY		7	3								
SIHY	40	19	5	1							
STIPA	25	55	38	41							
Other Cool Season Grass											
Warm Season											
HIJA	12	10	9	7							
HIRI											
SPCR	0	23	46	4							
SPNE											
BOGR	20	42	52	44							
BOER	0	1		16							
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2			30	19							
CHVI8			4	8							
CHRYSO	13	22									
CORA											
ARTR2	2										
OPUNT				1							
LYAN			2								
LYCIU	2	2									
JUOS			1	1							
QUTU				2							
EPVI				1							
PSCO2			2								
OTHERSHRUB	1	3	1	2							
OTHER GRASSES											
ARIST	8	9									
ARLO			9	2							
TRPU				1							
PPGG											
FORBS											
ASTRA	1	2									
SAKA		1									
SPHAE		7		3							
AAFF		30									
AAGG											
PENST			1								
PPFF	2	1									
ASTER			1								

Allotment: IVANPAH **Pasture: N. CABIN** **Key Area: 12**







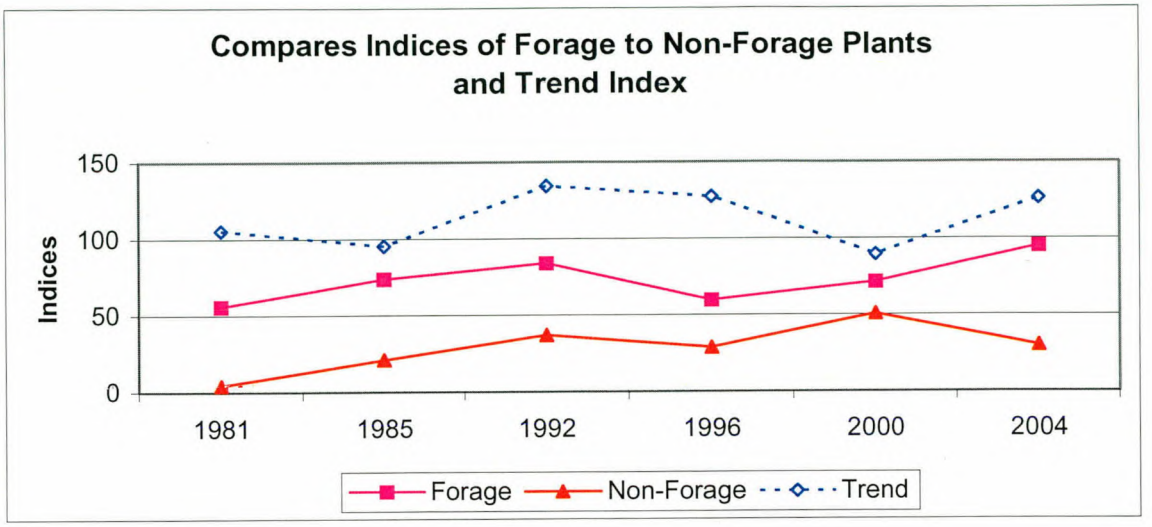
PACE FREQUENCY TREND ANALYSIS 9/21/2004

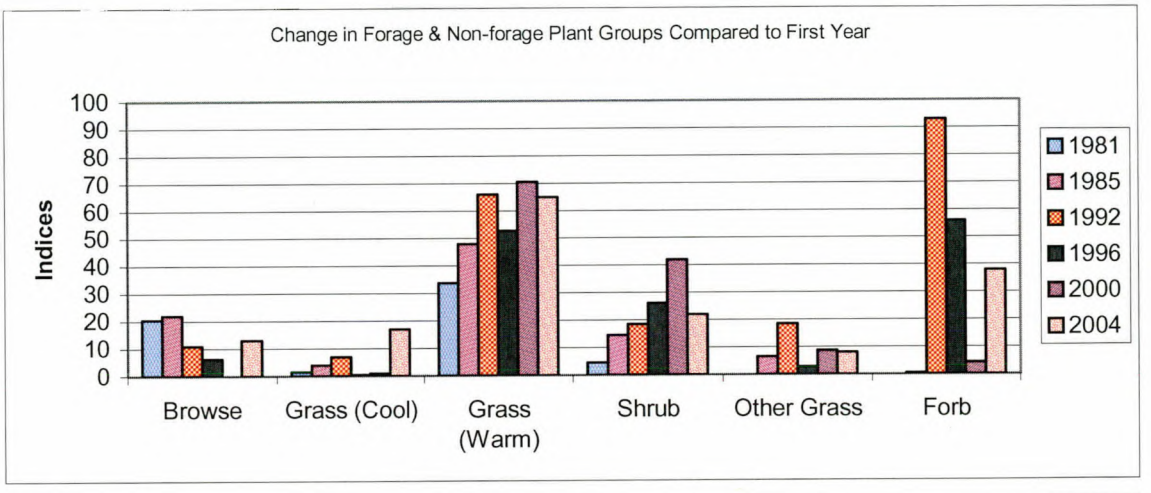
ALLOTMENT: LITTLE TANK | PASTURE: NE | KEY AREA: 3

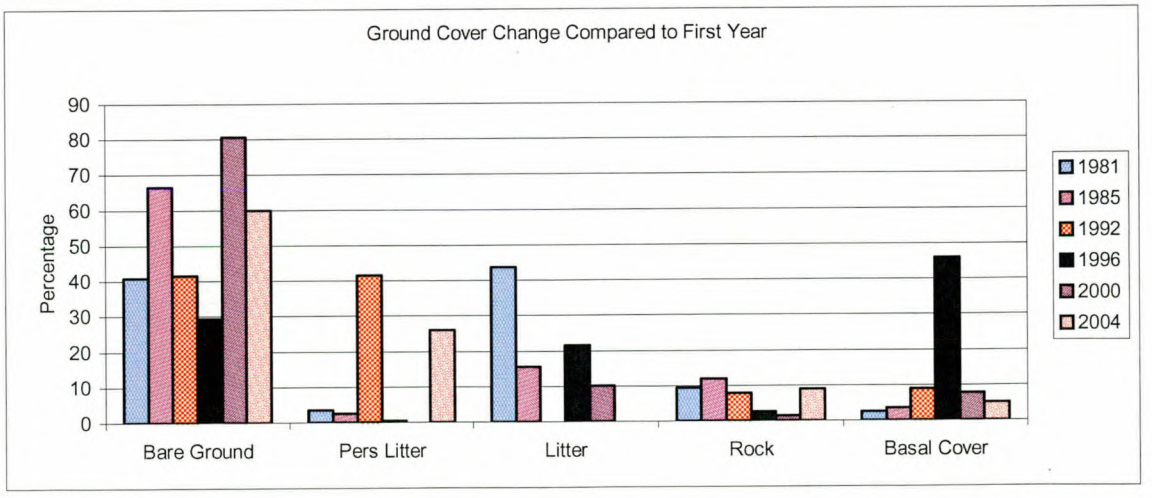
KEY AREA

COVER CATEGORIES	YEARS PLOT WERE READ										
	1981	1985	1992	1996	2000	2004	2007	2010	2013	2016	2019
Bare Ground	41	67	42	29	81	60					
Pers Litter	3	3	42	0		26					
Litter	44	16		22	10						
Rock	9	12	8	3	1	9					
Basal Cover	2	4	9	46	8	5					
% Ground Cover	59	34	59	71	19	40					
BROWSE											
CELA	1	1	2	0		1					
ATCA2			1								
EPNE	5	12	9	6		12					
OTHER BROWS	14	10									
DESIRABLE GRASSES											
Cool Season											
ORHY			1			3					
SIHY		3	4	0	1	14					
STIPA	1	1	3								
Other Cool Season Grass											
Warm Season											
HIJA	31	42	37	48	57	57					
SPCR		5	21	0	11	6					
BOGR	3	2	9	4	3	1					
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2		13	13	5	9	3					
CHVI8					21	15					
CHRYSO				21							
OPUNT	2	1	1			2					
LYAN		1	3	0	1						
LYCIU						1					
SAVE	1										
YUCCA	1		1			1					
JUOS					10						
OTHERSHRUB			3	0	1						
OTHER GRASSES											
ARIST											
ARLO			19	3	8	8					
PPGG		7			0						
FORBS											
SAKA			81			30					
SPHAE			2		3	6					
AAFF			7			1					
AAGG											
PPFF		1		52							
ASTER			4	4	1	1					

Allotment: LITTLE TANK **Pasture: NE** **Key Area: 3**

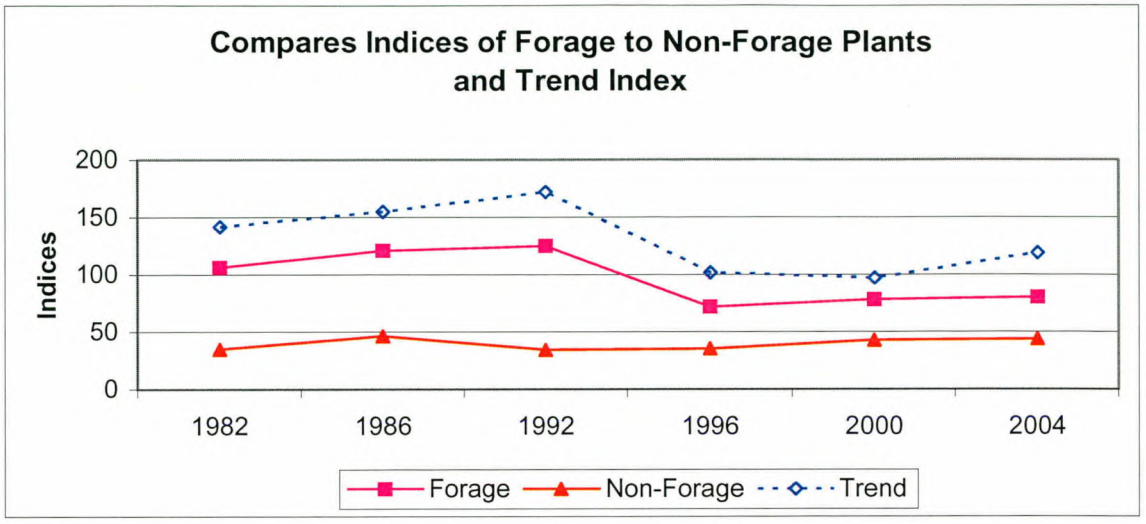


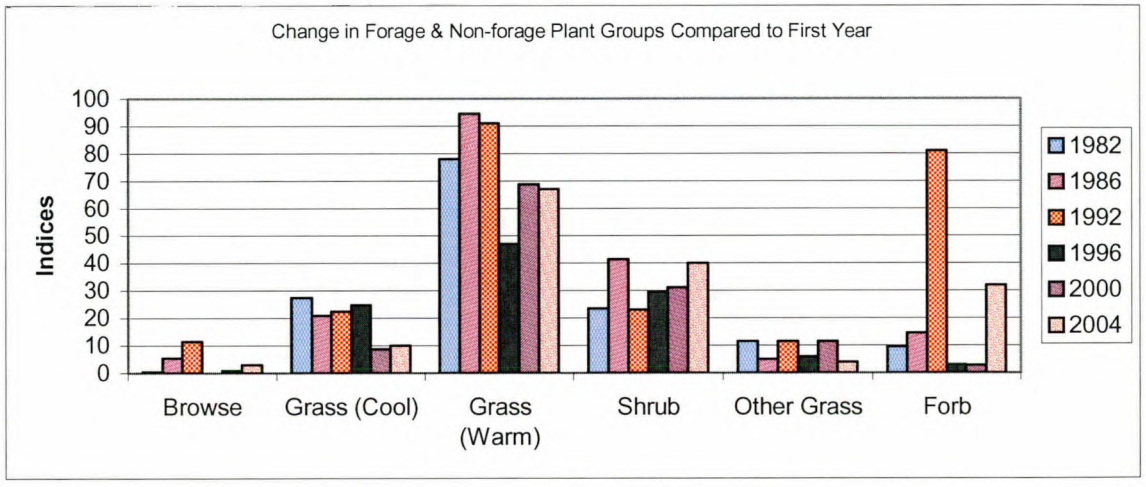


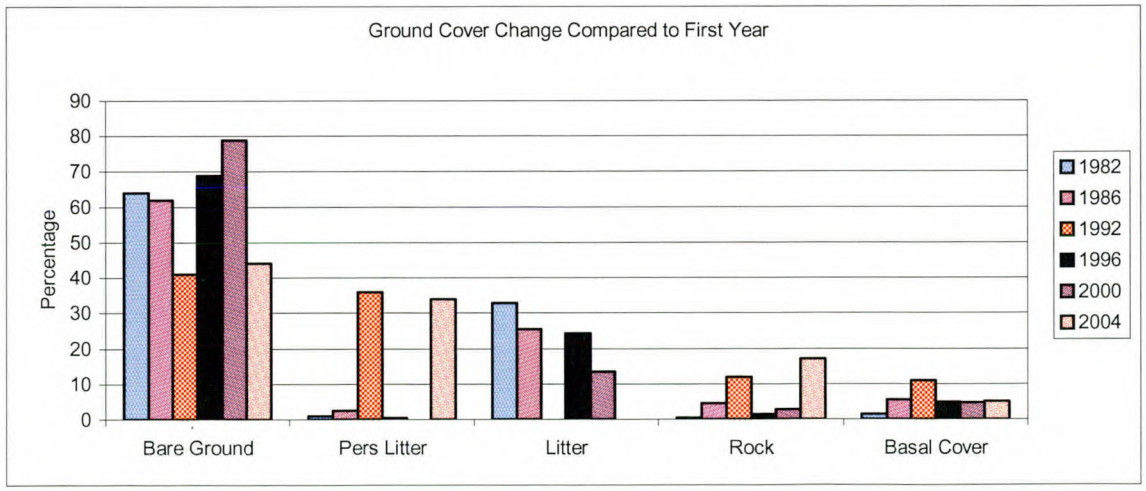


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: LITTLE TANK				PASTURE: SE				KEY AREA: 5			
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1982	1986	1992	1996	2000	2004	2007	2010	2013	2016	2019
Bare Ground	64	62	41	69	79	44					
Pers Litter	1	3	36	0		34					
Litter	33	26		24	13						
Rock	1	5	12	1	3	17					
Basal Cover	2	6	11	5	5	5					
% Ground Cover	36	38	59	31	21	56					
BROWSE											
CELA			1			2					
ATCA2	1	2	5			1					
EPNE			2		0						
PETH2			3								
MESP											
OTHER BROWS		4	2		0						
DESIRABLE GRASSES											
Cool Season											
ORHY	3	4	3	13		2					
SIHY	21	16	10	0		1					
STIPA	4	1	10	11	9	7					
Other Cool Season Grass											
Warm Season											
HIJA	42	49	37	26	25	41					
SPCR	11	19	21		12	8					
BOGR	25	27	33	21	32	18					
SPCO	1	1									
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2	5	18	7	6	7	12					
CHVI8	1			2		2					
OPUNT						1					
LYAN	2	4	7	1	1						
LYCIU						7					
ERIOG_SHRB		3	2								
SENECIO			7	3							
JUOS	17	16	1	15	23	18					
OTHERSHRUB	1	2	1	1							
OTHER GRASSES											
ARIST											
ARLO	12	5	12	6	12	4					
PPGG											
FORBS											
SAKA		2	60			5					
SPHAE	3	3	6		3	18					
AAFF			4	3		1					
AAGG			1								
ERIOG						2					
PENST						5					
SPURGE			1								
ASTER	7	10	10			1					

Allotment: LITTLE TANK **Pasture: SE** **Key Area: 5**

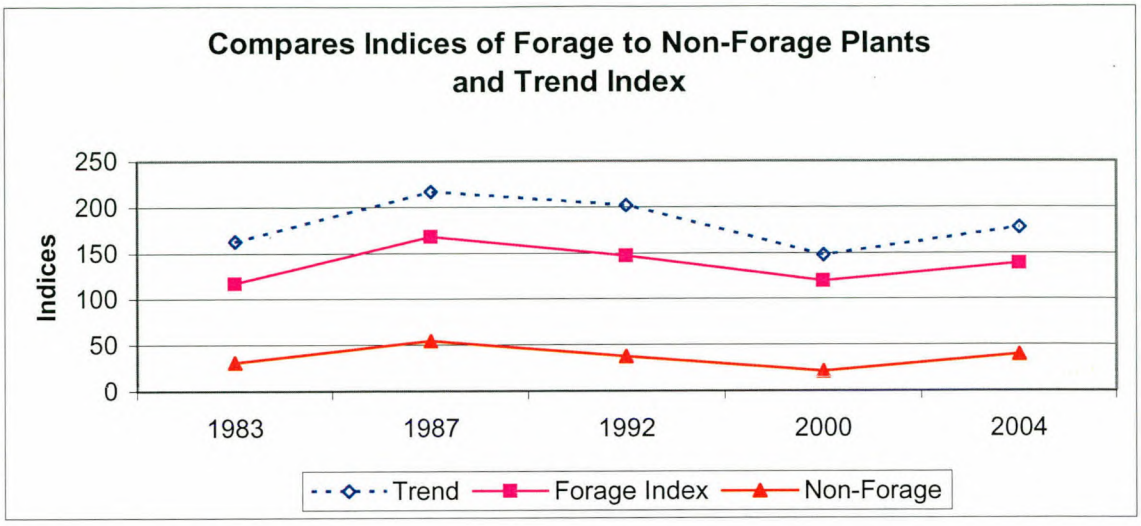


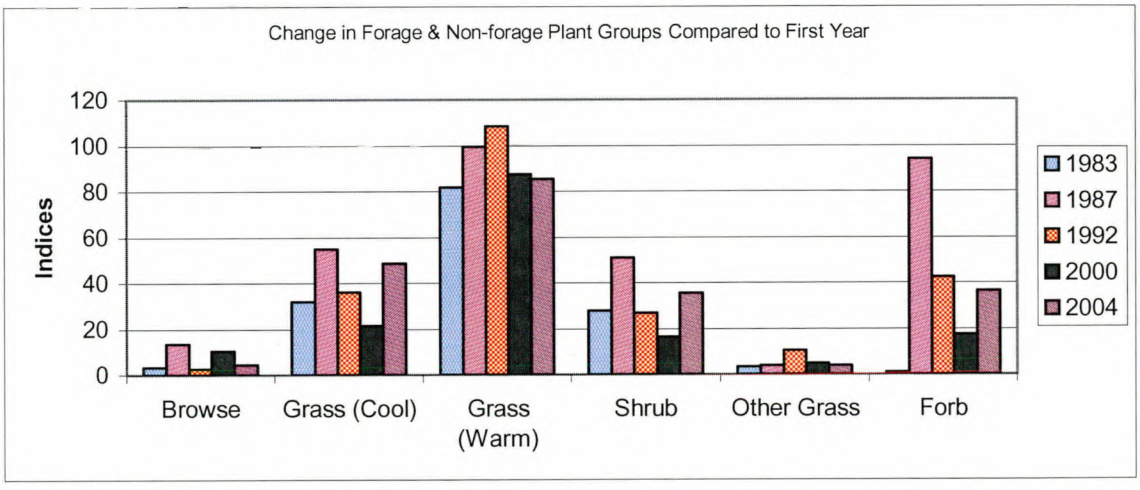


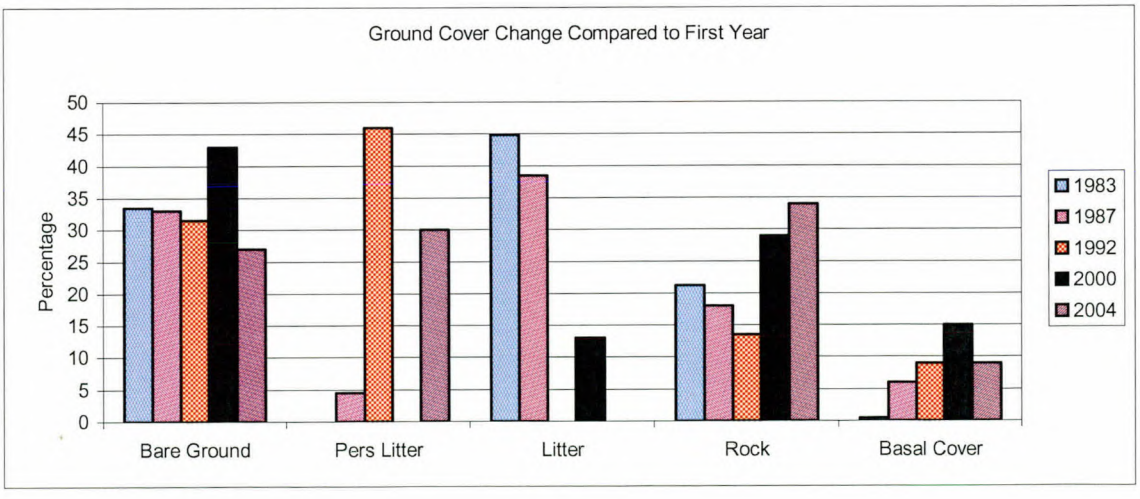


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: LITTLE TANK				PASTURE: SW				KEY AREA: 7			
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1983	1987	1992	2000	2004	2007	2010	2013	2016	2019	2022
Bare Ground	33	33	32	43	27						
Pers Litter		5	46		30						
Litter	45	39		13							
Rock	21	18	14	29	34						
Basal Cover	0	6	9	15	9						
% Ground Cover	67	67	69	57	73						
BROWSE											
ATCA2	0	5	1	2	1						
COME	3	9	2	4	4						
OTHER BROWS				5							
DESIRABLE GRASSES											
Cool Season											
ORHY		1	2	3	1						
SIHY	5	22	13	2	10						
STIPA	27	32	21	18	38						
KOCR			2								
Other Cool Season Grass											
Warm Season											
HIJA	8	14	24	4	12						
SPCR	6	16	39	13	20						
BOGR	40	34	38	47	33						
BOER	3	17	7	10	12						
BOCU	24	19	1	16	9						
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2	4	5	8		5						
CHVI8	0	8	1								
CHRYSO		2									
OPUNT	3	7	2		8						
LYAN			6	1							
LYCIU	4				4						
ERIOG_SHRB		4									
YUCCA			3								
FAPA	7	9		4	6						
EPVI	1	5	4	6	6						
YUBR	7	6		6	7						
PSCO2		8	6								
OTHERSHRUB											
OTHER GRASSES											
ARIST	3										
ARLO		4	11	5							
TRPU					1						
TRMU					4						
PPGG		1									
FORBS											
SAKA		12	21								
SPHAE	1	4	3	5	8						
AAFF		52	15		12						
AAGG		1			10						
PLANTAGO		2									
MUSTARD		17									
PPFF		5	4	4	6						
SPURGE		1									
ASTER		2	1	9	2						

Allotment: LITTLE TANK **Pasture: SW** **Key Area: 7**

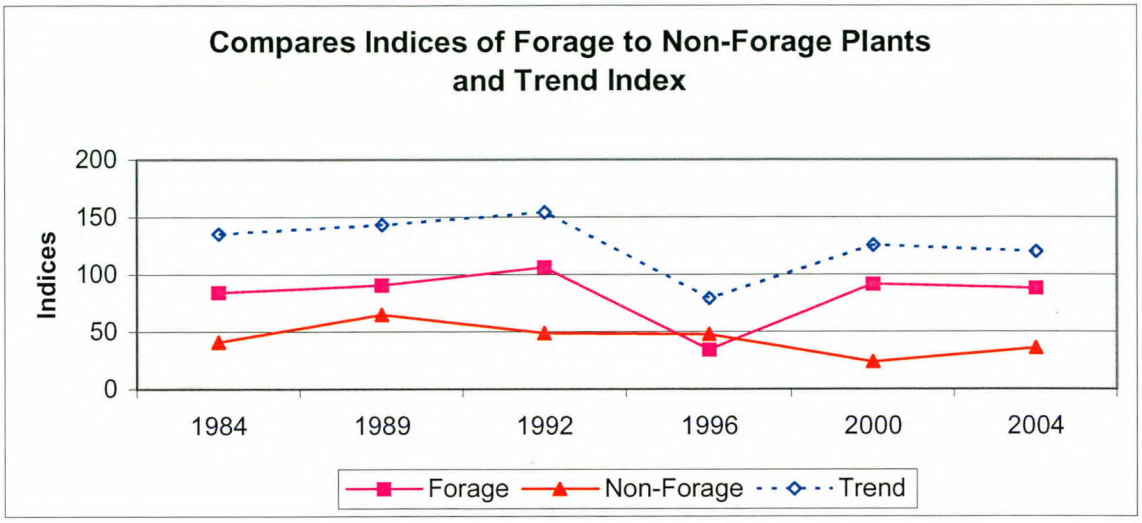


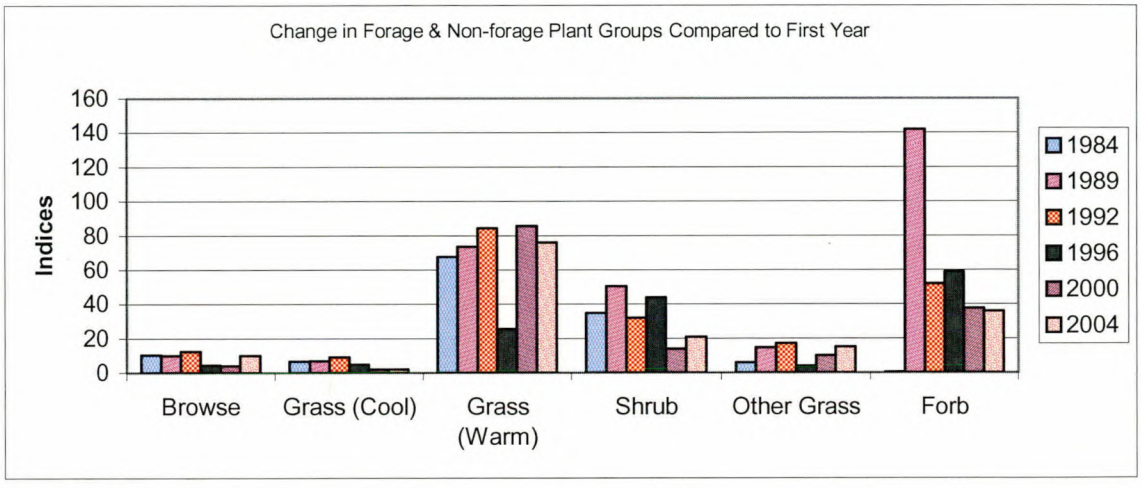


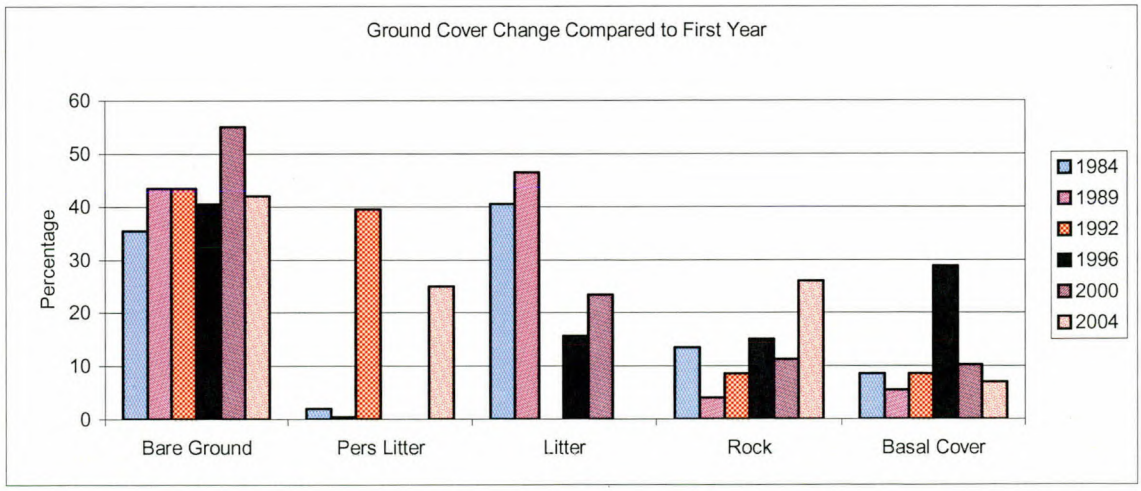


PACE FREQUENCY TREND ANALYSIS											9/21/2004
ALLOTMENT: LITTLE TANK				PASTURE: NW					KEY AREA: 8		
	KEY AREA										
COVER CATEGORIES	YEARS PLOT WERE READ										
	1984	1989	1992	1996	2000	2004	2007	2010	2013	2016	2019
Bare Ground	36	44	44	40	55	42					
Pers Litter	2	1	40			25					
Litter	41	47		16	23						
Rock	14	4	9	15	11	26					
Basal Cover	9	6	9	29	10	7					
% Ground Cover	65	57	57	60	45	58					
BROWSE											
ATCA2	7	10	11	4	3	5					
EPNE	1	1	2			5					
COME	1			0	1						
OTHER BROWS	2										
DESIRABLE GRASSES											
Cool Season											
ORHY	6	2	2								
SIHY	1	3	5	4		2					
STIPA	1	3	3	1	2						
Other Cool Season Grass											
Warm Season											
HIJA	8	9	4	3	12	17					
SPCR	20	21	35	1	38	28					
BOGR	34	41	46	21	29	27					
BOER	6	3			5	4					
BOCU	1				1						
Other Warm Season Grass											
OTHER SHRUBS											
GUSA2	17	37	21	23	1	11					
CHVI8				1							
ARTR2		1	1								
OPUNT	6	7	7	11							
LYAN	3	1	2		3						
LYCIU						6					
YUCCA			3	3	2						
JUOS	2										
FAPA	1	3		1	4	4					
EPVI				2	3						
YUBR		1									
OTHERSHRUB	7	2		1	3						
OTHER GRASSES											
ARIST											
ARLO			17	4	9	15					
SCBR		15									
PPGG	6				2						
FORBS											
SAKA			9			6					
SPHAE	1	31	26	2	19	27					
AAFF			15			3					
PPFF		105	1	57	18						
SPURGE		7									
ASTER			1								

Allotment: LITTLE TANK **Pasture: NW** **Key Area: 8**







Arizona Game & Fish Unit 13B Pronghorn Antelope Population Counts

Year	Total Animals Surveyed	Fawns / 100 does	Bucks / 100 does	Population Estimate
1985	---	N/A	39	N/A
1986	---	N/A	35	156
1987	129	N/A	28	N/A
1988	192	N/A	54	172
1989	142	N/A	38	256
1990	131	N/A	34	166
1991	51	21	55	189
1992	77	26	69	192
1993	151	67	58	253
1994	84	17	58	210
1995	81	34	43	203
1996	119	13	27	295
1997	79	42	33	196
1998	76	45	100	190
1999	58	6	65	121
2000	23	0	229	58
2001				
2002				
2003				
2004				

Game Management Unit (GMU) 13B Mule Deer Data From AGFD (1985 to 2003)

Year	Number of Animals Surveyed	Bucks / 100 does	Fawns / 100 does	Population Estimate
1985	108	30	50	1,000 - 1,500
1986	41	29	18	1,000 - 1,500
1987	63	31	44	1163
1988	---	No Data	No Data	No Data
1989	112	71	31	900
1990	63	68	32	900
1991	85	27	37	900
1992	31	24	59	<1,000
1993	117	126	52	800-1,000
1994	143	69	52	No Estimate
1995	88	183	79	No Estimate
1996	154	87	33	No Estimate
1997	64	77	29	No Estimate
1998	156	43	45	No Estimate
1999	145	51	35	No Estimate
2000	155	49	36	No Estimate
2001	275	34	67	No Estimate
2002	118	46	20	No Estimate
2003	Unknown	29	46	No Estimate