



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Carson City District Office
1535 Hot Springs Road
Carson City, Nevada 89706-0638
PH: (702) 885-6100



IN REPLY REFER TO:
4400
(NV-03200)

MAR 14 1997

Dear Interested Party:

As you may recall from my previous letter sent to you in June, 1995, the Carson City District has been working on the evaluation of monitoring data for the grazing allotments in the Wassuk Herd Management Area. Enclosed are the Black Mountain, Butler Mountain, and Gray Hills Allotment Evaluations for your review. Please send any comments to the above address before April 18, 1997.

Please note that there have been some important changes within the Carson City District during the past year. These are discussed in more detail in the introduction section of each evaluation.

Sincerely,

John Matthiessen
Assistant District Manager
Renewable Resources

3 Enclosures:

1. Black Mountain Allotment Evaluation
2. Butler Mountain Allotment Evaluation
3. Gray Hills Allotment Evaluation



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**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

**Carson City District Office
1535 Hot Springs Road, Suite 300
Carson City, Nevada 89706-0638**

**BUTLER MOUNTAIN
ALLOTMENT EVALUATION**

March 12, 1997

*900 (LAP)
830 Butler
- 70*



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I. Introduction

In June, 1992, the Bureau of Land Management issued its *Strategic Plan for Management of Wild Horses on Public Lands*. One of the objectives is to establish initial Appropriate Management Levels (AMLs) for all herd areas. In order to establish an AML for wild horses in the Wassuk Herd Management Area (HMA), it is necessary to evaluate resource management within all the allotments included within the HMA. One of these is Butler Mountain (03510).

Specifically, the purpose of the allotment evaluation is to determine if current management practices are consistent with attainment of Land Use Plan (LUP) and allotment specific objectives. If current practices are not consistent with attainment of these objectives, appropriate changes in management will be identified and implemented. The allotment is classified as category "C¹." The evaluation period is from 1984 to 1995. The Roberts Sheep Company is the permittee of record in the allotment. In order to avoid confusion, note the following changes that have occurred over the past year.

Prior to 1996, the Carson City District was divided into two Resource Areas (Walker and Lahontan). In 1996, the two Resources Areas were consolidated into a single entity: the Carson City District. Under the previous organization, Black Mountain Allotment was in the Walker Resource Area.

In describing the level of grazing use in the allotment, this evaluation does not use the terms "grazing preference" nor "permitted use". In the Decision of Public Lands Council v. Babbitt, the court set aside the provision of the Bureau's grazing regulations that redefined the term "grazing preference," and introduced the term "permitted use". The Department of Justice has since filed an appeal in the case. Pending resolution of this court case, the phrase "the total number of animal unit months of specified livestock grazing" is used in lieu of either "grazing preference" or "permitted use".

On February 12, 1997, Secretary of the Interior Bruce Babbitt approved the Standards and Guidelines for Nevada. These standards for rangeland health and the guidelines for grazing management were developed in consultation with the Resource Advisory Councils for the Bureau of Land Management (BLM) in Nevada to help ensure productive sustainable rangelands. The implementation process for the standards and guidelines is occurring in two separate processes. The first is the determination that the terms and conditions of grazing permits must ensure compliance with the standards and guidelines. In the absence of other information, it is the position of the BLM that terms and conditions of existing permits are in conformance. The second process is the allotment evaluation process. Therefore, reference is made within this document to the standards and guidelines developed for the Sierra Front - Northwestern Great Basin Area (the specific area that includes the Black Mountain Allotment)².

¹ "Custodial - manage in a custodial capacity, while protecting existing resource values.

² Copies available at the Carson City District Office.

II. Initial Stocking Level

A. Livestock Use

1. Total Animal Unit Months of specified Livestock Grazing

TOTAL AUMs	Period of Use	PERCENT PUBLIC LAND
3040	12/16 to 5/15	100

The general livestock operation is as follows:

During the fall , after selling lambs, the sheep are grazed on ranch property from four to six weeks, then moved to leased land in Smith and Mason Valleys. In the winter, the bands are moved to Butler and Black Mountain Allotments. Following lambing, the bands are moved to Forest Service Allotments and grazed during the spring and summer months. The operation than repeats itself.

2. Other Information

The allotment is located in and around the Wassuk Mountain Range in Mineral County. It lies southeast of Yerington, Nevada and west of Walker Lake (Refer to Map No. 1, Appendix I). There is a total of 46,916 acres of public land and no private land in the allotment. There are no fenced pastures.

Documented improvements are:

BLM Job Number	Name	Completion Date	Location
4032	Chain Hills Fence	1970	T10N,R28E,Sec.06.NENE
5062	Pike Peak Fence	1966	T09N,R27E,Sec.25.SESW
5096	Chukar Spring	1968	T10N,R28E,Sec.04,NWNW
5097	Tank Spring Pipeline #1	1967	T11N,R28E,Sec.33.NESW
5098	Tank Spring Pipeline #2	1969	T11N,R28E,Sec.33.NESW
6295	Deep Spring	1983	T10N,R28E,Sec.25.NESE
6627	Tank Spring Protection	1992	T11N,R28E,Sec.33.NWSW

Improvements are shown on Map No. 2, Appendix I.

Additional waters located in the allotment are Chipmunk (developed), Butler (developed but in need of maintenance), Ross (developed), Jake and Katie springs (both undeveloped). They are discussed later in the evaluation under Water Resources, Section III. A.3. Other spring sources located primarily on the eastern

slope of the Wassuks had flows measured in 1984. They ranged from .1 gallon per minute (gpm) to 1 gpm.

These springs remain undeveloped with the exception of Deep Spring. It was re-developed in 1995 and provides water to Sportsman's Beach Recreational Area located on the western shore of Walker Lake. The average annual flow of this spring is 1.5 gpm. This areas recommended visual resource management objective, according to BLM's Visual Resource Management System, is Class II³ for the plan area outside developed sites.

B. Wild Horses

1. HMA

Butler Mountain contributes approximately 25,400 acres, Black Mountain approximately 4,300 acres, and Gray Hills approximately 20,400 acres (Refer to Map 3, Appendix I) for an estimated total of 50,100 acres in the entire Wassuk HMA.

2. Management Level

The **initial management level** identified in the LUP was 151 head for the entire Wassuk HMA, totalling 1,812 AUMs.

C. Wildlife Use

1. Mule Deer (*Odocoileus hemionus nelsoni*)

a. Existing Demand

Existing demand identified in the LUP was 319 AUMs. A portion of the allotment is classified as year-long range. (Refer to Map No. 4, Appendix I).

b. Key and Crucial Areas

No key or crucial habitats exist within the allotment.

2. Bighorn Sheep (*Ovis canadensis nelsonii*)

The LUP recognized a substantial portion of the Wassuk Range as potential bighorn sheep habitat. This potential habitat extends into the Black Mountain allotment (Refer to Map No. 5 Appendix I). In November of 1967, the Nevada Department of Fish and Game, in conjunction with the Hawthorne Naval

³ "Changes in the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. A contrast may be seen, but should not attract attention." (BLM Manual 8411.6)

Ammunition Depot, decided to establish a confined (450 acre enclosure) population of bighorn sheep on Mount Grant. The population was to serve as a reservoir of capture stock for future bighorn transplants. The bighorn sheep suffered extensive predation by mountain lions within the enclosure. In June of 1976 the decision was made to abandon the enclosure, and the remaining sheep were released. The bighorn sheep have remained primarily within the withdrawn military area, utilizing the east and southeast side of Mount Grant. The population periodically receives small augmentations to bolster the health of the population. Due to the potential conflicts between domestic sheep and bighorn sheep, there are no plans to expand the bighorn sheep population onto BLM administered lands. BLM policy prevents the release of bighorn sheep in proximity to domestic sheep use areas unless topographic features or other barriers prevent physical contact.

3. Other Key and Crucial Management Areas

a. Aquatic Habitat

None is present.

b. Riparian Habitat

None is present.

4. Wildlife - General

Some of the more common furbearing species are coyotes (*Canis latrans*), bobcats (*Felis rufus*), mountain lions (*Felis concolor*), and kit fox (*Vulpes macrotis*).

Upland game species include mountain cottontail (*Sylvilagus nuttallii*), desert cottontail (*Sylvilagus audubonii*), mourning dove (*Zenaidura macroura*), California quail (*Lophortyx californicus*), and chukar (*Alectoris chukar*).

Raptors include the prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), and the American kestrel (*Falco sparverius*), to name a few.

Also present are a host of small mammals, birds and reptiles.

III. ALLOTMENT PROFILE

A. Description

1. Topography

The majority of the allotment is mountainous. Elevations range from approximately 9,191 feet atop Bald Mountain to 4,100 feet along the eastern boundary. Access to a large part of the allotment is limited due to the rugged terrain.

2. Soils

The soils in the allotment are typical of the Western Great Basin and exhibit wide ranges in depth, drainage class, percent surfical and subsurface rock fragments, pH, and other diagnostic soil properties.

Accelerated erosion, where present, is mostly confined to small areas adjacent to seeps/springs, shallow/lithic soils and steep slopes. Appendix II contains a listing of the soils and corresponding range sites. This information was taken from the Department of Agriculture, Soil Conservation Service, Mineral County Soil Survey of 1985.

3. Water Resources

For the following sites, write-ups have been completed that indicate functionality⁴ ratings, trend and water availability (Refer to Map No. 6, Appendix I).

Name	Location	Rating/Surface Water Present
Butler Spring	T10N,R28E,Sec.29,NWNW	Nonfunctional-Downward Trend/Yes
Chipmunk Spg.	T09N,R28E,Sec.20,NENE	Functional at Risk-Downward Trend/Yes
Jake Spring	T09N,R28E,Sec.08,NWSE	Properly Functioning-Static Trend/Yes
Katie Spring	T09N,R28E,Sec.21,SESE	Properly Functioning-Static Trend/No
Tank Spring	T11N,R28E,Sec.33,NWSW	Properly Functioning-Upward/Yes
Ross Spring	T11N,R28E,Sec.34,NWSW	Properly Functioning-Static/Yes

⁴ Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to: 1) dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; 2) filter sediment and aid floodplain development; 3) improve flood-water retention and ground-water recharge; 4) develop root masses that stabilize islands and shoreline features against cutting action; 5) restrict water percolation; 6) develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; and 7) support greater biodiversity.

4. Vegetation

Big sagebrush (*Artemisia tridentata*), low sagebrush (*Artemisia arbuscula*), pinyon-juniper woodlands (*Pinus sp. and Juniperus sp.*), shadscale (*Atriplex confertifolia*), and greasewood (*Sarcobatus vermiculatus*) are the significant vegetation types.

Other species associated with these vegetation types are Sandberg bluegrass (*Poa secunda*), galleta grass (*Hilaria jamesii*), needlegrasses (*Stipa spp.*), squirreltail (*Sitanion hystrix*), sand dropseed (*Sporobolus cryptandrus*), Indian ricegrass (*Oryzopsis hymenoides*), bud sagebrush (*Artemisia spinescens*), and winterfat (*Ceratoides lanata*). Forbs are primarily composed of various species of phlox (*Phlox sp.*), globemallow (*Sphaeralcea ambigua*), rose pussytoes (*Antennaria rosea*), and buckwheats (*Eriogonum sp.*).

5. Key Species

a. Uplands

Key Area B-001 is located in the northwest section of the allotment (Refer to Map No. 7, Appendix I). The range site is a Cobble Claypan 8-10" Precipitation Zone (P.Z.), (027X049N). Key species are Indian ricegrass, squirreltail, and bluegrass.

Key Area B-002 is located in the southwest section of the allotment (Refer to Map No. 7, Appendix I). It is the same range site as B-001. Key species are Indian ricegrass, Thurbers needlegrass, and squirreltail.

All of the grass species are important to wild horses. Browse species and forbs are important for sheep and mule deer. Cheatgrass (*Bromus tectorum*) is important for chukar.

Other common range sites include pinyon-juniper woodlands (various range sites); Shallow Claypan 8-10" P.Z., (027X020N); Granitic Slope, 8-10" P.Z., (027X065N); and Eroded Granitic Slope, 4-8" P.Z., (027X047N).

b. Riparian Vegetation

Riparian vegetation is important to wildlife, wild horses, livestock and humans. Vegetation in and around water sources is commonly composed of cottonwood, (*Populus sp.*), coyote willow (*Salix exigua*), Pacific tree-willow (*Salix lasiandra*), baltic rush (*Juncus balticus*), Nebraska sedge (*Carex nebrascensis*), silver sedge (*Carex praegracilis*), wild rose (*Rosa woodsii*), tufted hairgrass (*Deschampsia caespitosa*), spikerush (*Eleocharis palustris*),

Kentucky bluegrass (*Poa pratensis*), Basin wildrye (*Elymus cinereus*) and creeping wildrye (*Elymus triticoides*). Watercress (*Nasturtium officinale*) can also be present in shady areas where pooling and/or overland flow occurs.

6. Threatened and Endangered Species

a. Vegetation

No threatened, endangered, candidate or sensitive⁵ plant species are known to inhabit the allotment.

b. Wildlife

Sensitive species that may occur in the allotment are the pygmy rabbit (*Brachylagus idahoensis*), the spotted bat (*Euderma maculatum*) and the Fletcher dark kangaroo mouse (*Microdipodops megacephalus nosutus*). While they are not listed as threatened or endangered, Bureau policy requires that they be managed so as not to increase the likelihood that the species would need listing as threatened or endangered.

The spotted bat spends daylight hours and reproduces in caves, cliffs and talus slopes. It generally feeds on flying insects in the vicinity of juniper grasslands and tall sagebrush. The pygmy rabbit reproduces and feeds in sagebrush/grasslands and riparian habitats. The Fletcher dark kangaroo mouse is nocturnal, feeds mostly on seeds, but takes some insects. It is found in association with fine sandy soils with sagebrush and rabbitbrush. Since these habitats occur in the Wassuk Range, there is a possibility that these species occur in the allotment.

No other threatened, endangered, candidate, or sensitive animal species are known to inhabit the allotment.

7. Walker Lake Special Recreation Management Area

Visual quality is high within the foreground-middleground zone (three to five miles) around the lake. The lake is the dominant feature, and the surrounding mountains enhance scenic quality. This encompasses a portion of the allotment. Vegetative features do not present outstanding variety. Public sensitivity is considered high because of significant recreation and highway travel in the area.

⁵Sensitive species include plants and animals on which currently existing information indicates that federal listing may be warranted, but which substantial biological information to support a listing is lacking.

B. Allotment Specific Objectives

The objectives identified in the LUP have been combined where they were similar. All these objectives have been determined to be in conformance to the standards and guidelines developed for the Sierra Front - Northwestern Great Basin Area.

1. Short Term

- a. *Initially provide for 3040 AUMs of forage for livestock.*
- b. *Maintain existing range condition and trend.*
- c. *Maintain an acceptable allowable use level on key species.*
- d. *Initially provide for approximately 900 AUMs of forage for wild horses which is the prorated demand based on an estimate of 50% of the HMA in the allotment.*

2. Long Term

- a. *Maintain habitat condition to support a population of 118 mule deer yearlong (354 AUMs).*
- b. *Protect and maintain existing and potential riparian areas in good or better condition.*
- c. *Support re-introduction of endemic species into suitable habitats.*
- d. *Maintain or improve wild horse habitat consistent with the wildlife and livestock objectives.*
- e. *Maintain or improve free-roaming behavior of wild horses by protecting or enhancing the HMA.*
- f. *Maintain or improve wild horse habitat by assuring that all waters remain open to use by wild horses.*
- g. *Maintain or improve the condition of public rangelands to enhance productivity for livestock, wildlife and wild horses (within HMA's).*
- h. *Develop and implement an HMAP for wild horses.*
- i. *Continue rangeland and watershed monitoring to determine if management objectives are being met and what future adjustments in grazing use are necessary.*
- j. *Outdoor recreation will be the primary resource management program in the plan area. Other management activities within the*

Bureau's authority will be allowed only if they do not compromise recreation values.

k. BLM will inventory, protect, study, interpret and otherwise manage cultural resources for the public.

l. The Bureau will manage visual resources in the area outside developed sites, according to Class II of the Visual Resource Management System. Facilities in developed sites will be designed to be visually compatible with the surrounding landscape insofar as possible.

IV. MANAGEMENT EVALUATION

A. Actual Use

1. Livestock

The use level has been well below the total AUMs of specified livestock grazing during the evaluation period. Actual Use information supplied by the permittee is an accurate record of what occurred during any given year and identified deviations from the use requested on the annual grazing bill. Although requested, the permittee is not required to submit actual use records.

	ACTUAL USE REPORTS (AUMs)	LICENSED USE (AUMs)
YEAR		
1995		278**
1994		308
1993		250
1992		369
1991		245
1990		non-use
1989		374
1988		300
1987		117
1986	581	603
1985	363	528
1984	627	417

** No sheep sign was observed in the allotment during the collection of use pattern mapping data. Allotment supervision during the course of the grazing year found no sheep present in the allotment at any time.

2. Wild Horses

Aerial census data was collected in 1995, 1994, 1993, 1991, and 1989 for wild horses in the Wassuk HMA. Results were as follows:

DATE OF CENSUS	WILD HORSE CENSUS NUMBERS
1995	141
1994	116
1993	123
1991	157
1989	174

The population declined between 1989 and 1994, then took an abrupt jump between 1994 and 1995. The percentage of foals to the total population has ranged from a high of 17.24% in 1994 to a low of 2.61% in 1991. The normal recruitment range for herds in Nevada is from 14-24% annually. Between 1994 and 1995, the only time there was a positive recruitment rate, it was 21.55%.

3. Wildlife

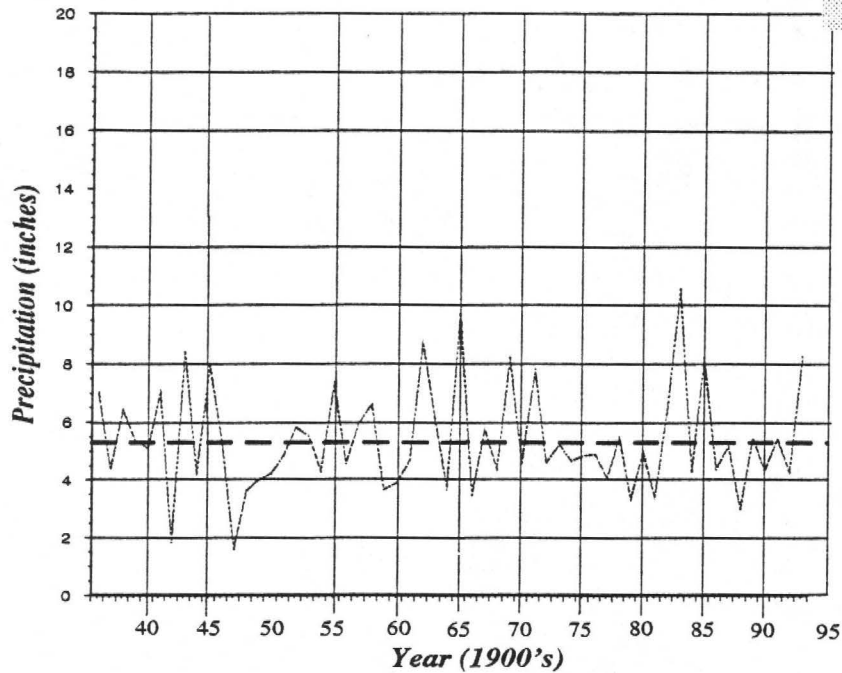
The allotment lies at the northern end of NDOW's Management Unit 202 (Wassuk Range). Though the Division knows that some use of this area is made by mule deer, use is not significant enough to warrant monitoring.

As noted in Section C.2, bighorn sheep occupy the Mount Grant area within the military withdrawn area. Though there are no physical barriers restricting the bighorn sheep to the withdrawn area, they appear to confine their use to the east and southeast side of Mount Grant. Thus, the likelihood of bighorn sheep interacting with domestic sheep in the Black Mountain allotment appears slight.

B. Precipitation

Yerington, Nevada is the closest weather station that best represents weather patterns that may affect the allotment. The mean annual precipitation is 5.38". Depending upon the path, intensity, and duration of the storms, the Singatse, Pine Nut and Sweetwater mountain ranges can influence the precipitation amounts in the allotment. Therefore the data presented provides the reader with an idea of what may have occurred over the evaluation period. The higher elevations of the allotment receive larger amounts of precipitation than what is recorded at the station.

Data presented for the years 1988, 1990, and 1991 are incomplete. One or more months of data must be absent for the information to be considered incomplete.



_____ Annual Precipitation - - - - - 55 Year Mean

C. Use Pattern Mapping

Use pattern mapping data was gathered in 1995, 1994, 1988, 1986, and 1984 (Refer to Map No.s 8-12, Appendix D). The 1995 data is strictly horse use. Although sheep use was licensed, no sheep sign was observed during use pattern mapping. Additionally, no sheep were observed in the course of allotment supervision during the grazing year. Data presented for 1994 is a combination of sheep use and wild horse use. In 1988, use of any significance was around Butler and Chipmunk springs. In 1986, severe use was made around the waters (Butler spring, Chipmunk spring, and the northern water trough fed from Tank spring). Most of the alluvial fan was used. In 1984, the entire alluvial fan was used, with a significant portion being in the heavy and severe utilization classes.

For all the years shown, the balance of the acreage total for the allotment was in the no use category.

1995 USE PATTERN MAPPING		1994 USE PATTERN MAPPING	
Utilization Class	Acres	Utilization Class	Acres
<i>Severe</i>	0	<i>Severe</i>	0
<i>Heavy</i>	41	<i>Heavy</i>	356
<i>Moderate</i>	0	<i>Moderate</i>	1787
<i>Light</i>	494	<i>Light</i>	267
<i>Slight</i>	11934	<i>Slight</i>	1635
TOTALS	12469	TOTALS	3145

1994 data is incomplete. Severe use was noted in the vicinity o KeyArea B-001.

1988 USE PATTERN MAPPING		1986 USE PATTERN MAPPING	
Utilization Class	Acres	Utilization Class	Acres
<i>Severe</i>	0	<i>Severe</i>	568
<i>Heavy</i>	470	<i>Heavy</i>	0
<i>Moderate</i>	0	<i>Moderate</i>	2938
<i>Light</i>	0	<i>Light</i>	5166
<i>Slight</i>	0	<i>Slight</i>	3002
TOTALS	470	TOTALS	11674

1984 USE PATTERN MAPPING	
Utilization Class	Acres
<i>Severe</i>	4263
<i>Heavy</i>	6609
<i>Moderate</i>	3098
<i>Light</i>	458
<i>Slight</i>	32488
TOTALS	46916

D. Trend

Two photo trend plots are located in the allotment (Refer to Map No. 13, Appendix I). They were established in 1977 and were photographed again in 1979, 1981, 1984, 1987, 1990, and 1993.

Plot #1 is located in T 10 N, R 28 E (unsurveyed). It lies less than a mile from water. There has been very little change in the vegetation. The grass component appears to be stable. Some of the low sagebrush plants appear stressed but there doesn't appear to be an obvious loss of plants. There is no apparent evidence of soil movement. The trend is static to slightly downward.

Key Area B-001 is located southeast of the photo trend plot. Key species are Indian ricegrass, squirreltail, and bluegrass. Frequency studies were conducted in 1984, 1992 and 1995. A comparison follows:

Key Species	Year			Significant Difference-95% Confidence Interval	Significant Difference-80% Confidence Interval	Direction 95%/80%
	1984	1992	1995			
Orhy	14%	1.5%	7%	Yes	Yes	Decrease/Decrease
Sihy	50%	41.5%	43%	No	Yes	Static/Decrease
Poa	46%	66%	73.5%	Yes	Yes	Increase/Increase

A comparison in the frequency of low sagebrush shows there is not a significant change at the 95% level (1984/77% -1995/72%) but there is a significant decline at the 80% confidence level.

Results of utilization studies at the key area, by utilization class are as follows:

	<i>Orhy</i>	<i>Sihy</i>	<i>Poa</i>	Arar	Hija
Year					
1984	Slight	Slight	Slight		
1985		Light	Light	Slight	Slight
1985	Slight	Slight	Moderate	Light	
1986	Light		Moderate	Moderate	
1987	Light	Slight	No Use		
1994		<i>Severe*</i>	<i>Severe*</i>	Slight	
1995	Slight	Slight	Slight		

* In 1994, use at the key area was checked. However the northern portion of the allotment, where this key area is located, was not extensively mapped. The chart shown on page 11 does not display acreages for the severe classification or any other use class that was present in this portion of the allotment.

Plot #2 is located in T 9 N, R 28 E, Section 18, NENE. It lies more than a mile from water. There doesn't appear to be a significant change in the shrub component. It appears that the grass component is stable to slowly declining. There is no apparent evidence of soil movement. The trend is static to very slowly downward.

Key Area B-002 is located in close proximity to the photo trend plot. Key species are Indian ricegrass, needlegrass and squirreltail. Frequency studies were conducted in 1984, 1992 and 1995. A comparison follows:

Key Species	Year			Significant Difference-95% Confidence Interval	Significant Difference-80% Confidence Interval	Direction	
	1984	1992	1995			95%	80%
Orhy	7%	3%	5%	No	No	Static/Static	
Sihy	53%	59%	60%	No	Yes	Static/Increase	
Stipa	1%	0.5%	2%	No	No	Static/Static	

A comparison in the frequency of low sagebrush shows there is not a significant decline in frequency at either confidence level (1984/79% - 1992/76%).

Results of utilization studies at the key area, by utilization class are as follows:

	<i>Orhy</i>	<i>Sth</i>	<i>Sihy</i>	Arar	Hija	Poa
Year						
1984	<i>Heavy</i>	<i>Heavy</i>	<i>Heavy</i>		<i>Slight</i>	
1985	<i>Light</i>		<i>Light</i>	<i>Slight</i>		
1985	<i>Light</i>	<i>Light</i>	<i>Slight</i>	<i>Slight</i>		
1986	<i>Light</i>			<i>Moderate</i>		<i>Moderate</i>
1987	<i>Light</i>	<i>Light</i>	<i>Slight</i>			
1994	<i>Light</i>	<i>Light</i>	<i>Moderate</i>			
1995	<i>Slight</i>	<i>Slight</i>			<i>Slight</i>	

E. Range Survey Data

An ocular reconnaissance vegetative range survey, conducted by the Bureau in 1960 for the Walker Planning Unit, identified that sheep were best suited for the allotment and winter/spring was the most desirable season of use.

F. Ecological Condition

An Order 3 Soil Survey⁶ has been completed in the Walker Planning Unit which encompasses the allotment. Though ecological sites were identified at that time, allotment wide ecological status was not determined. For the Cobbly Claypan 8-10" P.Z. range site, the potential vegetative composition should be about 45% grasses, 5% forbs and 50% shrubs. The ecological status for the key areas established in 1984 is as follows:

Key Area B-001 - Composition (17% grasses, 11% forbs, 72% shrubs), Rating (36-46 - **Mid Seral**).

Key Area B-002 - Composition (8% grasses, Trace forbs, 92% shrubs), Rating (27-37 - **Mid Seral**).

G. Wildlife Habitat

There is no key or crucial wildlife habitat in the allotment. The allotment does provide some year long habitat for mule deer. Though the allotment is identified as having potential bighorn sheep habitat, this possibility cannot be realized as long as there are domestic sheep operations in the area. Current operations are not expected to change significantly in the near future.

H. Riparian/Fisheries Habitat

Functionality of riparian areas is discussed under Water Resources, Section III. A. 3. There is no fisheries habitat.

I. Wild Horse Habitat

Essentially the western half of the allotment contains the Wassuk HMA. Use is concentrated in the vicinity of waters and can be heavy near these areas. Horses have been observed using the woodland sites and the open areas located atop Bald Mountain.

⁵ Third-order surveys are made for land use that do not require precise knowledge of small areas or detailed soils information. Such survey areas are usually dominated by a single land use and have few subordinate uses. The information can be used in planning for range, forest, recreational areas, and in community planning.

V. CONCLUSIONS

The accomplishment of the objectives shown in Section III. B. are discussed below.

SHORT TERM

B.1.a. Initially provide for 3040 AUMs of forage for livestock.

The licensed/actual use has been well below the total AUMs of specified livestock grazing for the allotment.. The majority of the forage has and continues to be located on the alluvial fan. The mid-slope and upper elevations of the allotment are dominated by pinyon-juniper woodlands. The understory of much of this area is extremely rocky and lacking in forage.

This objective has not been met but the AUMs remain available if intensified management were to be applied.

B.1.b. Maintain existing range condition and trend.

Photo plot interpretation reveals a static to slightly downward condition. Frequency studies, analyzed at the 80% confidence level, are the most sensitive in determining changes in the vegetative component. At Key Area B-001, both Indian ricegrass and squirreltail have significantly decreased while bluegrass has significantly increased. Low sagebrush has declined significantly. At Key Area B-002, Indian ricegrass and needlegrass have remained static while squirreltail has significantly increased. Low sagebrush has remained static.

Fluctuations in the frequency of plant species naturally occur. Grass species tend to demonstrate this phenomena more rapidly than shrub species. This is commonly the result of harmful grazing practices and the preference animals exhibit for some species over others as well as individual plants of the same species. Plants that are grazed at the same time, year after year, during the active growing period, over the long term, die out of the community. Plants that have been ignored (over rested or completely rested) get "wolfy." They accumulate old dry matter which makes them unappetizing. These plants become very effective in trapping sediment. In time they begin to die, from the centers, outward. Sunlight is prohibited from reaching the growth point (root crown). The overall loss of plants can be significant. A result is a shift in preference of the grazing animals to the remaining, less desirable species coupled with increased pressure on the balance of the desirable species.

Use pattern mapping shows that the heavy and severe use levels generally occur around the water points. Overwhelmingly, use levels have been at or below the moderate use level at the key areas, so apparently the loss of grass plants in key area B-001 has been from over-resting rather than from over-grazing.

The objective has not been met, based on the results of frequency studies, for Key Area B-001 but has been met at Key Area B-002.

B.1.c. *Maintain an acceptable allowable use level on key species.*

Only in 1984 for Key Area B-002 and 1994 for Key Area B-001 did use exceed the moderate use level. In all other years, use has been in the moderate, light and slight use level categories.

This objective has been met.

B.1.d. *Initially provide for approximately 900 AUMs of forage for wild horses which is the prorated demand based on an estimate of 50% of the HMA in the allotment.*

The AUMs identified for wild horses was a target level and was to be used for the purpose of monitoring. This evaluation considered the target level and monitoring data was used to determine the potential stocking level for wild horses within the entire Wassuk HMA identified in Appendix III.

The Technical Recommendation section of this evaluation addresses this objective.

LONG TERM

B.2.a. *Maintain habitat condition to support a population of 118 mule deer yearlong (354 AUMs).*

Since mule deer numbers are low, NDOW has not initiated monitoring efforts in this portion of the Wassuk Range. Data is not available on mule deer numbers to allow a comparison against projected reasonable numbers.

Use pattern mapping shows that livestock seldom use the area contained within the yearlong range. Wild horses use this area sparingly. The resident deer face little competition from these animals.

Inadequate information to address this objective.

B.2.b. *Protect and maintain existing and potential riparian areas in good or better condition.*

Four of the six waters evaluated are in proper functioning condition (Jake, Ross, Katie, and Tank Springs) and are either static or in an upward trend. Chipmunk Spring is functional at-risk with a downward trend because of the encroachment of P-J woodlands. Butler Spring is nonfunctional and in a downward trend because of year-round horse use.

The objective has not been totally met.

B.2.c *Support re-introductions of endemic species into suitable habitats.*

Where appropriate, this program is supported by the Bureau, but the Butler Mountain Allotment cannot be considered suitable habitat for the expansion of the bighorn sheep population due to the existence of domestic sheep operations. Bureau policy does not allow the release of bighorn sheep in or adjacent to domestic sheep allotments

This objective is not applicable.

B.2.d. *Maintain or improve wild horse habitat consistent with the wildlife and livestock objectives.*

Productivity in the woodland sites, in the way of forage (grasses), is limited due to the type of soils and/or the amount of rocky habitat present. The influence of the pinyon trees, by way of intercepting precipitation on sites that are not naturally occurring woodlands, further inhibits growth of desirable plant species. Tree encroachment onto sagebrush/grassland sites continues to reduce forage productivity on extensive areas within the the HMA.

The primary wild horse habitat exists on the alluvial fan. As was pointed out earlier, this area is experiencing fluctuations in the frequency of grass species. The existing situation, in regards to grass composition, is well below the Potential Natural Community identified in the range site write-up.

The objective has not been met.

B.2.e *Maintain or improve free-roaming behavior of wild horses by protecting or enhancing the HMA.*

Nothing that would impede the free roaming behavior of wild horses or result in detriment to the HMA has occurred.

The objective has been met.

B.2.f. *Maintain or improve wild horse habitat by assuring that all waters remain open to use by wild horses.*

All waters remain open to wild horses.

The objective has been met.

B.2.g. *Maintain or improve the condition of public rangelands to enhance productivity for livestock, wildlife and wild horses (within HMA's).*

Refer to discussion under B.1.b. **The objective has been partially met.**

B.2.h. *Develop and implement an HMAP for wild horses.*

Wild horse numbers (i.e., the appropriate management level) will be established for the entire Wassuk HMA based on the potential stocking levels determined for all the allotments in the HMA. Individual stocking levels, on an allotment basis, are not realistic since the horses move amongst these allotments.

Once evaluations for all the allotments in the Wassuk HMA have been submitted for public review, Multiple Use Decisions (MUDs) will be issued. The Wild Horse Management Decision of all the MUDs will then be incorporated into an HMAP.

This evaluation is the first step towards meeting this objective.

B.2.i *Continue rangeland and watershed monitoring to determine if management objectives are being met and what future adjustments in grazing use are necessary.*

Intensity of studies, due to the custodial classification, has been limited.

Aerial census data of wild horses has been collected five times during the evaluation period. Trend plots have been photographed seven times during the evaluation period. Frequency studies have been read three times during the evaluation period. The frequency of use pattern mapping has been limited for both wild horses and livestock. Census data has revealed few horses present and livestock use extremely limited.

Monitoring data has identified that no adjustment in grazing preference is necessary. What is evident is that a grazing strategy needs to be developed and implemented that will modify the plant community so it is more diverse and productive.

The objective has been met.

VI. Technical Recommendations

All of these recommendations are in conformance to the standard and guidelines developed for the Sierra Front - Northwestern Great Basin Area.

A. Potential Stocking Level - Livestock

Based upon the analysis of monitoring data, there is no justification for adjusting grazing use. The primary forage species, low sagebrush, remains a substantial component of the plant community on the alluvial fan. It has declined significantly in frequency at Key Area B-001 and remained stable in frequency at Key Area B-002. Since horses do not readily utilize browse species, competition between horses and sheep for this forage is negligible.

The balance of the allotment has not been used for years based upon allotment supervision and use pattern mapping. Pinyon-juniper woodlands dominate the majority of the allotment. Based upon the Range Survey, the estimated grazing capacity for the alluvial fan is adequate to meet the grazing use for sheep.

It is recommended that the grazing use (3040 AUMs) for sheep be maintained.

To provide more flexibility, expanding the season of use to take advantage of early snows would enhance the possibility of evening out utilization. This provides the opportunity to shift spring use to late fall/early winter, further limiting the opportunity for competition of green grasses. Overall, the majority of the allotment is being under utilized while small portions are being over utilized. Under the current situation, the areas of heaviest use are concentrated around the waters located on the fan. Tank and Chipmunk Springs produce adequate amounts of water but they are located in the northern and southern parts of the allotment respectively. This leaves a major portion of the alluvial fan dry to a certain degree. Butler Spring is not producing an adequate amount of water. Development and protection of the source will add another much needed water in the central portion of the allotment. With the additional water and expanding the season of use to take advantage of snow, the probability of achieving a more uniform pattern of utilization is maximized.

It is recommended that the season of use be changed from 12/16 -5/15 to 11/1 - 5/15.

B. Grazing Management Strategy

Fluctuations in the frequency of grass species is cyclic. The extent of these changes can be greatly influenced by continual spring grazing. During this time period, it is important to guard against plants being re-bitten. This situation, occurring year after year, results in the loss of plants. Under-utilization or complete non-use can also result in the loss of plants.

The decline in the frequency of some key grass species is a concern while the increase in others is welcomed. Use levels have been for the most part acceptable at the key areas. An extremely low number of AUMs have been harvested by sheep during the evaluation period. Their impact has been minimal and therein lies part of the solution.

The benefits of intensive livestock management are becoming better understood. By using a closed herding technique, the vegetation is more evenly and fully utilized. Closed herding can be defined as keeping sheep in close proximity to one another so that it forces them to utilize a majority of the plants in a given area before being allowed to move to a new area and results in individual plants having a portion of the vegetative component being forced upon the ground. The opportunities for plants being re-bitten during the growing season by livestock are significantly reduced. At the same time, vegetation that is stepped on and broken increases the rate of nutrient cycling by placing this material in contact with soil and thereby exposing it to microbial activity. The sheep droppings are concentrated, trampled into the ground, providing a boost in the nutrient value of the soil. The placement of litter on the ground provides soil protection. It catches and holds soil particles in place. A cooler micro-climate is created that is conducive to seedling establishment. Overall the water cycle is improved. The result of all of these activities is a healthier ecosystem.

Harvesting the old growth from the grass plants will allow better access to sunlight for the spring growth and the plants can better remain vigorous. Heavy browsing of the shrubs by sheep will favor the growth of the grasses which make up the bulk of the diet for wild horses. Conversely, less intensive grazing can be applied while still maintaining the positive benefits of the animal impact to increase the browse component.

The bands should be moved to the areas, identified throughout the years of use pattern mapping, which have been the recipient of no use, slight use, and light use. This provides the opportunity to remove dead or decadent growth from the plant community and stimulate new, more desirable forage. This will act as attractant to the horses and shift use away from areas they historically have used at the higher use categories. Though there are other tools which could accomplish the same objective (prescribed burning, mechanical manipulation, etc.) this is the most efficient and economical means available. A similar management action is occurring in the Belleville Allotment. In 1994, after the first year of grazing, both the grazing permittee and Bureau personnel noted an increase in ricegrass seedlings. After the second year of grazing, monitoring results indicated that the bare space between perennial plants decreased from approximately 16 inches before grazing to 5 inches. Most of this was due to an increase in Indian ricegrass. Perennial plant seeds must be worked into the soil with organic matter to produce seedlings. Otherwise the solid surface becomes crusted and is impenetrable to both seed and plant litter (seeds do not germinate and litter dries up and is not broken down into the essential organic compounds. Also, an accumulation of dead material in grass plants will cause them to become unhealthy and eventually die out. A key factor to success was that the cattle were removed shortly after impacts occurred, which allowed plants to regrow and seedlings to establish.

It is recommended that closed herding be applied to the greatest extent possible in order to modify the landscape to a more diverse, productive vegetative community that will benefit wildlife, wild horses, and livestock.

C. Potential Stocking Level - Wild Horses

Due to the proximity of the allotments, accessibility of allotments by the wild horse herd, and the movement amongst these allotments, it was logical to develop a potential stocking level for the entire HMA. This allows for the free-roaming behavior of the herd while at the same time not creating a situation whereby emergency gathers would be needed if at any time the number of horses within one of these allotments should exceed a level that was established on an individual allotment basis. It is recommended that the Potential Stocking Level for the Wassuk Herd Management Area be 1984 AUMs, with 830 AUMs provided from the Butler Mountain Allotment (Refer to Appendix III for the Potential Stocking Level Calculations).

D. Woodland Management

There are approximately 11,677 acres of natural pinyon-juniper woodlands in the allotment. Approximately another 21,540 acres comprise the alluvial fan that is usable by livestock, wild horses, and mule deer, with some woodland encroachment. Approximately another 5,322 acres are classified as rock outcrop/rubble, and beach areas. This is a total of 38,539 acres or 82% of the allotment.

It is recommended that the long term management in the Butler Mountain allotment be directed toward achieving an ecosystem containing a natural balance of pinyon-juniper woodland, and other ecological sites. Sites that are not natural woodlands and that have easy accessibility should be designated as woodcutting areas. Where specific projects for enhancement of waters (spring rehabilitation) are recognized, selective cutting and the laying of the materials on the ground should be initiated. The majority of the area should be left in its current state.

E. Riparian

Butler Spring is classified as non-functional. The spring's potential to provide improved flow and create riparian habitat is considerable. A large event, whether it's a summer thunderstorm or heavy run-off from winter snowpack, could conceivably destroy the spring. There is no vegetation to impede the force of water and retain the soil.

It is recommended that the source and a portion of the surrounding area, specifically the steep embankments, be fenced. The spring should be re-developed and water piped to troughs installed below the source.

Chipmunk Spring has been classified as functional at-risk. It is being unfavorably influenced by the woodland dominated watershed. Treatment of the upper watershed (i.e. thinning) would be a starting point to the establishment of a more dominant shrub/grass component. Laying limbs on the ground would provide soil protection and a catchment for snow and snowmelt. By retaining moisture longer and in greater amounts, the opportunity to have additional water percolate into the soil is enhanced. The end product could be an expanded riparian zone and a corresponding increase in water flow. These actions alone will go only so far in meeting these objectives. It will be necessary to follow this up with management that will maximize and sustain the improved ground cover and water catching capability.

It is recommended that pinyon-juniper woodlands in the upper watershed be thinned. All of the downed trees should be limbed to the greatest extent practical. The limbs should be scattered onto the ground. The trunks of the trees should be lain across the slope on which they were cut. The spring source

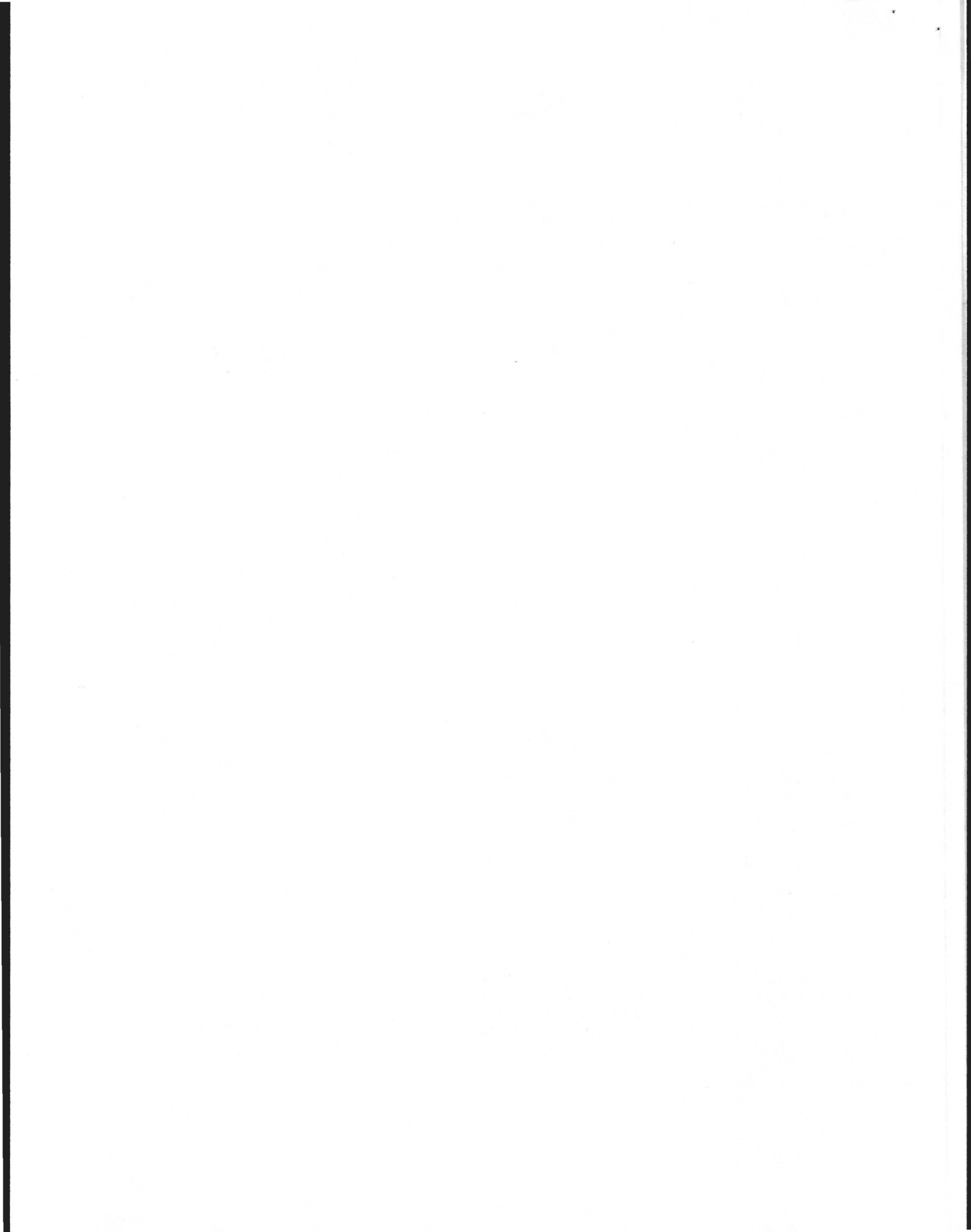
should be fenced to afford protection to the existing vegetation and allow for further increases in the vegetation and possible expansion of the area.

Jake, Katie, Tank, and Ross Springs will continue to be monitored to ensure that they remain in proper functioning condition.

The long term objective, "*Protect and maintain existing and potential riparian areas in good or better condition*", should be modified as follows:

"Protect and maintain existing and potential riparian areas in proper functioning condition⁷."

⁷ Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to: 1) dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; 2) filter sediment and aid floodplain development; 3) improve flood-water retention and ground-water recharge; 4) develop root masses that stabilize islands and shoreline features against cutting action; 5) restrict water percolation; 6) develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; and 7) support greater biodiversity.



APPENDIX I

MAP NO. 1	GENERAL ALLOTMENT MAP
MAP NO. 2	RANGE IMPROVEMENTS
MAP NO. 3	WILD HORSE HMA
MAP NO. 4	MULE DEER YEAR LONG RANGE
MAP NO. 5	POTENTIAL BIGHORN SHEEP HABITAT
MAP NO. 6	WATER RESOURCE FUNCTIONALITY
MAP NO. 7	KEY AREA LOCATIONS
MAP NO. 8	1995 USE PATTERN MAPPING
MAP NO. 9	1994 USE PATTERN MAPPING
MAP NO. 10	1988 USE PATTERN MAPPING
MAP NO. 11	1986 USE PATTERN MAPPING
MAP NO. 12	1984 USE PATTERN MAPPING
MAP NO. 13	PHOTO TREND PLOT LOCATIONS

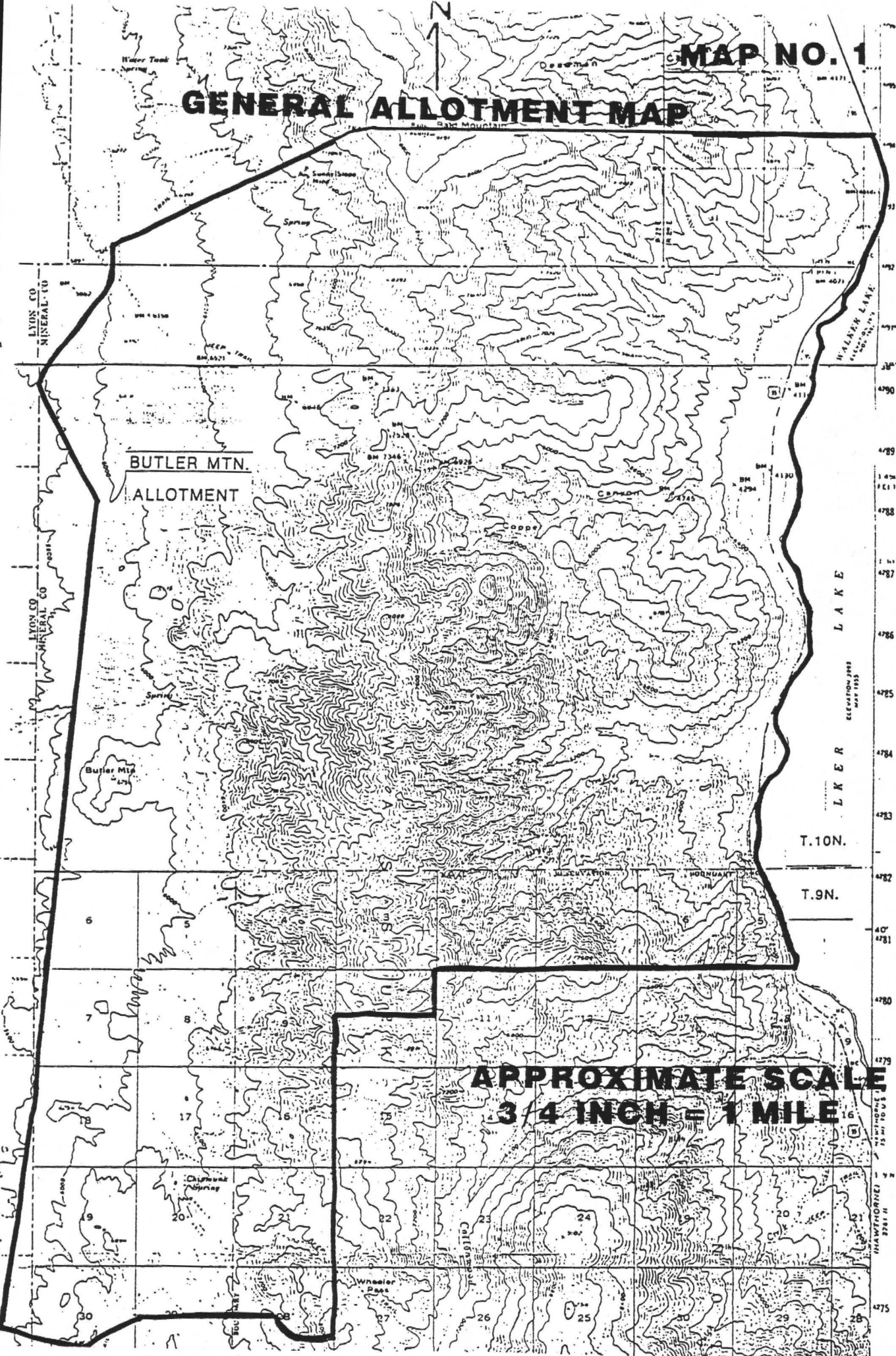


MAP NO. 1

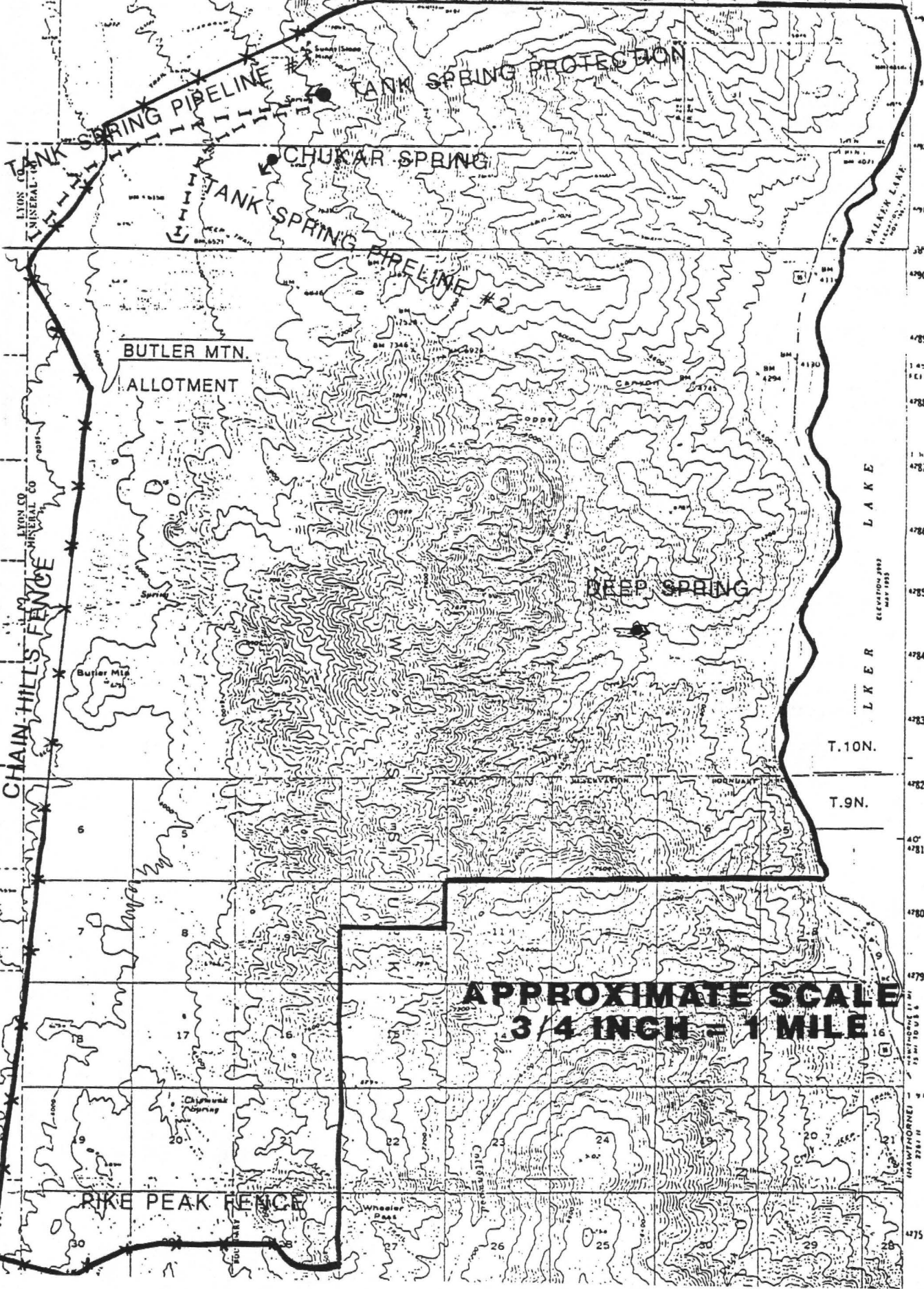
GENERAL ALLOTMENT MAP

BUTLER MTN.
ALLOTMENT

APPROXIMATE SCALE
3/4 INCH = 1 MILE



RANGE IMPROVEMENTS



**APPROXIMATE SCALE
3/4 INCH = 1 MILE**

WALKER LAKE
ELEVATION 1993
MAY 1995

HAWTHORNE
3281 H

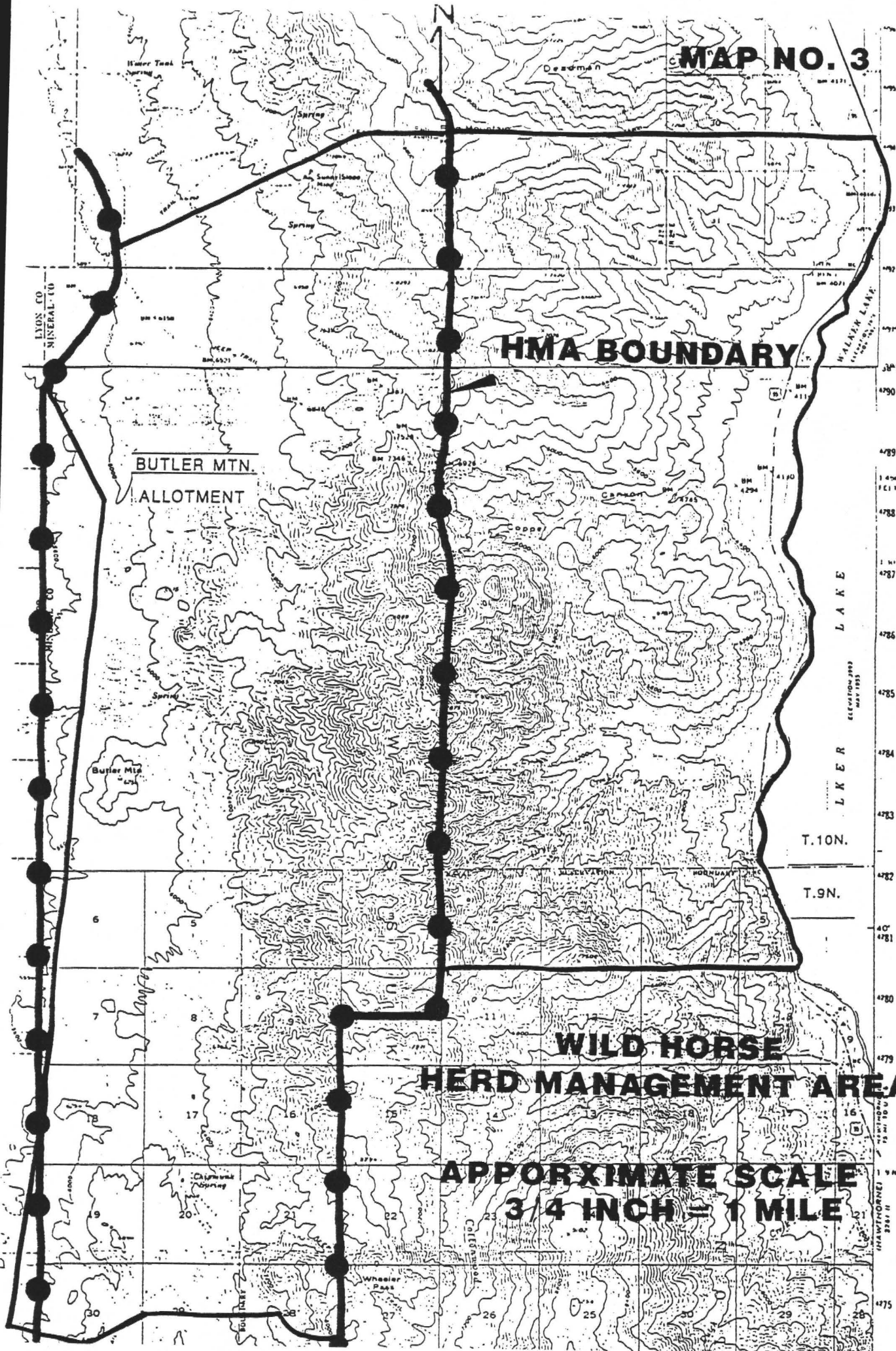
MAP NO. 3

HMA BOUNDARY

**BUTLER MTN.
ALLOTMENT**

**WILD HORSE
HERD MANAGEMENT AREA**

**APPROXIMATE SCALE
3/4 INCH = 1 MILE**



LYON CO
MINERAL TO

WILDER LAKE

WILDER LAKE

T.10N.

T.9N.

HAWTHORNE
2361 ft

WILDLIFE USE

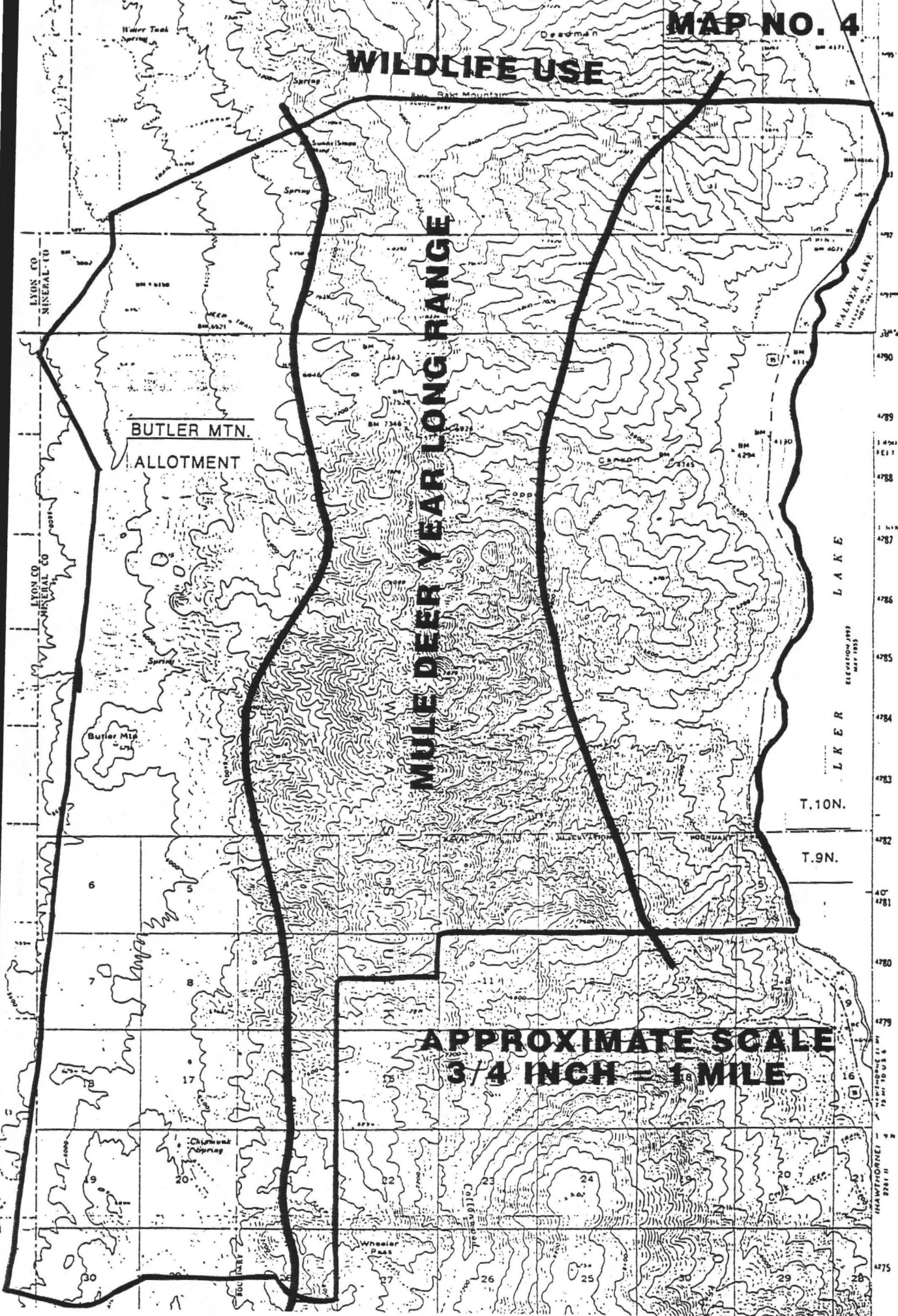
MULE DEER YEAR LONG RANGE

BUTLER MTN.
ALLOTMENT

T.10N.

T.9N.

APPROXIMATE SCALE
3/4 INCH = 1 MILE

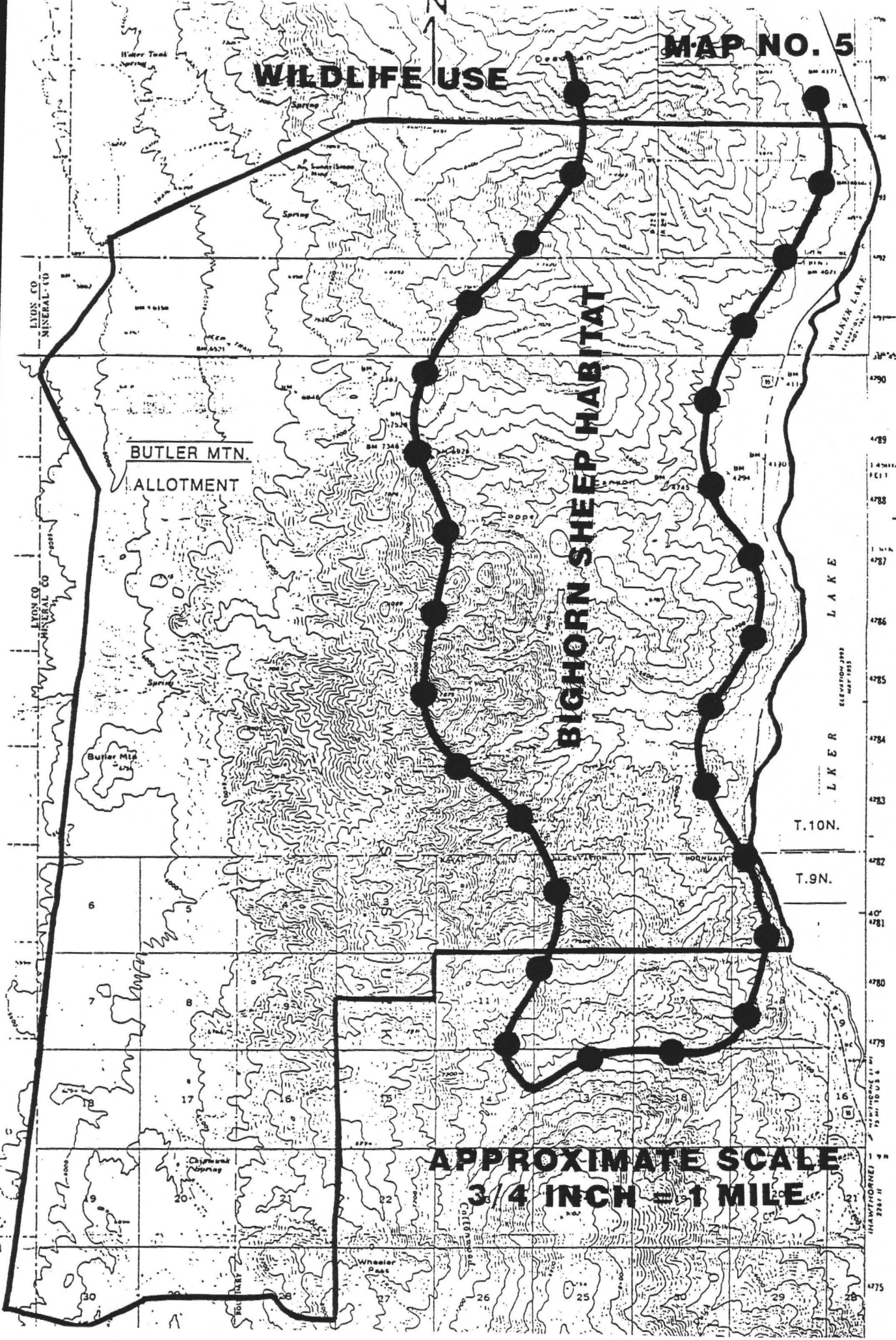


WILDLIFE USE

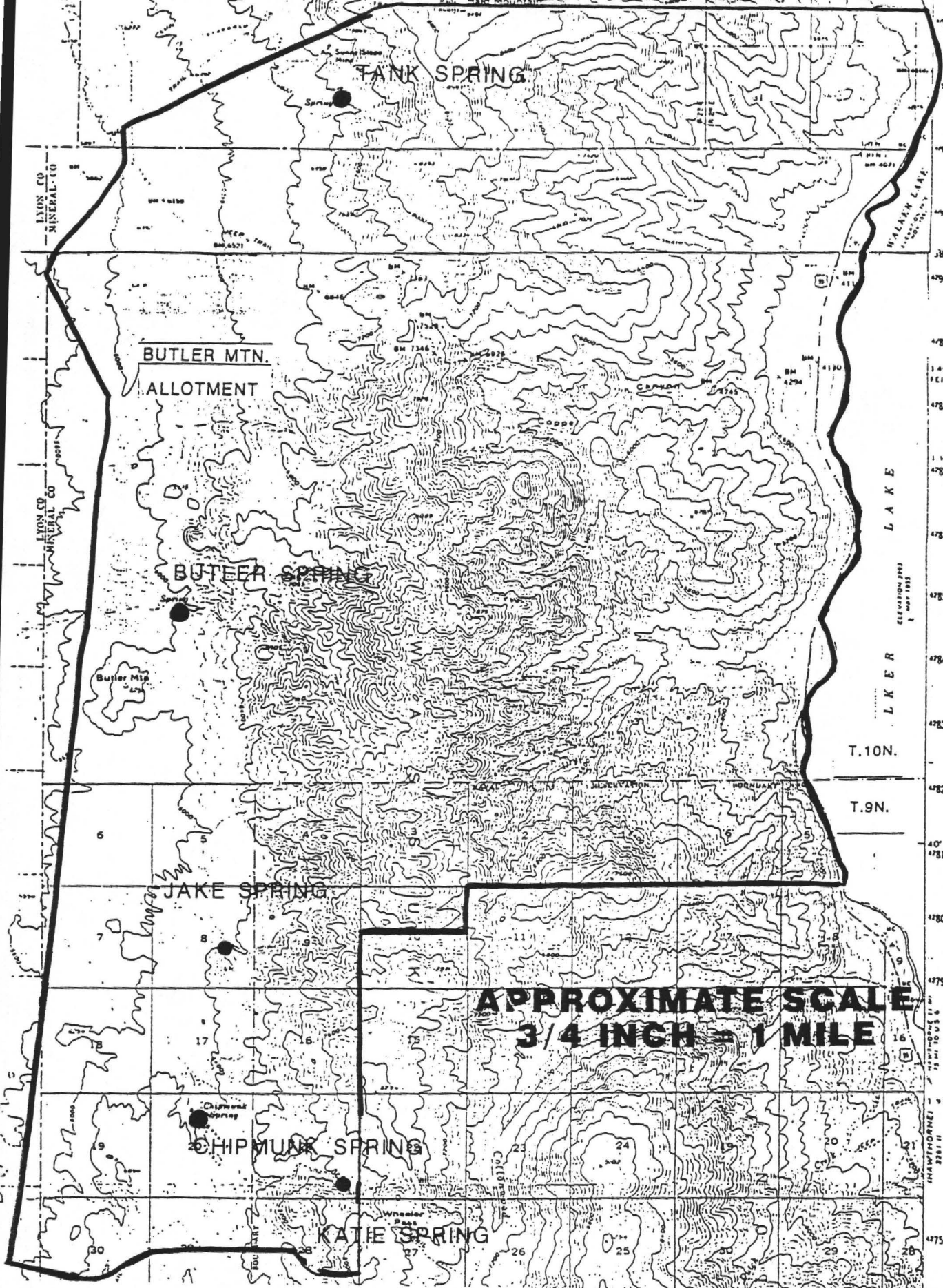
BIGHORN SHEEP HABITAT

BUTLER MTN.
ALLOTMENT

APPROXIMATE SCALE
3/4 INCH = 1 MILE

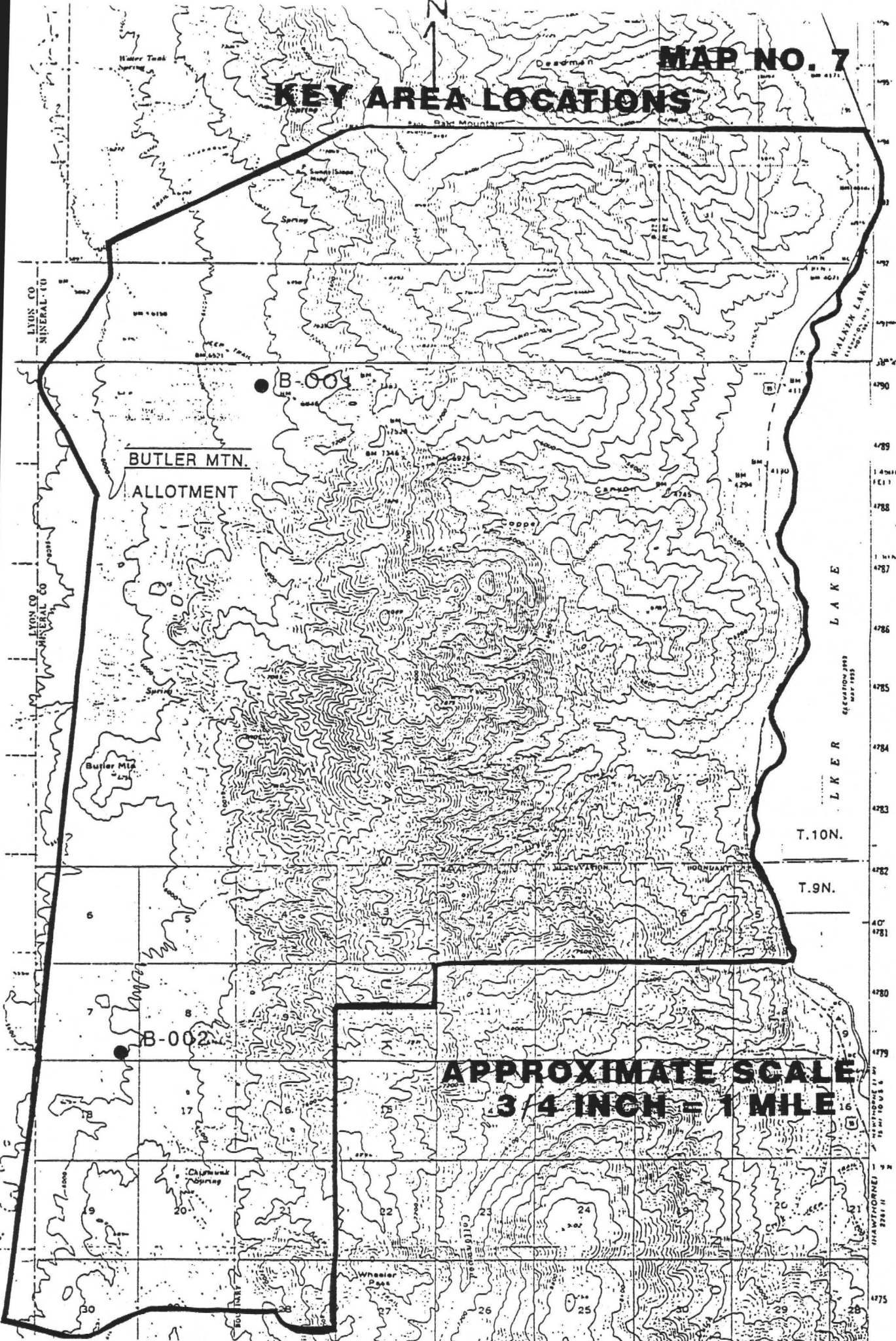


MAP NO. 6 WATER RESOURCES FUNCTIONALITY



MAP NO. 7

KEY AREA LOCATIONS



BUTLER MTN.
ALLOTMENT

WALAYER LAKE

T.10N.
T.9N.

APPROXIMATE SCALE
3/4 INCH = 1 MILE

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MINERAL CO

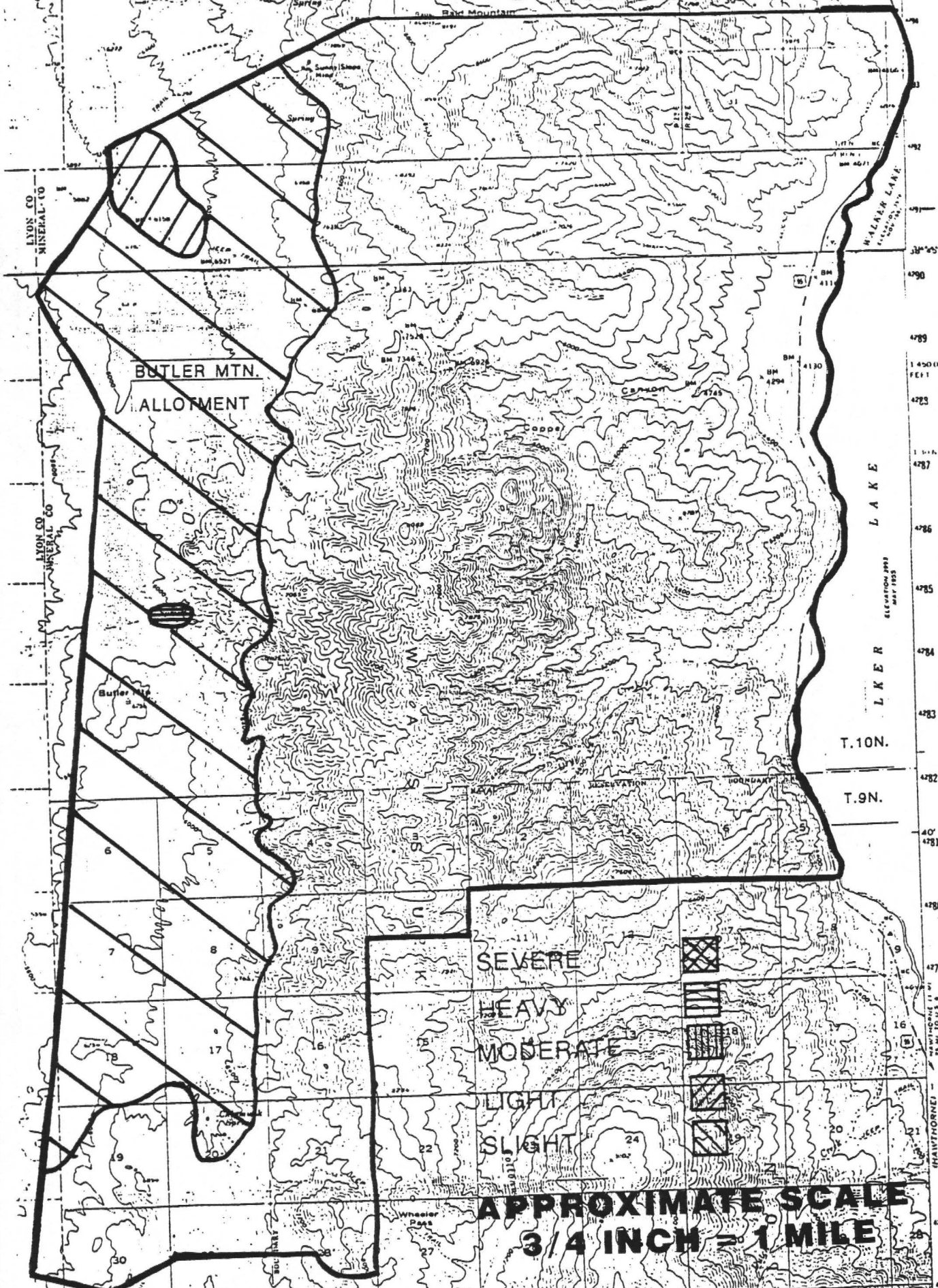
MINERAL CO

1955

1:25,000

U.S. GEOLOGICAL SURVEY

1995 USE PATTERN MAPPING



LYON CO MINERAL CO

BUTLER MTN. ALLOTMENT

WALKER LAKE

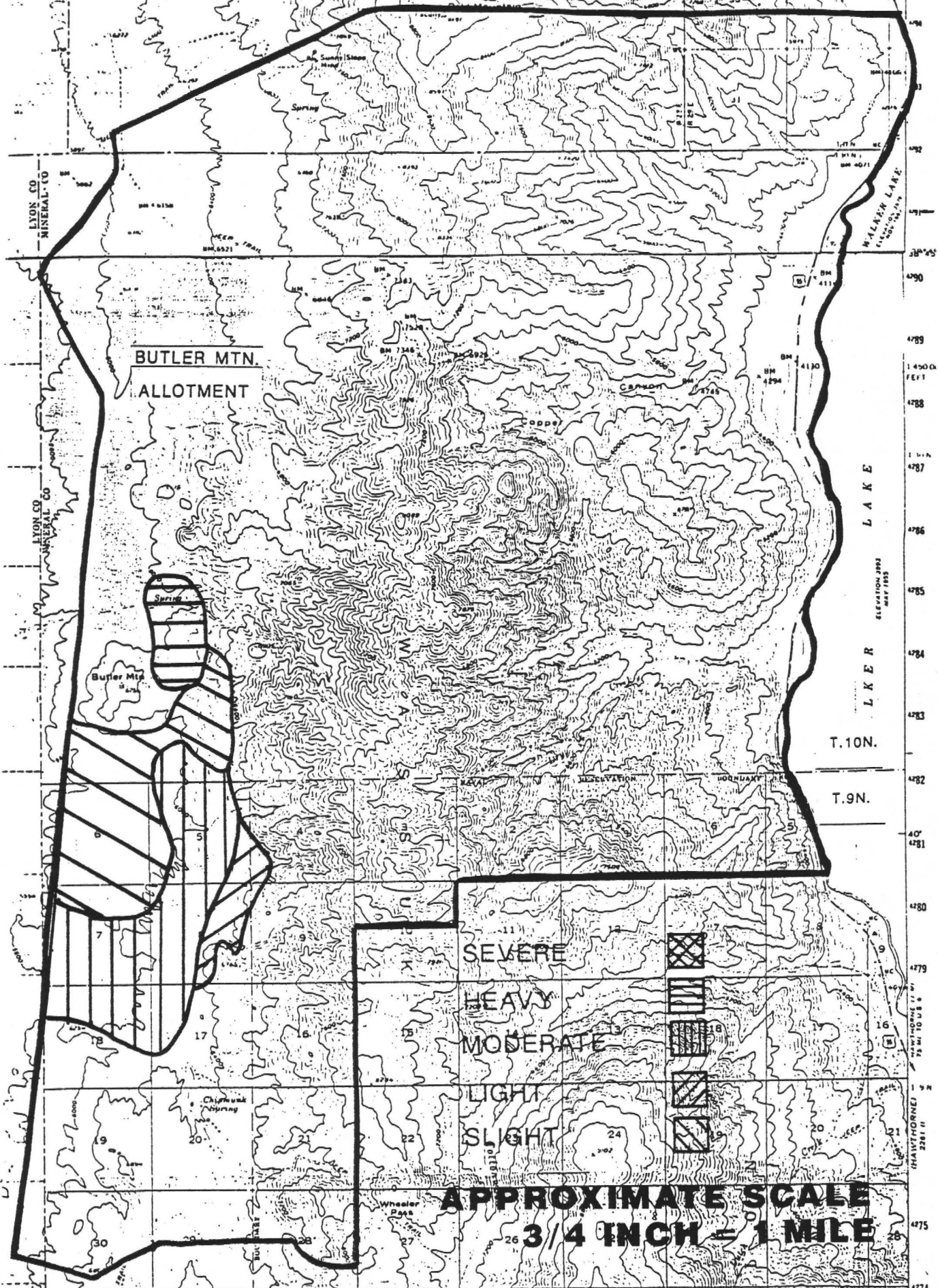
T.10N.
T.9N.

SEVERE
HEAVY
MODERATE
LIGHT
SLIGHT

APPROXIMATE SCALE
3/4 INCH = 1 MILE

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MAP NO. 9 1994 USE PATTERN MAPPING



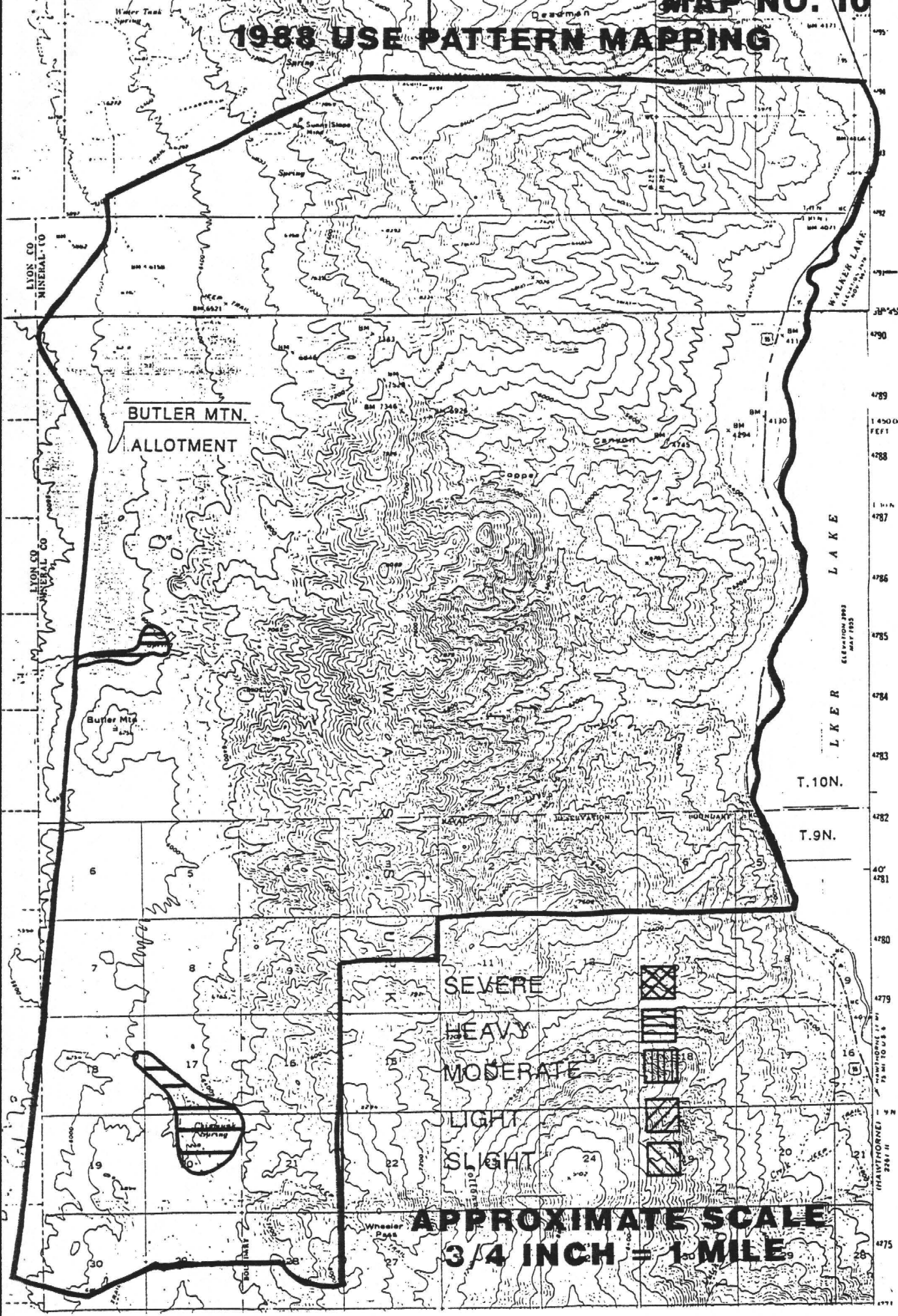
BUTLER MTN.
ALLOTMENT

T.10N.
T.9N.

SEVERE
HEAVY
MODERATE
LIGHT
SLIGHT

APPROXIMATE SCALE
3/4 INCH = 1 MILE

MAP NO. 10 1988 USE PATTERN MAPPING



BUTLER MTN.
ALLOTMENT

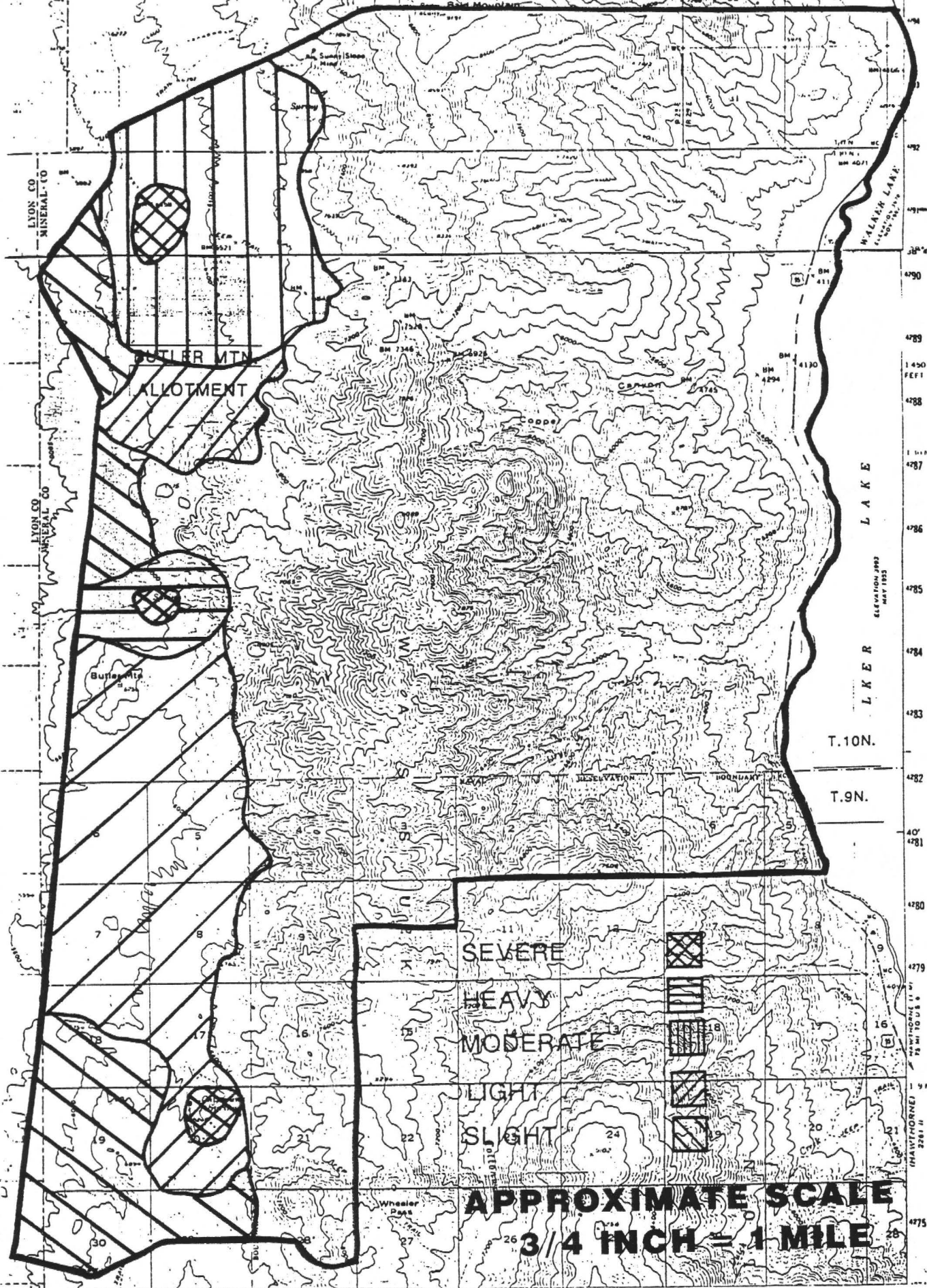
WALKER LAKE
ELEVATION 1983
MAY 1983
T. 10N.
T. 9N.

SEVERE
HEAVY
MODERATE
LIGHT
SLIGHT

APPROXIMATE SCALE
3/4 INCH = 1 MILE

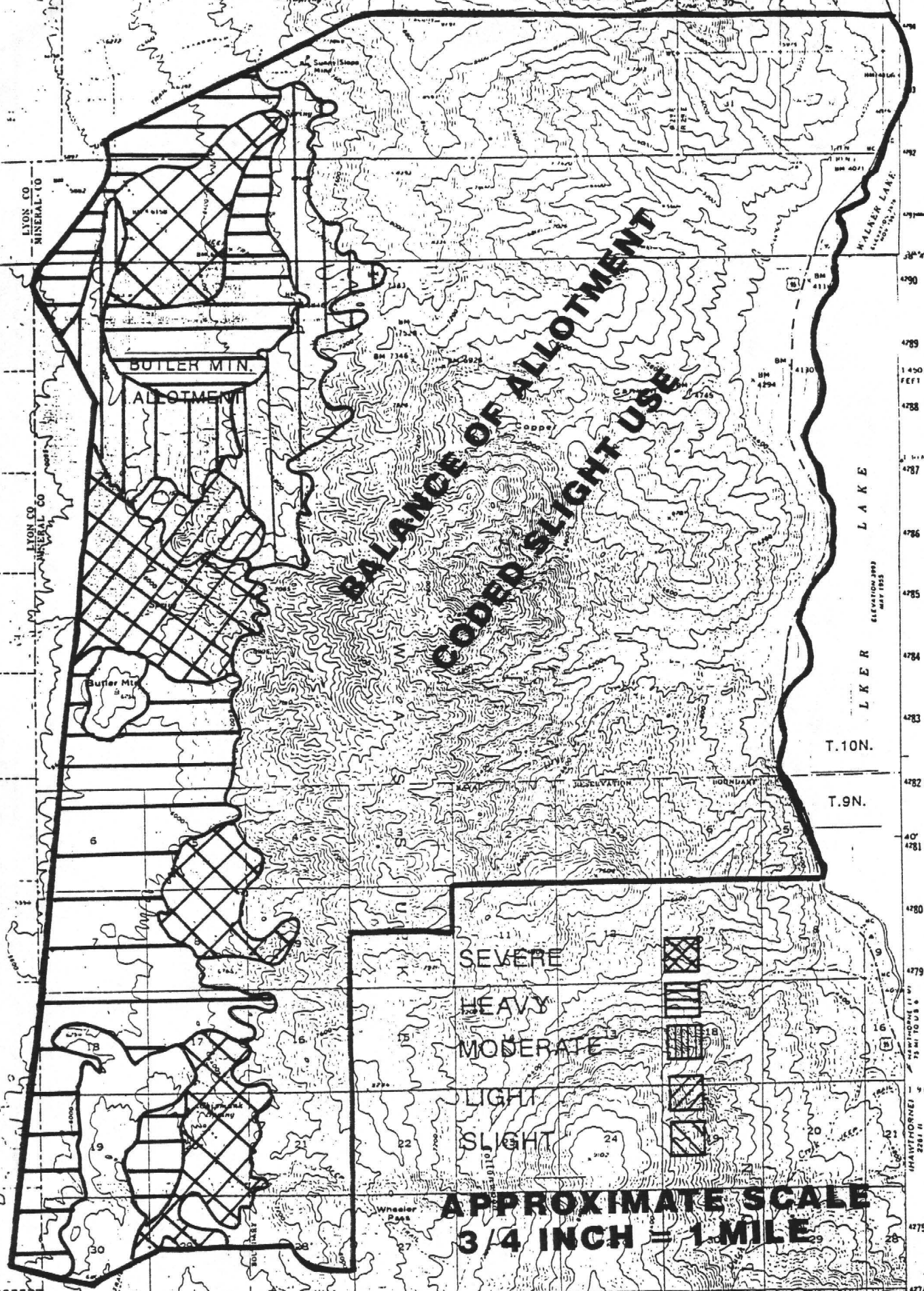
MAP NO. 11

1986 USE PATTERN MAPPING



APPROXIMATE SCALE
3/4 INCH = 1 MILE

1984 USE PATERN MAPPING



**BALANCE OF ALLOTMENT
CODED SLIGHT USE**

**BUTLER MIN.
ALLOTMENT**

SEVERE

HEAVY

MODERATE

LIGHT

SLIGHT

**APPROXIMATE SCALE
3/4 INCH = 1 MILE**

T.10N.

T.9N.

LAKER LAKE

ELEVATION 1983
MAY 1985

HAWKORNEY
2867 N

LYON CO
MINERAL CO

LYON CO
MINERAL CO

Upper Tank
Spring

Deadman

Spring

Summit (Stone
Belt)

Butler Min.

Wheeler
Pass

W. LAKE

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MAP NO. 13

PHOTO TREND PLOT LOCATIONS



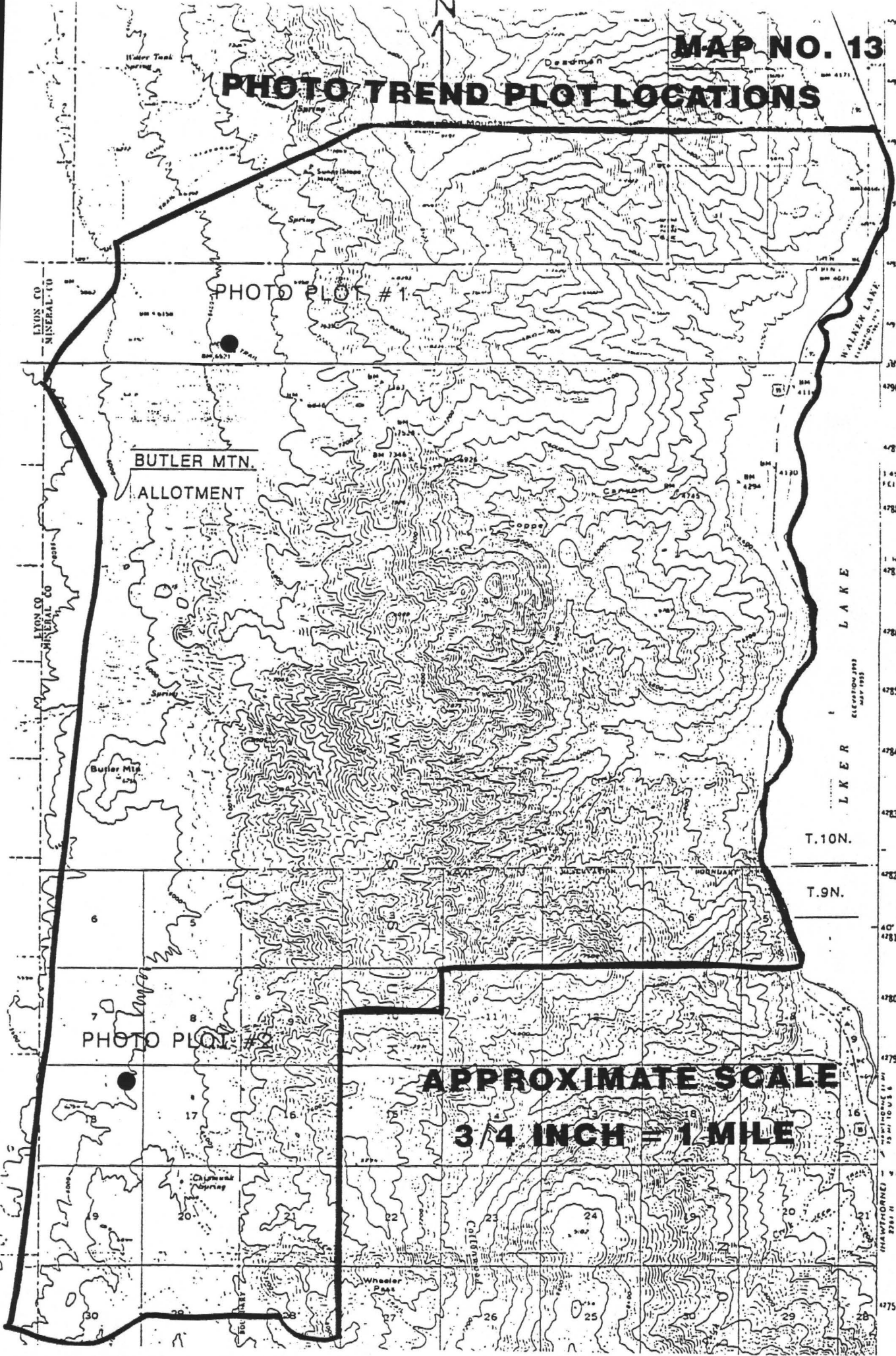
PHOTO PLOT # 1

BUTLER MTN.
ALLOTMENT

PHOTO PLOT # 2

APPROXIMATE SCALE

3/4 INCH = 1 MILE



WALKER LAKE
ELEVATION JMS
MAY 1955

T. 10N.

T. 9N.

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**BUTLER MOUNTAIN ALLOTMENT
MINERAL COUNTY SOIL SURVEY
APPENDIX II**

SOIL TYPE

RANGE SITES

Uripnes-Rock outcrop association	Eroded Granitic Slope, 4-8" p.z. (precipitation zone)
Uripnes-Budihol-Rock outcrop association	Eroded Granitic Slope, 4-8" p.z. / Loamy Slope, 8-10" p.z.
Uripnes-Zyzzu-Rock outcrop association	Eroded Granitic Slope, 4-8" p.z. / Claypan 8-10" p.z. (S)
Gabbvally-Tejabe-Mirkwood association	Loamy Slope, 8-10" p.z./ South Slope, 4-8" p.z.
Budihol-Uripnes-Petspring association	Loamy Slope, 8-10" p.z./Shallow Granitic Upland, 4-8" p.z./Drought Slope, 8-10" p.z.
Rockabin-Hiridge association	Mountain Ridge
Snopoc-Rockabin-Fusuvar association	Loamy Slope, 14+" p.z. / Mountain Ridge / Mahogany Savanna
Nupart-Lazan-Rock outcrop association	WOODLAND SUITABILITY
Granmount-Kiote-Hiridge association	Mountain Ridge / Loamy Slope, 14+" p.z.
Smedley-Annaw-Izo association	Very Stony Loam, 4-6" p.z. / Loamy, 5-8" p.z. / Dry Wash
Smedley-very gravelly sandy loam	Very Stony Loam, 4-6" p.z.
Inmo-Redmik association	Dry Wash / Gravelly Loam, 4-6" p.z.
Wassit-Brawley association	WOODLAND SUITABILITY
Mickey-Smedley-Veet association	Claypan, 8-10" p.z. (S) / Very Stony Loam, 4-6" p.z. / Sandy Loam, 8-12" p.z.
Mickey very gravelly sandy loam	Sandy Loam, 8-12" p.z.
Loomer-Rowel-Downeyville association	Saline Meadow / Sandy Loam, 8-12" p.z. / Sodic Hill, 5-8" p.z.
Loomer-Rowel-Wassit association	Claypan, 8-10" p.z. / Claypan, 8-10" p.z. (S) / WOODLAND
Zyzzu very gravelly sand loam	Claypan, 8-10" p.z. (S)
Zyzzu-Nupart association	Claypan, 8-10" p.z. (S) / WOODLAND SUIT
Wellsed-Mickey-Veet association	Loamy, 8-10" p.z. / Claypan, 8-10" p.z. (S) / Sandy Loam, 8-12" p.z.
Rowel-Rock outcrop association	Claypan, 8-10" p.z. (S)
Typic Torriorthents, 4 to 15% slopes	VARIABLE
Veta-Smedley association	Drought Loam, 8-10" p.z. / Very Stony Loam, 4-6" p.z.
Downeyville-Mirkwook-Nemico assn.	Sodic Hill, 5-8" p.z. /South Slope, 4-8" p.z. / Very Stony Loam, 4-6" p.z.

APPENDIX III
POTENTIAL STOCKING LEVEL IN HERD MANAGEMENT AREA

Shown below are the series of calculations used to derive the potential stocking level for wild horses within the Wassuk Herd Management Area (HMA). Stocking levels are determined using the Potential Actual Use formula from BLM Technical Reference (TR) 4400-7, *Rangeland Monitoring Analysis, Interpretation, and Evaluation* (November, 1985), Appendix 2, pages 54 - 56:

$$\frac{\text{Actual Use (AUMs)}}{\text{Average Utilization (\%)}} = \frac{\text{Potential Actual Use (AUMs)}}{\text{Desired Average Utilization (\%)}}$$

The formula compares the percent *Average Utilization* to the *Actual Use* of the grazing animal(s) that resulted in that utilization. Based on this comparison, the *Potential Actual Use* necessary to achieve the *Desired Average Utilization* can algebraically be determined (Section D).

- A. Use Pattern Mapping Data. In 1995, a detailed use pattern mapping was completed throughout the entire HMA in preparation for the allotment evaluations. Since this is the most concise and complete recording of the HMA, it was used in the stocking level calculations. The "no use" category are areas that showed no appreciable use in 1995, but, based on previous use pattern mappings, showed that these areas are periodically used by wild horses. All use below was from wild horses: the plants grazed by sheep had regrown by the time of the use mapping in April, 1995.

Utiliza- tion Class	Utiliza- tion Mid- point	Black Mountain Allotment		Butler Mountain Allotment		Gray Hills Allot- ment		Total Acres	ACREAGE OUT- SIDE HMA USED BY WILD HORSES	
		Acres by Class	Weigh- ted Acres	Acres by Class	Weigh- ted Acres	Acres by Class	Weigh- ted Acres	Re- corded in HMA	Acres by Class	Weigh- ted Acres
No Use	2.5%	4,028	100	4,131	103	7,248	181	15,407	0	0
Slight	12.5%	121	15	11,934	1,492	2,605	326	14,660	9,687	1211
Light	30%	551	165	494	148	1,911	573	2,956	1,357	407
Moderate	50%	0	0	0	0	6,636	3,318	6,636	1,973	987
Heavy	70%	0	0	41	29	0	0	41	348	243
Severe	90%	0	0	0	0	0	0	0	0	0
TOTALS		4,700	281	16,600	1,772	18,400	4,398	39,700	13,365	2,848

B. Wild Horse Actual Use. 141 head of wild horses were counted in the Wassuk Range in 1995. Based on yearlong grazing, wild horse actual use for the HMA is calculated as follows:

$$141 \text{ wild horses} \times 12 \text{ months} = \mathbf{1,692 \text{ AUMs}}$$

C. Desired Utilization in HMA. Since these calculations are based on yearlong use of the allotments (i.e., during critical growth periods of plant species) it is appropriate to use the suggested use levels for perennial grasses (55%) shown in the *Nevada Rangeland Monitoring Handbook* (September, 1984), page 23. An equal division of forage between wild horses and livestock will result in the 27.5% Desired Utilization for wild horses.

D. Potential Actual Use (AUMs) Calculation for Wassuk HMA. The potential actual use (i.e., potential stocking level) is calculated in the table shown below. These calculations are based on the formula shown at the beginning of this appendix. Since use levels varied by allotment, weighted acres are used to prorate the actual use by allotment. The actual use calculated in B, above, includes use by wild horses outside the HMA. Therefore, weighted acres grazed by wild horses outside the HMA are also used in the actual use proration.

The Average Utilization figure shown in the table below is based on the following formula from TR 4400-7, Appendix 1, page 52 and 53 (data from A, above):

$$\text{Average Utilization} = \frac{\sum (\text{Acres Per Utilization Class} \times \text{Class Midpoint})}{\sum \text{Acres}}$$

Allotment	Total Acres Recorded in HMA	Total Weighted Acres	Weighted Percent of HMA	Prorated Actual Use (AUMs)	Average Utilization	Desired Utilization	Potential Stocking Level	
Black Mountain	4,700	281	3.0%	51	6.0%	27.5%	234	
Butler Mountain	16,600	1,772	19.1%	322	10.7%	27.5%	830	
Gray Hills	18,400	4,398	47.3%	800	23.9%	27.5%	920	
Outside HMA		2,848	30.6%	518				
POTENTIAL STOCKING LEVEL FOR WILD HORSES IN THE WASSUK HMA							=	1,984 AUMs

- B. Wild Horse Actual Use. 141 head of wild horses were counted in the Wassuk Range in 1995. Based on yearlong grazing, wild horse actual use for the HMA is calculated as follows:

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APPENDIX II
POTENTIAL STOCKING LEVEL IN HERD MANAGEMENT AREA

Shown below are the series of calculations used to derive the potential stocking level for wild horses within the Wassuk Herd Management Area (HMA). Stocking levels are determined using the Potential Actual Use formula from BLM Technical Reference (TR) 4400-7, *Rangeland Monitoring Analysis, Interpretation, and Evaluation* (November, 1985), Appendix 2, pages 54 - 56:

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The formula compares the percent *Average Utilization* to the *Actual Use* of the grazing animal(s) that resulted in that utilization. Based on this comparison, the *Potential Actual Use* necessary to achieve the *Desired Average Utilization* can algebraically be determined (Section D).

A. Use Pattern Mapping Data. In 1995, a detailed use pattern mapping was completed throughout the entire HMA in preparation for the allotment evaluations. Since this is the most concise and complete recording of the HMA, it was used in the stocking level calculations. The "no use" category are areas that showed no appreciable use in 1995, but, based on previous use pattern mappings, showed that these areas are periodically used by wild horses. All use below was from wild horses: the plants grazed by sheep had regrown by the time of the use mapping in April, 1995.

Utilization Class	Utilization Mid-point	Black Mountain Allotment		Butler Mountain Allotment		Gray Hills Allotment		Total Acres	ACREAGE OUTSIDE HMA USED BY WILD HORSES	
		Acres by Class	Weighted Acres	Acres by Class	Weighted Acres	Acres by Class	Weighted Acres	Recorded in HMA	Acres by Class	Weighted Acres
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TOTALS		4,700	281	16,600	1,772	18,400	4,398	39,700	13,365	2,848

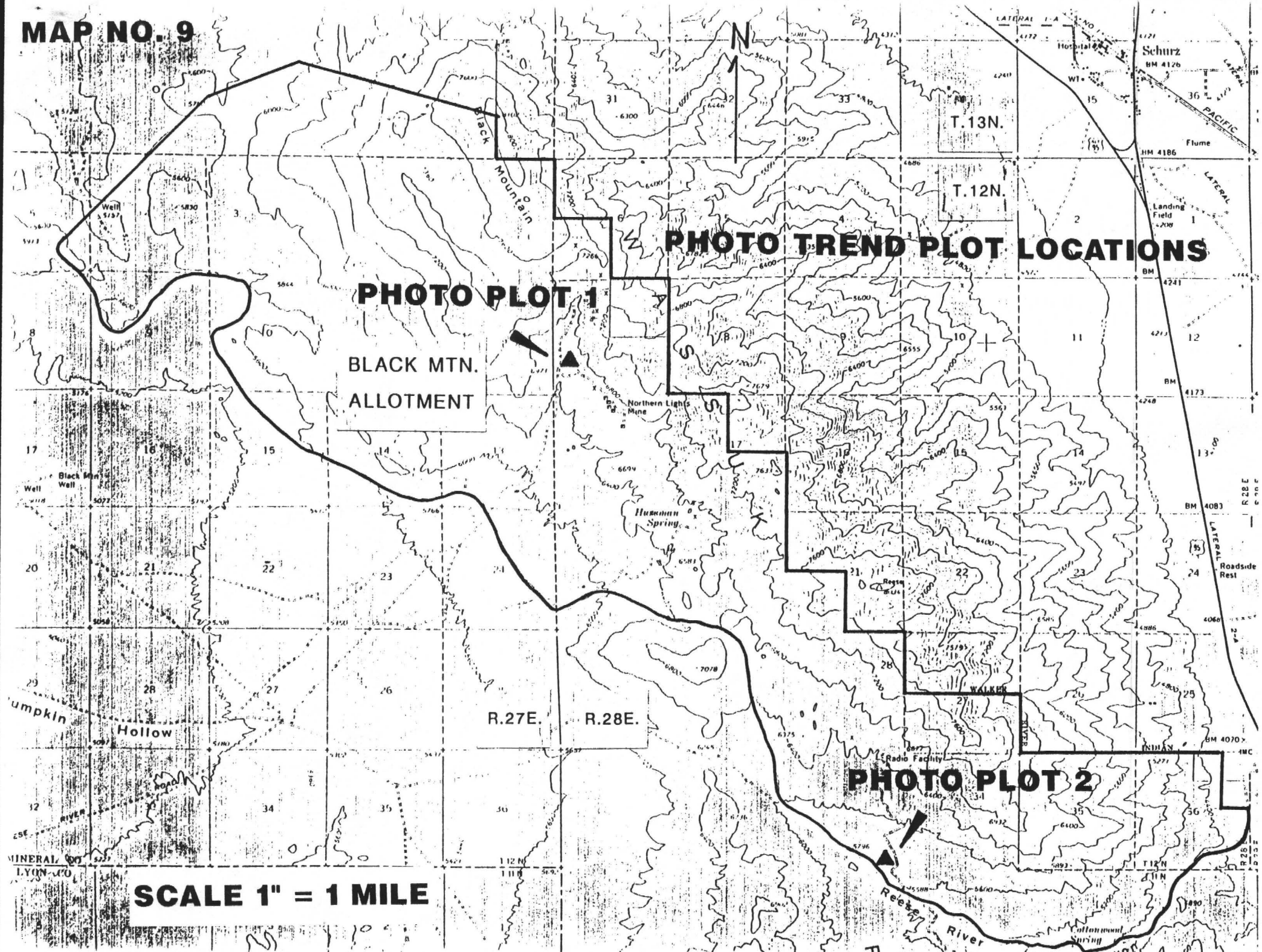


PHOTO TREND PLOT LOCATIONS

PHOTO PLOT 1

BLACK MTN.
ALLOTMENT

PHOTO PLOT 2

SCALE 1" = 1 MILE

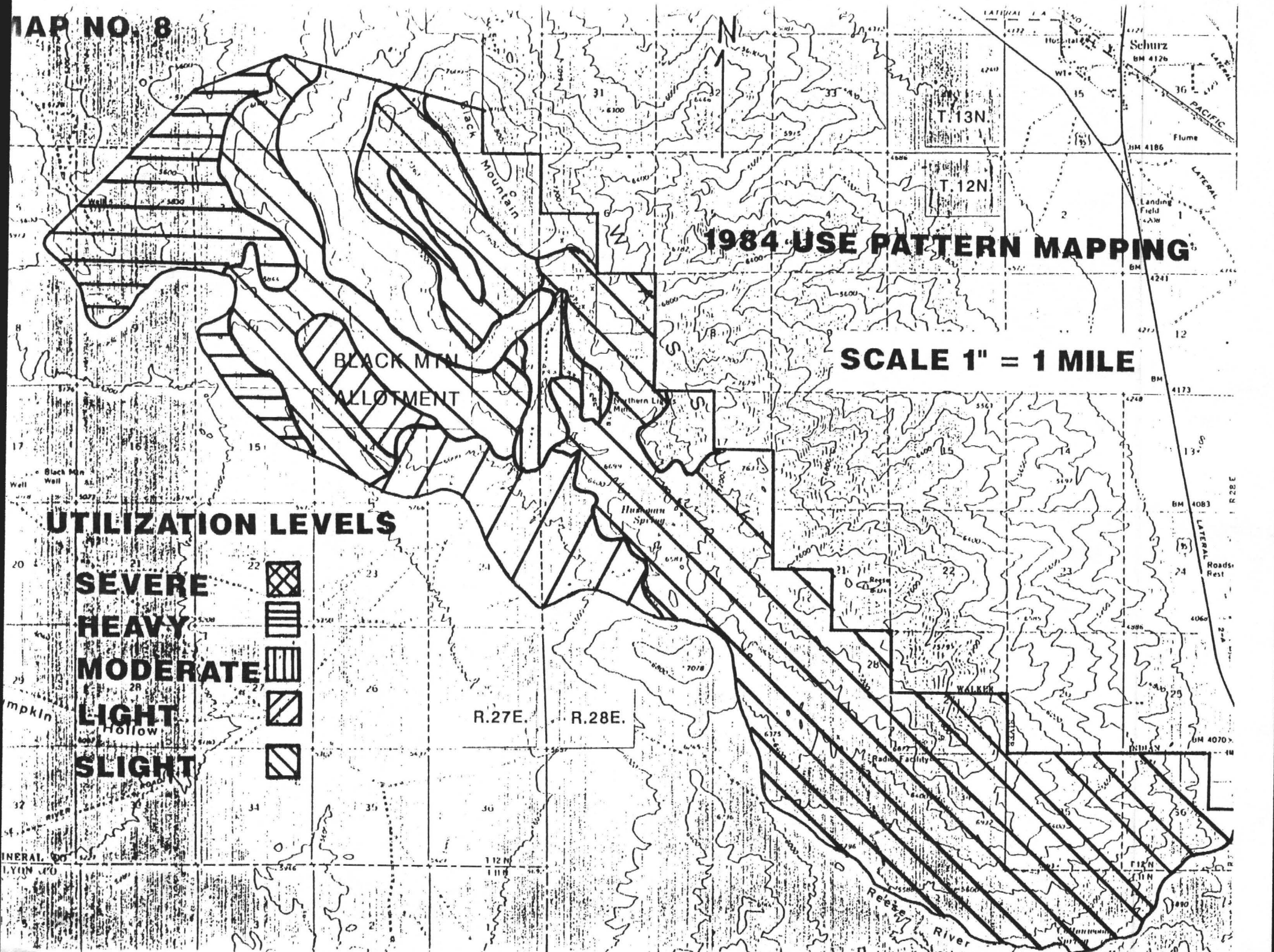
1984 USE PATTERN MAPPING

SCALE 1" = 1 MILE

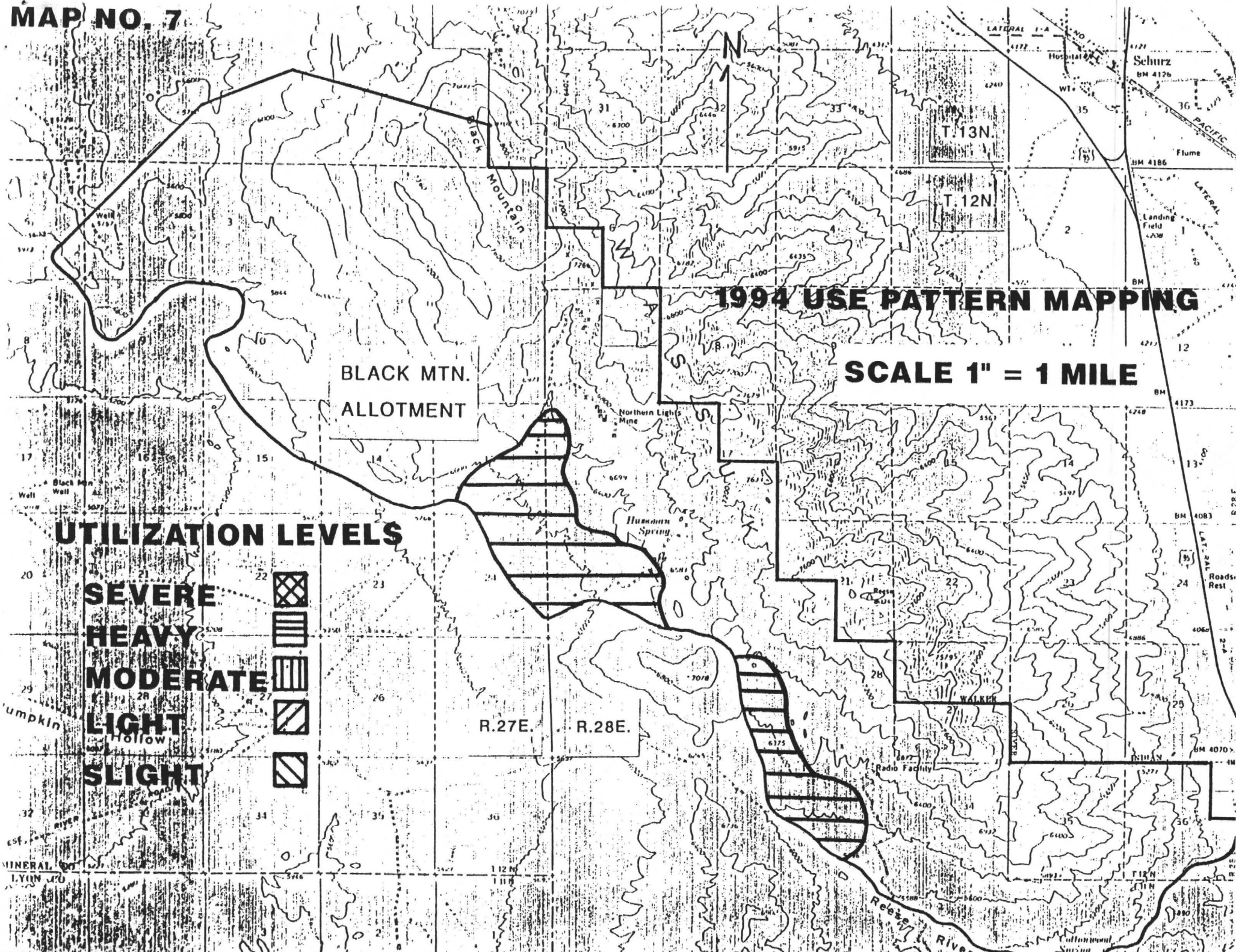
BLACK MTN ALLOTMENT

UTILIZATION LEVELS

SEVERE
 HEAVY
 MODERATE
 LIGHT
 SLIGHT



MAP NO. 7



1995 USE PATTERN MAPPING

SCALE 1" = 1 MILE

BLACK MTN.
ALLOTMENT

UTILIZATION LEVELS

SEVERE



HEAVY



MODERATE



LIGHT

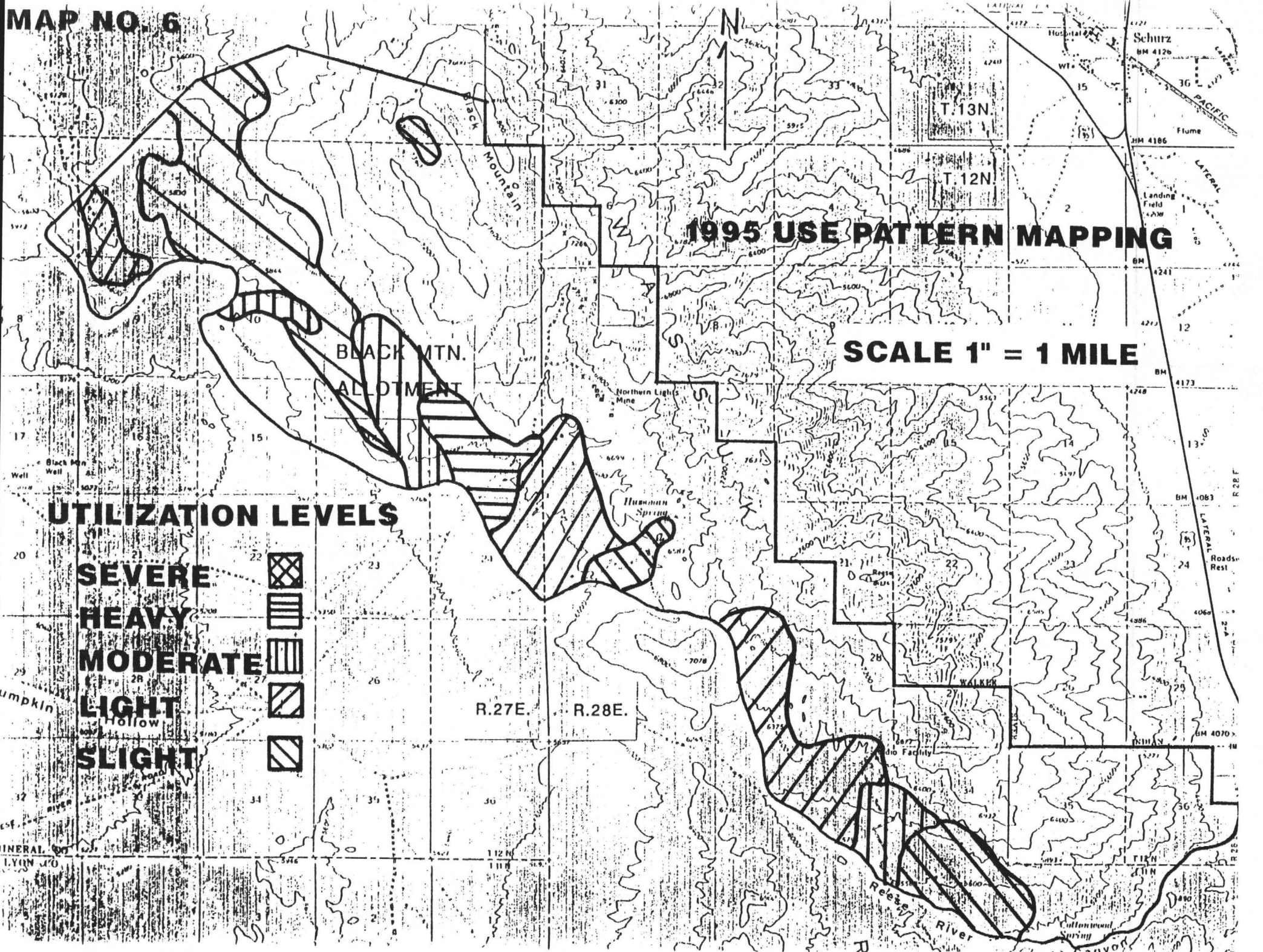


SLIGHT

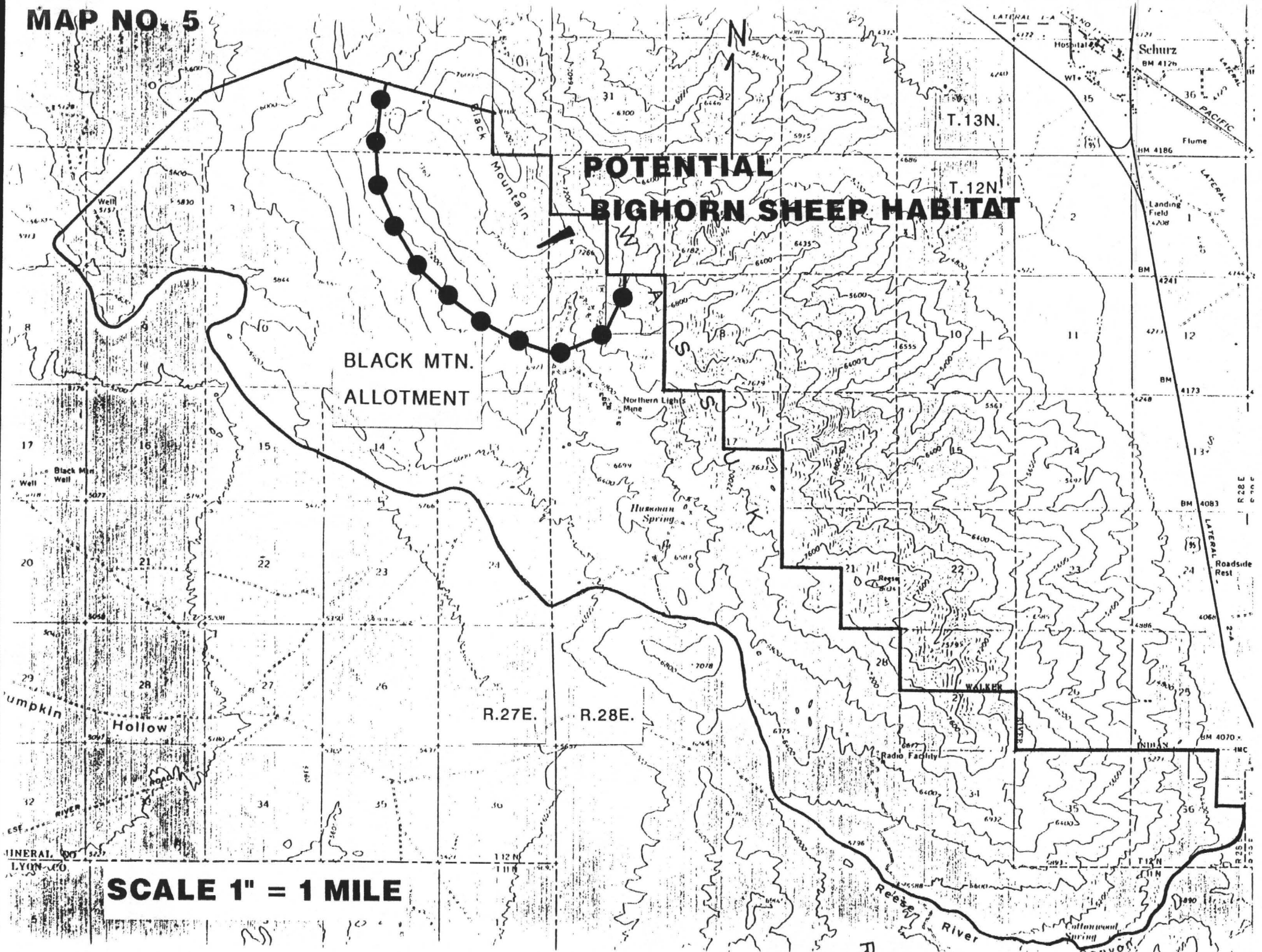


R.27E.

R.28E.



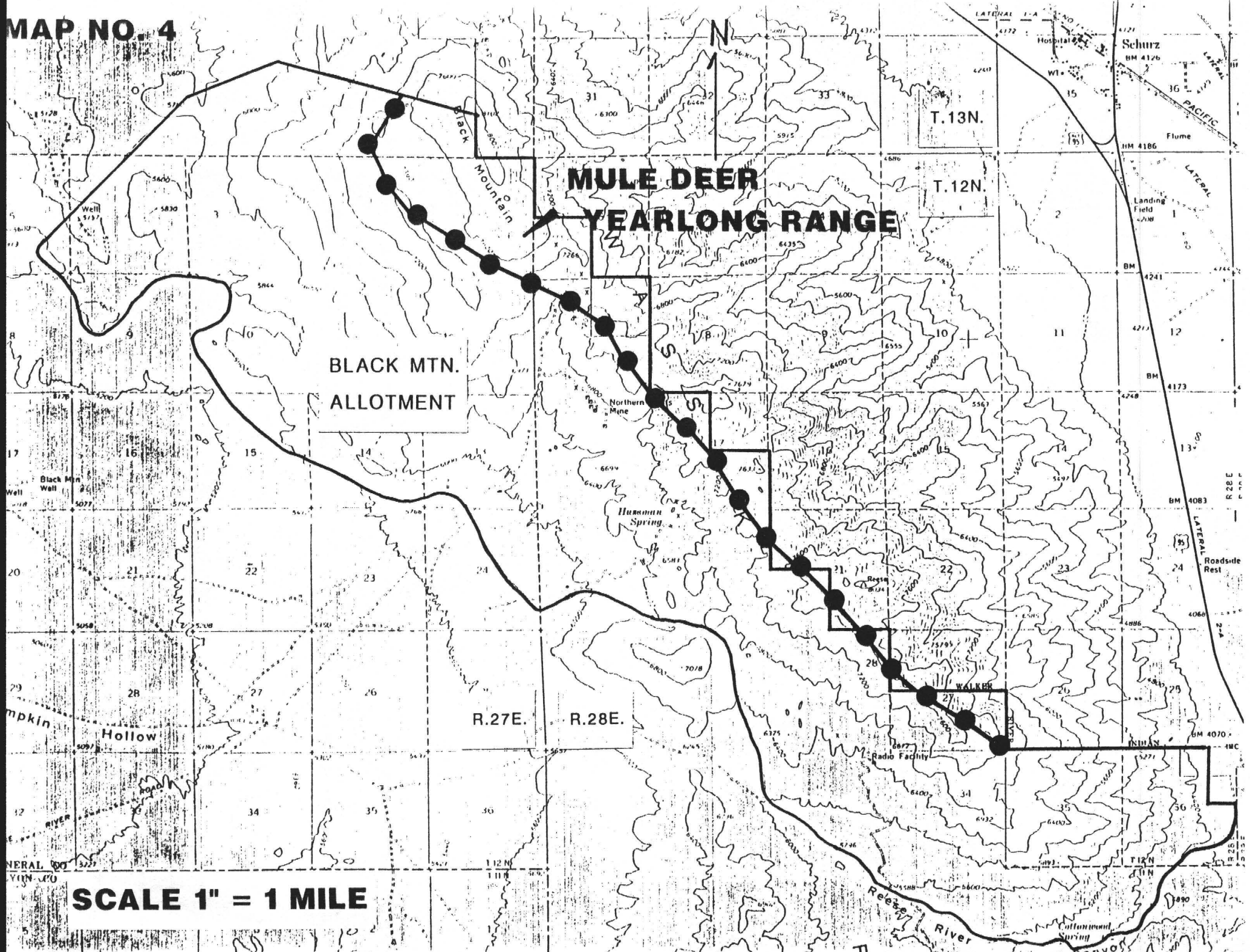
MAP NO. 5



**BLACK MTN.
ALLOTMENT**

**POTENTIAL
BIGHORN SHEEP HABITAT**

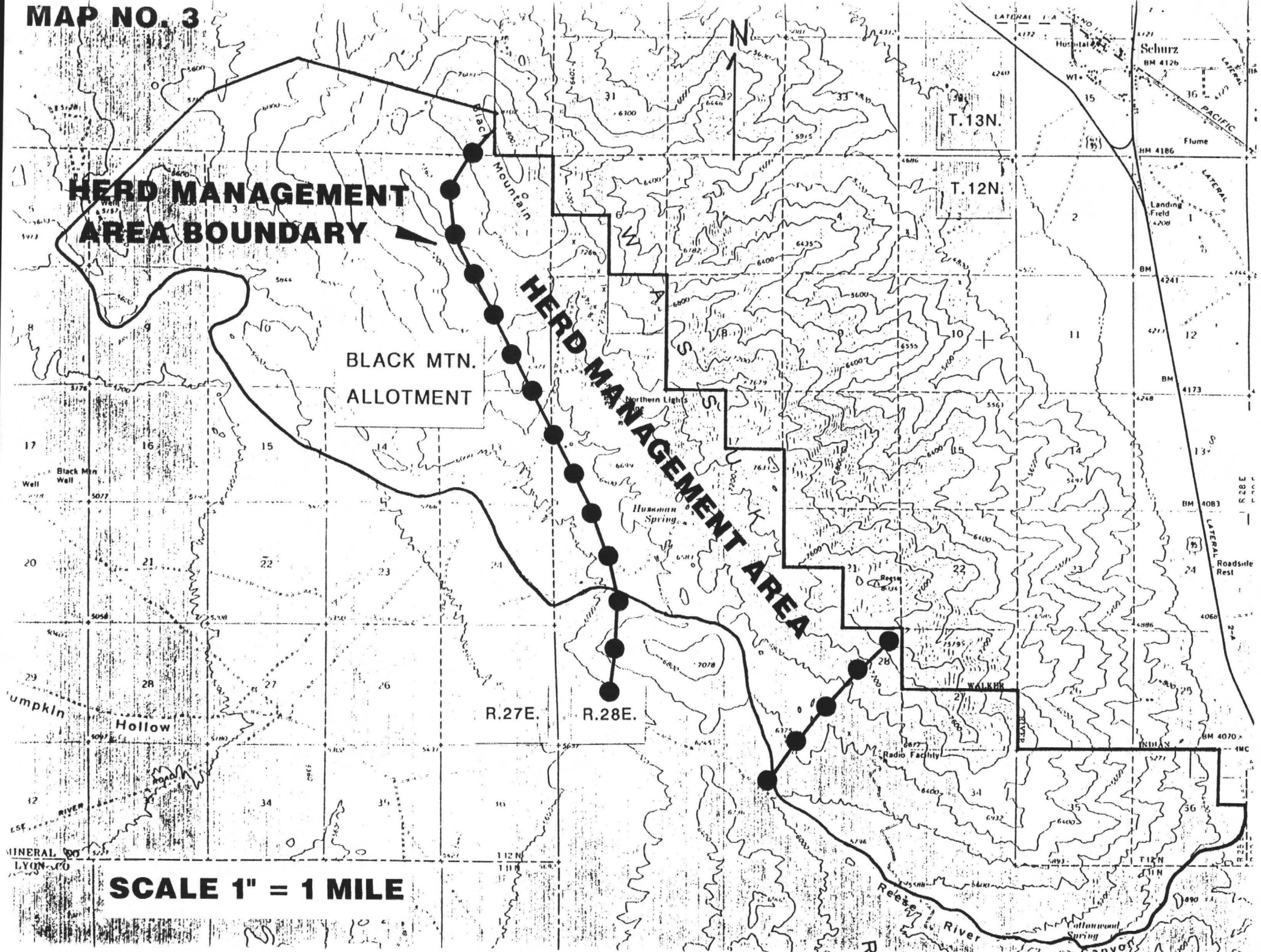
SCALE 1" = 1 MILE



MULE DEER YEARLONG RANGE

BLACK MTN. ALLOTMENT

SCALE 1" = 1 MILE



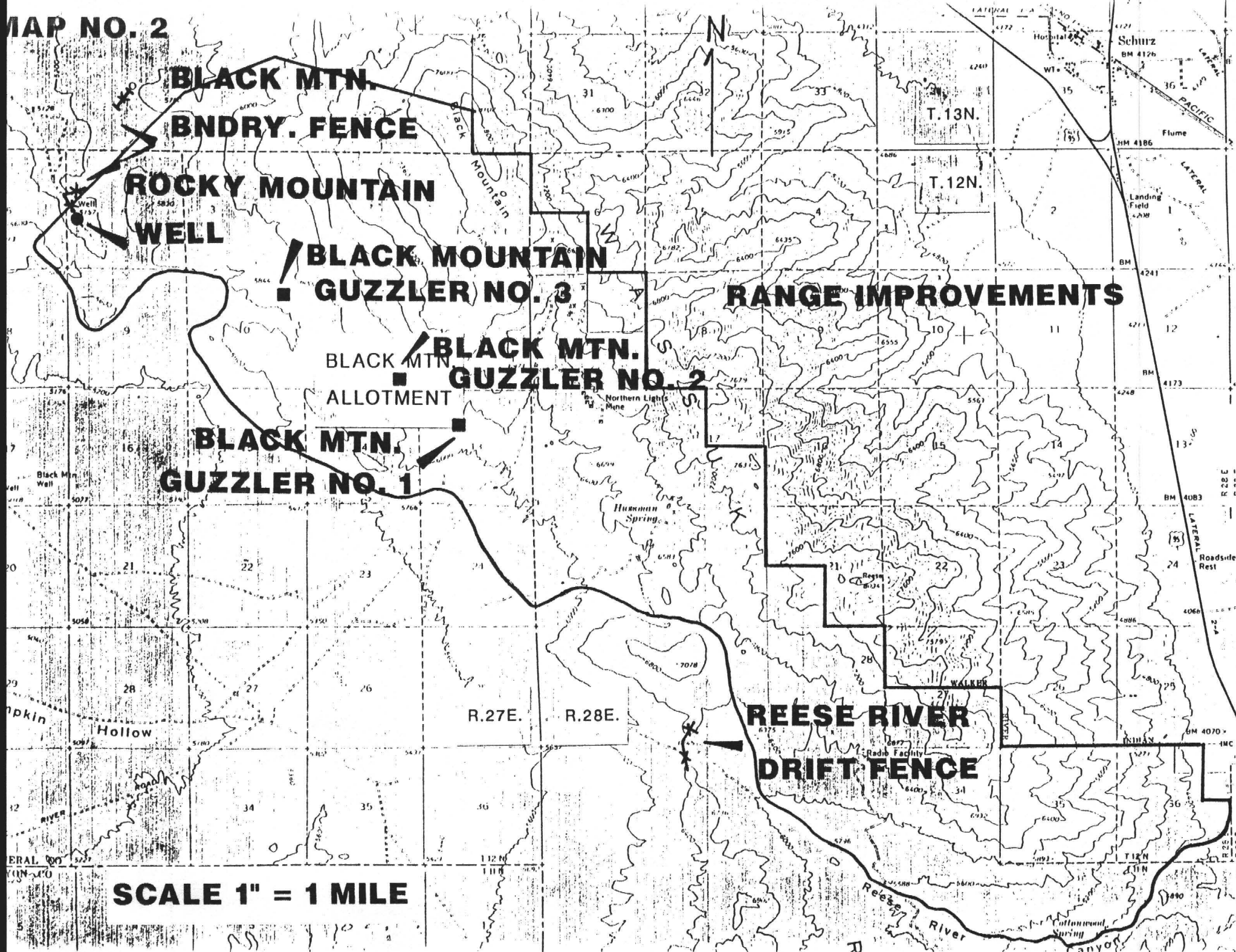
**HERD MANAGEMENT
AREA BOUNDARY**

**BLACK MTN.
ALLOTMENT**

HERD MANAGEMENT AREA

SCALE 1" = 1 MILE

MAP NO. 2



**BLACK MTN.
BNDRY. FENCE
ROCKY MOUNTAIN
WELL**

**BLACK MOUNTAIN
GUZZLER NO. 3**

RANGE IMPROVEMENTS

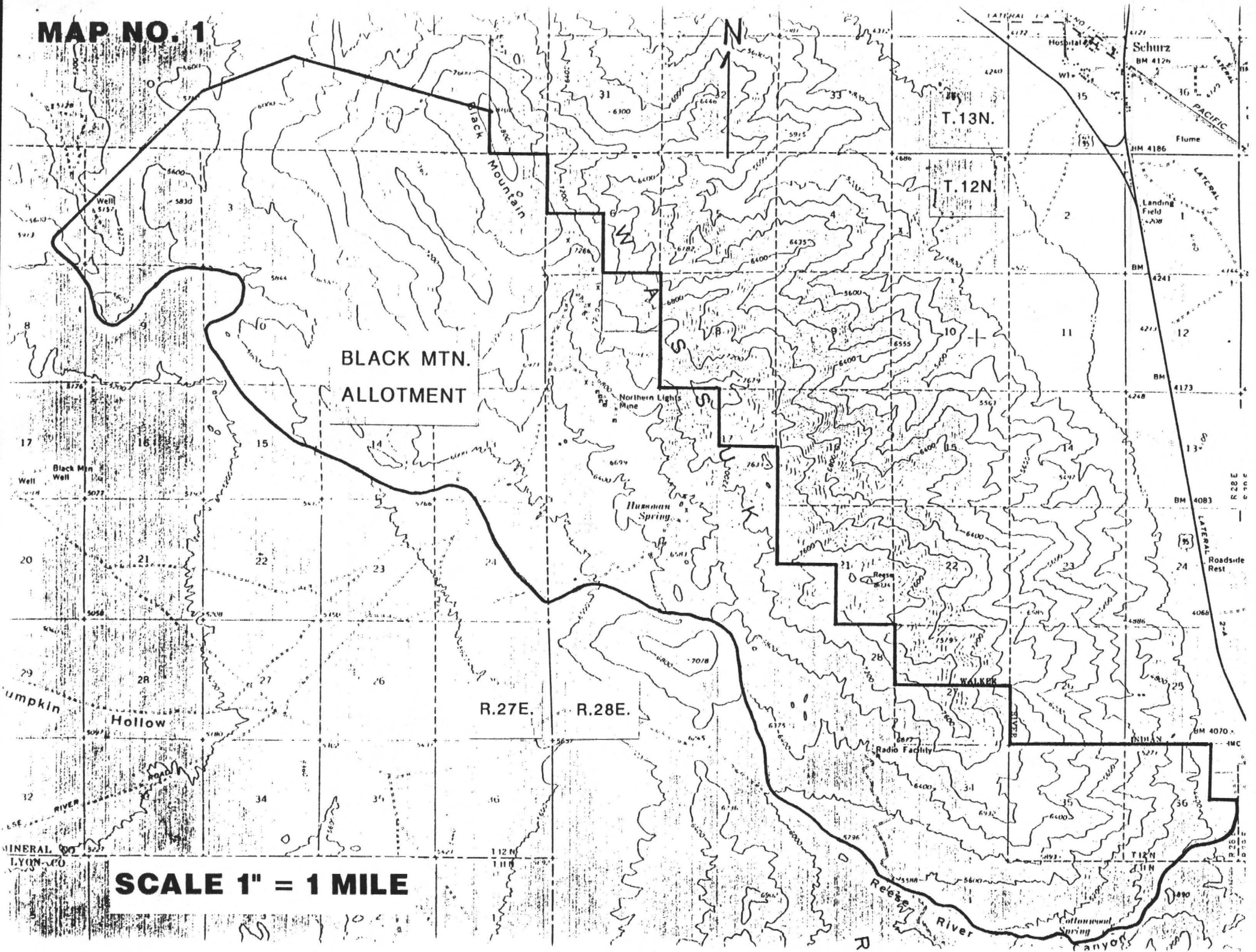
**BLACK MTN.
GUZZLER NO. 2**

**BLACK MOUNTAIN
GUZZLER NO. 1**

**REESE RIVER
DRIFT FENCE**

SCALE 1" = 1 MILE

MAP NO. 1



**BLACK MTN.
ALLOTMENT**

T.13N.

T.12N.

R.27E.

R.28E.

SCALE 1" = 1 MILE

APPENDIX I

MAP NO. 1	GENERAL ALLOTMENT MAP
MAP NO. 2	RANGE IMPROVEMENTS
MAP NO. 3	WILD HORSE HERD MANAGEMENT AREA
MAP NO. 4	MULE DEER YEARLONG RANGE
MAP NO. 5	POTENTIAL BIGHORN SHEEP HABITAT
MAP NO. 6	1995 USE PATTERN MAPPING
MAP NO. 7	1994 USE PATTERN MAPPING
MAP NO. 8	1984 USE PATTERN MAPPING
MAP NO. 9	PHOTO TREND PLOT LOCATIONS

APPENDIX I GLOSSARY OF TECHNICAL TERMS

Defined below are some of the technical terms and acronyms used in this evaluation. Words shown in italics are defined elsewhere in this appendix.

In describing plant communities, the Bureau currently uses concepts and terminology prescribed in BLM Manual Handbook H-4410-1, released on 7/12/84, which is BLM's revision to the National Range Handbook (NRH) released by the Soil Conservation Service (SCS)¹. Citations of Bureau regulations are from Title 43, Code of Federal Regulations (CFR). "IBLA" citations refer to decisions of the Interior Board of Land Appeals. Other citations can be referenced to the Bibliography on page 27.

AML - *Appropriate Management Level*

AMP - *Allotment Management Plan*

Activity plan - "a plan for managing a resource use or value to achieve specific objectives. For example, an *allotment management plan* is an activity plan for managing livestock grazing use to improve or maintain rangeland conditions." [43 CFR §4100.0-5]

Allotment Management Plan (AMP) - "a documented program developed as an activity plan ... that focuses on, and contains the necessary instructions for the management of livestock grazing on specified public lands to meet resource condition, sustained yield, multiple use, economic and other objectives." [43 CFR §4100.0-5]

Animal Unit Month (AUM) - "the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month." [43 CFR §4100.0-5]

Appropriate Management Level (AML) - The number of wild horses and burros that "results in a thriving natural ecological balance and avoids a deterioration of the range." [109 IBLA at 119]

AUM - *Animal Unit Month*.

Biological Diversity (Biodiversity) - "The variety and variability among living organisms and the processes that support them." [BLM (1991), page 33]

Candidate species - Two definitions:

1. From February 27, 1996 Fish And Wildlife Service News Release - Candidate species are those plant and animal species for which the Fish & Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act.

¹SCS is now the Natural Resource Conservation Service (NRCS). The organization was called the Soil Conservation Service when most of the publications used in this evaluation were published.

2. Borrowed for old candidate definition (Official definition does not exist) - BLM Sensitive Species are those plant and animal species on which existing information indicates that listing may be warranted, but which substantial biological information to support federal listing is lacking.

Ecological Site - Synonymous to the obsolete term "range site", which is defined as: "a distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. A range site is the product of all the environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differs from that of other range sites in the kind or proportion of species or in total production." [NRH §302.1; changed to "ecological site" as per H-4410-1, §210]

Ecological Status - Synonymous to the obsolete term "range condition" [H-4410-1 §211]. The best definition is from SRM (1983): "ecological status is use-independent and is defined as the present state of vegetation and soil protection of an ecological site in relation to the *potential natural community* (PNC) for the site." Ecological status is now described in terms of the percentage of the plants represented in the PNC and are group into four classes:

Table I-1, Ecological Status Classes.

Percent of Plant Community with species represented in the Potential Natural Community (PNC)	Ecological Status Class	Obsolete "Range Condition" Class
0 - 25%	Early seral	Poor
26 - 50%	Mid seral	Fair
51 - 75%	Late succession or late seral	Good
76 - 100%	PNC	Excellent

The class names were changed to *seral stages* since the older terminology ("poor", "fair", etc.) implied value judgements. "Ecological vegetation ratings do not have any reference to values produced or to management goals." [SRM (1983), page 6]

Forb - a herb, other than a grass. A herb is a seed-producing annual, biennial or perennial that does not form woody tissue.

Frequency - When used as a statistical value describing a plant community, frequency is "a quantitative expression of the presence or absence of individual species in a population. It is expressed as the percentage of occurrence of a species in a series of samples of uniform size." [TR 4400-1, page 20] Although there are several methodologies available for sampling frequency, the Nevada Rangeland Monitoring Handbook prescribes that the "quadrat frequency method" is the preferred methodology for measuring *trend* on public lands in Nevada.

Half-shrub - a small shrub. Since it forms woody tissue, it is not considered a *forb*.

Herd Area - "the geographic area identified as having been used by a herd [of wild horses or burros] as its habitat in 1971." [43 CFR §4700.0-5 (d)].

Herd Management Area (HMA) - Areas "...established for the maintenance of wild horse and burro herds." [43 CFR 4710.3-1].

Herd Management Area Plan (HMAP) - an *activity plan* for managing wild horses within a *Herd Management Area*.

HMA - *Herd Management Area*

HMAP - *Herd Management Area Plan*

Key area - "a relatively small portion of a rangeland selected because of its location, use, or grazing value as an area on which to monitor the effects of grazing use. It is assumed that key areas, if properly selected, will reflect the effects of current grazing management over all or a part of a pasture, allotment, or other grazing unit." [TR 4400-1, page 21]

Key species - "(1) those species which must, because of their importance, be considered in a management program; or (2) forage species whose use serves as an indicator to the degree of use of associated species." [TR 4400-1, page 21]

Land Resource Region - refer to *Major Land Resource Area (MLRA)*

Major Land Resource Area (MLRA) - "are geographically associated land resource units. Identification of these large areas is important in statewide agricultural planning and has value in interstate, regional, and national planning." [SCS (1981), page 1] MLRAs are designated by an arabic number (occasionally followed with a capital letter) and identified by a descriptive geographic name. They are grouped into "land resource regions", which are designated by capital letters and identified by a descriptive name. Land resource regions and MLRAs for the United States are identified in SCS (1981). The Walker Resource is in the Region D (Western Range and Irrigated Region) and contains the following MLRAs:

- 026 - Carson Basin and Mountains
- 027 - Fallon - Lovelock Area
- 028B - Central Nevada Basin and Range
- 029 - Southern Nevada Basin and Range

MLRA - *Major Land Resource Area*

Orographic lifting - climatic changes associated with the increase in elevation due to the presence of mountains.

PFC - *Proper Functioning Condition*

Phenology - the relation between climate and biological activity. As used in this evaluation, phenology relates to the growth stages of plants.

Planning Unit (P.U.) - Obsolete subdivision of Resource Areas used during early planning activities. The Walker Resource Area contained three Planning Units at the time of the Walker RMP: Pine Nut - Markleeville P.U., Walker P.U., and the Mina P.U.

PNC - Potential Natural Community

Potential Actual Use - calculated value which is synonymous with *potential stocking level*.

Potential Natural Community (PNC) - "the biotic community (Potential natural plant community and wild animal community) that would become established if all successional changes were completed without the interferences by man under the present environmental conditions". [H-4410-1] Refer also to *ecological status*. This is a similar term to "climax" plant community.

Potential Stocking Level - "the level of use that could be achieved on a management unit, at the desired utilization figure, assuming utilization patterns could be completely uniform. Potential stocking levels are most useful when assessing the benefits of improved distribution and changes in numbers of livestock. Calculations of potential stocking levels are dependent on pasture average or pasture weighted average utilization figures. Utilization data from one specific location cannot be used unless the utilization figure represents the entire pasture." [4400-7, Appendix 2 (page 55)]

Priority period - The five-year time period immediately preceding the approval of the Taylor Grazing Act (June 28, 1934). Use by livestock during this period established the privileges that were attached to many base properties. Many of these privileges were eventually adjusted due to several factors including the determination of carrying capacities following range surveys (late 1950s to early 1960s in the Carson City District). Classification of base properties due to the historical use during the priority period was removed from the BLM regulations in the 1980s. This information is presented for historical interest only.

Proper Functioning Condition (PFC) - With the issuance of the Riparian - Wetland Initiative for the 1990's, BLM began to express the status of riparian and wetland habitats in terms of their function. This concept recognized that riparian may function at several plant successional stages other than the *potential natural community*. "Riparian-wetland areas are in proper functioning condition when adequate vegetation is present and the following criteria are met:

- they dissipate energy associated with high water flows, thereby reducing erosion and improving water quality;
- they filter sediment and nutrients and aid in floodplain development;
- they contribute to root mass development that stabilizes banks against erosion;
- they develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and
- they support greater biodiversity". [BLM (1991), page 12]

P.Z. - Precipitation zone, commonly used with the identification of *ecological sites*.

Quadrat frequency method - refer to *frequency*.

Range condition - refer to *ecological status*

Rangeland Program Summary (RPS) - document issued for the purpose of apprising the interested public of recent actions taken to achieve management objectives and implement rangeland management within a land use planning area.

Range site - refer to *ecological site*.

Resource Management Plan (RMP) - "A comprehensive land use plan that, in broad terms, identifies the management actions for a specific area. RMPs set allowable and restricted resource uses, supporting actions, needs for more detailed plans such as Activity Plans, and a general schedule for implementation, monitoring, and evaluation. The RMP process includes public involvement as a key component in its development and implementation." [BLM (1991), page 34]

Riparian Area - "an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence." [BLM (1991), page 37]

RMP - *Resource Management Plan*

RPS - *Rangeland Program Summary*

Seral Stages - If all the vegetation on an ecological site was killed, the first plants that will become established would probably be plant species very different from those that were there originally (probably annual grasses and forbs). This would be described as an "early seral" plant community. As different types of plants establish themselves on a site and replace these early seral plants, the *ecological site* would be going through a process referred to as plant succession. Seral stages are the stages of plant succession that lead to a *potential natural community* (refer also to *ecological status* for specific stages). "Late seral" plant species as used in this evaluation refer to the plant species found in late succession stage (late seral) and the *potential natural community*.

Technical Reference (TR) - Suggested technical procedures for accomplishing specific activities such as monitoring and the inventory of natural resources. Although technical references are published primarily for the use of BLM employees, they are considered public documents and are available for the use by all interested publics. Refer to the bibliography on pages 26 and 27 for a list of some of the TRs referenced in this evaluation.

TR - *Technical Reference*.

Trend - When used to describe a plant community, trend refers to (1) the direction of change in *ecological status* or resource values [TR 4400-1, page 23]; or (2) "the direction of change over time, either toward or away from desired management objectives" [43 CFR §4100.0-5]. Refer also to *frequency*.

**APPENDIX II
GRAY HILLS ALLOTMENT
ECOLOGICAL SITES BASED ON SOIL SURVEY**

Ecological sites described in this appendix were correlated from soils data published in the Lyon County and Mineral County Soil Surveys (issued in 1984 and 1991, respectively). The types of information presented in Table II-1 are described below. Note that some of the technical terms used below are defined in Appendix I of this evaluation.

Column Number	Description																																				
1	Ecological Site Number. This number can be used to reference a site to the Soil Conservation Service Site Descriptions for Major Land Resource Area (MLRA) numbers 26, 27, and 29. The information presented in columns 2 to 5 are derived from these descriptions.																																				
2	Ecological Site Name. "P.Z." means Precipitation Zone and is measured in inches.																																				
3	<p>Potential Dominant Plant Species. These are the major plant species found in the Potential Natural Community (PNC). Plant codes are identified below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Plant Code</th> <th style="text-align: center;">Scientific Name</th> <th style="text-align: center;">Common Name</th> <th style="text-align: center;">Plant Type</th> </tr> </thead> <tbody> <tr> <td>AGSM</td> <td><i>Agropyron smithii</i></td> <td>western wheatgrass</td> <td>native perennial grass</td> </tr> <tr> <td>ARAR8</td> <td><i>Artemisia arbuscula</i></td> <td>low sagebrush</td> <td>native shrub</td> </tr> <tr> <td>ARARN</td> <td><i>Artemisia arbuscula nova</i></td> <td>black sagebrush</td> <td>native shrub</td> </tr> <tr> <td>ARTEM</td> <td><i>Artemisia sp</i></td> <td>sagebrush</td> <td>native shrubs</td> </tr> <tr> <td>ARTR2</td> <td><i>Artemisia tridentata</i></td> <td>big sagebrush</td> <td>native shrub</td> </tr> <tr> <td>ARTRT</td> <td><i>Artemisia tridentata tridentata</i></td> <td>basin big sagebrush</td> <td>native shrub</td> </tr> <tr> <td>ARTRW</td> <td><i>Artemisia tridentata wyomingensis</i></td> <td>wyoming big sagebrush</td> <td>native shrub</td> </tr> <tr> <td>ARVA2</td> <td><i>Artemisia vaseyana</i></td> <td>mountain big sagebrush</td> <td>native shrub</td> </tr> </tbody> </table>	Plant Code	Scientific Name	Common Name	Plant Type	AGSM	<i>Agropyron smithii</i>	western wheatgrass	native perennial grass	ARAR8	<i>Artemisia arbuscula</i>	low sagebrush	native shrub	ARARN	<i>Artemisia arbuscula nova</i>	black sagebrush	native shrub	ARTEM	<i>Artemisia sp</i>	sagebrush	native shrubs	ARTR2	<i>Artemisia tridentata</i>	big sagebrush	native shrub	ARTRT	<i>Artemisia tridentata tridentata</i>	basin big sagebrush	native shrub	ARTRW	<i>Artemisia tridentata wyomingensis</i>	wyoming big sagebrush	native shrub	ARVA2	<i>Artemisia vaseyana</i>	mountain big sagebrush	native shrub
Plant Code	Scientific Name	Common Name	Plant Type																																		
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ARAR8	<i>Artemisia arbuscula</i>	low sagebrush	native shrub																																		
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ARTEM	<i>Artemisia sp</i>	sagebrush	native shrubs																																		
ARTR2	<i>Artemisia tridentata</i>	big sagebrush	native shrub																																		
ARTRT	<i>Artemisia tridentata tridentata</i>	basin big sagebrush	native shrub																																		
ARTRW	<i>Artemisia tridentata wyomingensis</i>	wyoming big sagebrush	native shrub																																		
ARVA2	<i>Artemisia vaseyana</i>	mountain big sagebrush	native shrub																																		

Column Number	Description			
3 (cont.)	ATCA2	<i>Atriplex canescens</i>	fourwing saltbush	native shrub
	ATCO	<i>Atriplex confertifolia</i>	shadscale	native shrub
	CELE3	<i>Cercocarpus ledifolifolius</i>	littleleaf mountain mahogany	native shrub or tree
	CHNA2	<i>Chrysothamnus nauseosus</i>	rubber rabbitbrush	native shrub
	DISPS2	<i>Distichlis spicata stricta</i>	inland saltgrass	native perennial grass
	ELCI2	<i>Elymus cinereus</i>	basin wildrye	native perennial grass
	ELTR3	<i>Elymus triticoiles</i>	creeping wildrye	native perennial grass
	EPVI	<i>Ephedra viridis</i>	green teabrush	native shrub
	EULA5	<i>Erotia lanata</i>	winterfat / white sage	native half-shrub
	GRSP	<i>Grayia spinosa</i>	spiny hopsage	native shrub
	HIJA	<i>Hilaria jamesii</i>	galleta	native perennial grass
	HYMEN3	<i>Hymenoclea sp</i>	burrobrush	native shrub
	JUBA	<i>Juncus balticus</i>	baltic rush / common wiregrass	native perennial grass-like
	JUOS	<i>Juniperus osteosperma</i>	Utah juniper	native tree
	LEKI2	<i>Leucepea kingii</i>	spike fescue	native perennial grass
	LYAN	<i>Lycium andersonii</i>	Anderson wolfberry	native shrub
	MESP2	<i>Menodora spinescens</i>	spiny menodora	native shrub
	ORHY	<i>Oryzopsis hymenoides</i>	Indian ricegrass	native perennial grass
	PIMO	<i>Pinus monophylla</i>	singleleaf pinyon pine	native tree
	POFE	<i>Poa fendlerana</i>	muttongrass	native perennial grass
	PONE3	<i>Poa nevedensis</i>	Nevada bluegrass	native perennial grass
	POSE	<i>Poa aecunda</i>	Sandburg bluegrass	native perennial grass
	PUTR2	<i>Purshia tridentata</i>	antelope bitterbrush	native shrub

Column Number	Description			
3 (cont.)	SAVE4 SAVEB	<i>Sarcobatus vermiculatus</i> <i>Sarcobatus vermiculatus baileyi</i>	black greasewood Bailey greasewood	native shrub native shrub
	SIHY SPAI STCO4 STIPA	<i>Sitanion hystrix</i> <i>Sporobolus airoides</i> <i>Stipa comata</i> <i>Stipa</i> sp	bottlebrush squirreltail alkali sacaton needle-and-thread grass needlegrasses	native shrub native perennial grass native perennial grass native perennial grasses
	STLE4 STSP3 STTH2 TEGL	<i>Stipa lettermanii</i> <i>Stipa speciosa</i> <i>Stipa thurberana</i> <i>Tetradymia glabrata</i>	Letterman needlegrass desert needlegrass Thurber needlegrass littleleaf horsebrush	native perennial grass native perennial grass native perennial grass native shrub
4	Potential Yield, measured in pounds per acre. This is the amount of live matter that will be produced during a growing season. The three figures are for favorable, normal and unfavorable years.			
5	Elevation Range, measured in feet. Elevation range the specific ecological site may be found.			
6	Public Land Acres. Acres of public land covered by a specific ecological site.			
7	Percent of Allotment. Percentage of the allotment covered by the specific ecological site.			

Table II-1, Ecological Sites in the Gray Hills Allotment. Refer to the previous page in this appendix for an explanation of the data presented below.

1	2	3	4	5	6	7
Ecological Site Number	Ecological Site Name	Potential Dominant Vegetation	Potential Yield (Lbs / Acre) Fav.-Nor.-Unf.	Elevation Range (feet)	Public Land Acres	Percent of Allotment
027X015NV	Stony Loam 4-8" P.Z.	SAVEB-ATCO/ORHY	500-350-200	4200 - 5500	23,518	23.92%
027X018NV	Gravelly Loam 4-8" P.Z.	ATCO-SAVEB/ORHY	300-175-50	3400 - 5000	19,577	19.91%
027X019NV	Stony Slope 4-8" P.Z.	ATCO-SAVEB/ORHY	300-175-50	3400 - 5000	11,216	11.41%
027X017NV	South Slope 4-8" P.Z.	ATCO/STSP3	400-200-100	4500 - 5500	6,950	7.07%
026X011NV	South Slopes 8-12" P.Z.	ARTRW-EPVI-SADOC2/STSP3	800-600-400	6000 - 7200	4,126	4.20%
ROCK	Rock Outcrop	Barren	N/A	All Elevations	4,119	4.19%
027X049NV	Cobbly Claypan 8-10" P.Z.	ARAR8/STTH2	500-350-250	6000 - 7500	4,001	4.07%
026X060NV	Pinyon Woodland	PIMO/ARTRW/STTH2	500-300-200	6000 - 8000	3,500	3.56%
027X009NV	Sandy 5-8" P.Z.	ATCA2/ORHY	700-450-250	3500 - 4500	2,596	2.64%
026X061NV	Pinyon Woodland	PIMO/ARTRW/STSP3	300-200-100	6000 - 7500	1,935	1.97%
026X025NV	Claypan 8-10" P.Z.	ARAR8/STTH2-POSE	400-300-200	5000 - 6000	1,843	1.87%
029X017NV	Loamy 5-8" P.Z.	HIJA, ATCO, SAVEB, ARSP5	350-250-100	4400-6500	1,732	1.76%

Ecological Site Number	Ecological Site Name	Potential Dominant Vegetation	Potential Yield (Lbs / Acre) Fav.-Nor.-Unf.	Elevation Range (feet)	Public Land Acres	Percent of Allotment
027X020NV	Shallow Claypan 8-10" P.Z.	ARTEM/STSP3	450-300-150	4500 - 6000	1,651	1.68%
027X047NV	Eroded Granitic Slope 4-8" P.Z.	EPNE-GRSP-LYAN-TEGL/STSP3	500-350-200	4000 - 5500	1600	1.63%
027X065NV	Granitic Slope 8-10" P.Z.	ARTRW/STSP3	600-500-300	5000 - 7000	1,381	1.40%
029X022NV	Sodic Hill 5-8" P.Z.	ATCO, HIJA, SVAEB, ORHY	300-200-100	4400-6500	1,176	1.20%
027X027NV	Barren Gravelly Slope 4-8" P.Z.	ATCO/ORHY	200-100-50	4000 - 5500	1,046	1.06%
027X007NV	Loamy Slope 8-10" P.Z.	ARTRW/STTH2	700-500-300	5000 - 6500	953	0.97%
029X041NV	Wash 3-5" P.Z.	CHNA2, ATCA2, HYMEN3, ORHY	500-300-100	3000 - 5200	942	0.96%
026X022NV	Stony Slope 8-10" P.Z.	ARTRW/STSP3	600-450-300	4500 - 5500	641	0.65%
026X038NV	Loamy Slope 14"+ P.Z.	ARVA2/STOC2	1600-1100-700	8000 - 9500	563	0.57%
029X081NV	Shallow Calcareous Hill	JUOS/ARARN/ORHY	500-350-200	6000 - 7500	330	0.34%
027X023NV	Dunes 4-8" P.Z.	TECO2-ATCA2/ORHY	700-500-300	3400 - 5000	328	0.33%
027X022NV	Valley Wash	No Stable Plant Community	400-200-50	3400 - 5000	316	0.32%
RUBBLE	Rubble Land	Barren	N/A	All Elevations	257	0.26%
029X062NV	Claypan 8-12" P.Z.	ARAR8/STSP3-ORHY	500-300-150	6000 - 7500	234	0.24%
026X028NV	Mountain Ridge	ARAR8/STLE4	300-150-75	8500-11000	232	0.24%

Ecological Site Number	Ecological Site Name	Potential Dominant Vegetation	Potential Yield (Lbs / Acre) Fav.-Nor.-Unf.	Elevation Range (feet)	Public Land Acres	Percent of Allotment
029X049NV	Sandy Loam 8-12" P.Z.	ARTRW/ORHY-STSP3	1100-800-500	5200 - 7500	230	0.23%
026X016NV	Loamy 8-10" P.Z.	ARTRW/STSP3	800-600-400	4400 - 5800	210	0.21%
029X069NV	Pinyon-Juniper Woodland	PIMO-JUOS/ARARN/POFE	400-300-150	5800 - 8200	115	0.12%
026X009NV	Mahogany Savanna	CELE3/ARVA2/STIPA-LEK12	1700-1300-900		108	0.11%
026X024NV	Droughty Loam 8-10" P.Z.	ARTRW-GRSP/ORHY-STSP3	400-300-200		104	0.11%
029X032NV	Sodic Loam 3-5" P.Z	ATCO/ORHY	200-125-75	3000 - 5500	102	0.10%
027X014NV	Coarse Silty 4-8" P.Z.	EULA5/ORHY	700-500-350	4000 - 5000	102	0.10%
027X029NV	Gravelly Fan 8-10" P.Z.	ARTR2-GRSP/ORHY-ELCI2	800-500-300	4500 - 6000	78	0.08%
027X008NV	Droughty Loam 8-10" P.Z.	ARTRW-GRSP/ORHY	700-500-300	3500 - 4500	60	0.06%
026X002NV	Wet Sodic Bottom	DISP2	2000-1700-1200	4000 - 5600	59	0.06%
026X064NV	Pinyon - Juniper Woodland	PIMO-JUOS/ARAR8-PUTR2/STTH2	350-250-100	6200 - 8000	54	0.05%
027X002NV	Moist Floodplain	SALIX/ELTR3-AGSM-ELCI2	3000-2500-1800	3500 - 5500	52	0.05%
027X024NV	Sodic Terrace	ATCO-SAVE4/ORHY	500-350-150	3300 - 4500	46	0.05%
026X062NV	Pinyon - Juniper Woodland	PIMO-JUOS/ARTRW/STTH2	300-200-100	4800 - 6500	40	0.04%
026X034NV	Wash 8-12" P.Z.	ATRT-PUTR2/ELCI2	1000-800-600	5000 - 5600	35	0.04%

Ecological Site Number	Ecological Site Name	Potential Dominant Vegetation	Potential Yield (Lbs / Acre) Fav.-Nor.-Unf.	Elevation Range (feet)	Public Land Acres	Percent of Allotment
029X033NV	Sodic Hill 3-5" P.Z.	ATCO/ORHY	100-50-25	3000 - 5500	29	0.03%
026X029NV	Eroded Slope 8-12" P.Z.	ARTRW/STIPA-ORHY-SIHY	200-150-100	5000 - 6000	23	0.02%
029X014NV	Shallow Calcareous Slope 8-12" P.Z.	ARARN/ORHY-STCO4	350-200-100	4400 - 6500	20	0.02%
026X004NV	Saline Bottom	SAVE4/ELCI2	2000-1500-1000	4000 - 5000	18	0.02%
026X011NV	South Slope 8-12" P.Z.	ARTRW-EPVI-SADOC2/stsp3	800-600-400	6000 - 7200	12	0.01%
DUNES	Sand Dunes	Barren	N/A	3500 - 5500	12	0.01%
027X006NV	Saline Bottom	SAVE4/ELCI2	2000-1500-800	3500 - 5500	10	0.01%
029X036NV	Cobbly Loam 5-8" P.Z.	MESP2/ORHY	400-300-100	4400-6500	8	0.01%
029X042NV	Coarse Silty 5-8" P.Z.	EULA5/ORHY	700-500-350	3000-5200	8	0.01%
027X005NV	Saline Meadow	SPAI-DISPS2-JUBA	3000-2200-1000	3500 - 5000	4	< 0.01%

**APPENDIX III
GRAY HILLS ALLOTMENT
COMMON WILDLIFE SPECIES**

Type Of Animal	Common Name	Scientific Name
Mammals	antelope ground squirrel	<i>Ammospermophilus leucurus</i>
	blacktailed jackrabbit	<i>Lepus californicus</i>
	bobcat	<i>Lynx rufus</i>
	cottontail rabbit	<i>Sylvilagus nuttalli</i>
	coyote	<i>Canis latrans</i>
	deer mouse	<i>Peromyscus maniculatus</i>
	gray fox	<i>Urocyon cinereoargenteus</i>
	kangaroo rat	<i>Dipodomys ordi</i>
	least chipmunk	<i>Eutamias minimus</i>
	mountain lion	<i>Felis concolor</i>
	mule deer	<i>Odocoileus hemionus</i>
	raccoon	<i>Procyon lotor</i>
	spotted skunk	<i>Spilogale putorius</i>
	striped skunk	<i>Mephitis mephitis</i>
	wood rat	<i>Neotoma cinerea</i>
Birds	*American avocet	<i>Recurvirostra americana</i>
	*American coot	<i>Fulica americana</i>
	American kestrel	<i>Falco sparverius</i>
	American robin	<i>Turdus migratorius</i>
	ash-throated flycatcher	<i>Myiarchus cinerascens</i>
	Audubon's warbler	
	*barn owl	<i>Tyto alba</i>
	*belted kingfisher	<i>Megaceryle alcyon</i>
	black-billed magpie	<i>Pica pica</i>
	black chinned hummingbird	<i>Archilochus alexandri</i>
	*black crowned night heron	<i>Nycticorax nycticorax</i>
	black throated sparrow	
	brown-headed cowbird	<i>Molothrus ater</i>
	California quail	<i>Lophortyx californicus</i>
	*Canada goose	<i>Branta canadensis</i>
	chukar	<i>Alectoris chukar</i>
	*cinnamon teal	<i>Anas cyanoptera</i>
	cliff swallow	<i>Petrochelidon pyrrhonota</i>
	*common egret	<i>Casmeroides albus</i>
	common flicker	<i>Colaptes auratus</i>
	*common merganser	<i>Mergus merganser</i>
	common nighthawk	<i>Chardeiles minor</i>
*common snipe	<i>Capella gallinago</i>	
evening grosbeak	<i>Hesperiphona vespertina</i>	

Type of Animal**Common Name****Scientific Name**

Birds (cont.)

*gadwall	<i>Anas strepera</i>
golden eagle	<i>Aquila chrysaetos</i>
*greenwing teal	<i>Anas crecca</i>
great horned owl	<i>Bubo virginianus</i>
*great blue heron	<i>Ardea herodias</i>
hairy woodpecker	<i>Picoides villosus</i>
hermit thrush	<i>Catharus guttatus</i>
horned lark	<i>Eremophila alpestris</i>
killdeer	<i>Charadrius vociferus</i>
loggerhead shrike	<i>Lanius ludovicianus</i>
*mallard	<i>Anas platyrhynchos</i>
morning dove	<i>Zenaida macroura</i>
mountain bluebird	<i>Sialia currucoides</i>
northern junco	<i>Junco hyemalis</i>
northern raven	<i>Corvus corax</i>
pigeon (rock dove)	<i>Columba livia</i>
pinyon jay	<i>Gymnorhinus cyanocephalus</i>
poorwill	<i>Phalaenoptilus nuttallii</i>
prairie falcon	<i>Falco mexicanus</i>
red-tailed hawk	<i>Buteo jamaicensis</i>
red-winged blackbird	<i>Agelaius phoeniceus</i>
rock wren	<i>Salpinctes obsoletus</i>
rough-legged hawk	<i>Buteo lagopus</i>
rufous hummingbird	<i>Selasphorus rufus</i>
rufous-sided towhee	<i>Pipilo erythrophthalmus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
*violet-green swallow	<i>Tachycineta thalassina</i>
western bluebird	<i>Sialia mexicana</i>
western kingbird	<i>Tyrannus verticalis</i>
Wilson's warbler	<i>Wilsonia pusilla</i>

Amphibians & Reptiles

*bullfrog	<i>Rana catesbeiana</i>
desert horned lizard	<i>Phrynosoma platyrhinos</i>
gopher snake	<i>Pituophis melanoleucus</i>
Great Basin spade-footed toad	<i>Scaphiopus intermontanus</i>
*leopard frog	<i>Rana pipiens</i>
leopard lizard	<i>Crotaphytus wislizeni</i>
side-blotched lizard	<i>Uta stansburiana</i>
western fence lizard	<i>Sceloporus occidentalis</i>
western rattlesnake	<i>Crotalus viridis</i>
yellow-bellied racer	<i>Coluber constrictor</i>

* These species are generally found exclusively near the Walker River, which is predominately private land.

**APPENDIX IV
GRAY HILLS ALLOTMENT
RANGE IMPROVEMENT PROJECT**

Shown below are the range improvement projects for Gray Hills Allotment (refer to Map No. 2). All legal locations are Mount Diablo Base and Meridian: townships north of the baseline and ranges east of the meridian.

<u>Project Number</u>	<u>Project Name</u>	<u>Location</u>			<u>Maintenance Responsibility</u>
		<u>Township</u>	<u>Range</u>	<u>Section(s)</u>	
540097	Pinegrove Drift Fence & Cattleguard	10	26	2, 8, 9, 10	Permittee (fence) Lyon Co. (cttlg.)
540300	Black Mountain - Deadman Drift Fence (a.k.a., Fourmile Fence)	11	26	1,2,3,4	2 Permittees ¹
		11	27	36	
		12	27	14,22,27,29,31,32	
540338	Gray Hills Fence and Cattleguard	11	27	19,29,32,33,34,35,36	Permittee
		11	28	18,31,32	
544032	Chain Hills Fence	9	27	24,25	2 Permittees
		9	28	6,7,18	
		10	28	6,7,18,19,30,31	
		11	28	31	
544034 ²	Pinegrove Spring Pipeline	10	26	22,23,27,28,32,33	Permittee
544044	Butler Mountain Fence	10	27	25,26,27,28	Permittee
544130 ³	Pinegrove Pipeline Extension & Lateral	10	26	15,16,22,23,27	Permittee
544131	Summit Springs Pipeline Extension	11	26	11,12	Permittee
544142	Intertie Well	10	27	10	Permittee
544174	Reese River Fence	12	28	29,32	2 Permittees
544278	South Cambridge Hills Fence	9	27	6,7,8,17,20,21	Permittee
		10	27	31	

¹Projects that run across more than one allotment or that are on the boundary between allotments will have split maintenance between all the permittees within those allotments.

²A portion of this project was originally constructed on U. S. Forest Service (USFS). After the USFS/BLM Interchange in 1989, the remainder of the project was transferred to USFS; however, this project feeds the extension and lateral (No. 544130) which is partially on BLM.

³The majority of this project was transferred during the USFS/BLM Interchange in 1989. A small portion of the pipeline and a trough in Section 23 remain on BLM.

<u>Project Number</u>	<u>Project Name</u>	<u>Township</u>	<u>Range</u>	<u>Section(s)</u>	<u>Maintenance Responsibility</u>
544314 ⁴	Webster Springs Pipeline	9 10	26 26	2,3,10 14,15,22,26,35	Permittee
544457	Gray Hills Fence & Cattleguard	11 11	26 27	13,23,24 18,19	Permittee
545062	Pike Peak Fence (includes Pear Tree Fence)	9	27	22,25,26,27	2 Permittees
545097	Tank Springs Pipeline No. 1	10 10 11	27 28 28	1,11,14 6 31,32,33	2 Permittees
545099	Buckbrush Spring Pipeline	11 11 12	27 28 27	1,2,12 7 35	Permittee
545100	Twilight Spring Pipeline & Extension	11 11	27 28	26,27,28,35,36	Permittee
545101	Summit Springs Pipeline	11 11	27 28	3,4,5,7,8,11,13,14 18	Permittee
545189	Webster Summit Fence & Cattleguards	10 10	26 27	35,36 31,32	Permittee
546057	Summit Springs Protection Fence	11	28	18	BLM
546074	Gray Hills Corral	11	27	2	Permittee

⁴The majority of this project was transferred to USFS. A small portion of the pipeline in Sections 14 & 15 remain on BLM

APPENDIX V
POTENTIAL STOCKING LEVEL IN HERD MANAGEMENT AREA

Shown below are the series of calculations used to derive the potential stocking level for wild horses within the Wassuk Herd Management Area (HMA). Stocking levels are determined using the Potential Actual Use formula from BLM Technical Reference (TR) 4400-7, *Rangeland Monitoring Analysis, Interpretation, and Evaluation* (November, 1985), Appendix 2, pages 54 - 56:

$$\frac{\text{Actual Use (AUMs)}}{\text{Average Utilization (\%)}} = \frac{\text{Potential Actual Use (AUMs)}}{\text{Desired Average Utilization (\%)}}$$

The formula compares the percent *Average Utilization* to the *Actual Use* of the grazing animal(s) that resulted in that utilization. Based on this comparison, the *Potential Actual Use* necessary to achieve the *Desired Average Utilization* can algebraically be determined (Section D).

- A. Use Pattern Mapping Data. In 1995, a detailed use pattern mapping was completed throughout the entire HMA in preparation for the allotment evaluations. Since this is the most concise and complete recording of the HMA, it was used in the stocking level calculations. The "no use" category are areas that showed no appreciable use in 1995, but, based on previous use pattern mappings, showed that these areas are periodically used by wild horses. All use below was from wild horses: the plants grazed by sheep had regrown by the time of the use mapping in April, 1995.

Utilization Class	Utilization Mid-point	Black Mountain Allotment		Butler Mountain Allotment		Gray Hills Allotment		Total Acres	ACREAGE OUTSIDE HMA USED BY WILD HORSES	
		Acres by Class	Weighted Acres	Acres by Class	Weighted Acres	Acres by Class	Weighted Acres	Recorded in HMA	Acres by Class	Weighted Acres
No Use	2.5%	4,028	100	4,131	103	7,248	181	15,407	0	0
Slight	12.5%	121	15	11,934	1,492	2,605	326	14,660	9,687	1211
Light	30%	551	165	494	148	1,911	573	2,956	1,357	407
Moderate	50%	0	0	0	0	6,636	3,318	6,636	1,973	987
Heavy	70%	0	0	41	29	0	0	41	348	243
Severe	90%	0	0	0	0	0	0	0	0	0
TOTALS		4,700	281	16,600	1,772	18,400	4,398	39,700	13,365	2,848

- B. Wild Horse Actual Use. 141 head of wild horses were counted in the Wassuk Range in 1995. Based on yearlong grazing, wild horse actual use for the HMA is calculated as follows:

$$141 \text{ wild horses} \times 12 \text{ months} = 1,692 \text{ AUMs}$$

- C. Desired Utilization in HMA. Since these calculations are based on yearlong use of the allotments (i.e., during critical growth periods of plant species) it is appropriate to use the suggested use levels for perennial grasses (55%) shown in the *Nevada Rangeland Monitoring Handbook* (September, 1984), page 23. An equal division of forage between wild horses and livestock will result in the 27.5% Desired Utilization for wild horses.
- D. Potential Actual Use (AUMs) Calculation for Wassuk HMA. The potential actual use (i.e., potential stocking level) is calculated in the table shown below. These calculations are based on the formula shown at the beginning of this appendix. Since use levels varied by allotment, weighted acres are used to prorate the actual use by allotment. The actual use calculated in B, above, includes use by wild horses outside the HMA. Therefore, weighted acres grazed by wild horses outside the HMA are also used in the actual use proration.

The Average Utilization figure shown in the table below is based on the following formula from TR 4400-7, Appendix 1, page 52 and 53 (data from A, above):

$$\text{Average Utilization} = \frac{\sum (\text{Acres Per Utilization Class} \times \text{Class Midpoint})}{\sum \text{Acres}}$$

Allotment	Total Acres Recorded in HMA	Total Weighted Acres	Weighted Percent of HMA	Prorated Actual Use (AUMs)	Average Utilization	Desired Utilization	Potential Stocking Level
Black Mountain	4,700	281	3.0%	51	6.0%	27.5%	234
Butler Mountain	16,600	1,772	19.1%	322	10.7%	27.5%	830
Gray Hills	18,400	4,398	47.3%	800	23.9%	27.5%	920
Outside HMA		2,848	30.6%	518			
POTENTIAL STOCKING LEVEL FOR WILD HORSES IN THE WASSUK HMA						=	1,984 AUMs

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

**Carson City District Office
1535 Hot Springs Road, Suite 300
Carson City, Nevada 89706-0638**

**BLACK MOUNTAIN
ALLOTMENT EVALUATION**

March 12, 1997



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APPENDIX I MAPS

APPENDIX II WILD HORSE POTENTIAL STOCKING LEVEL CALCULATIONS

APPENDIX III SOILS AND RANGE SITES INFORMATION

I. INTRODUCTION

In June, 1992, the Bureau of Land Management issued its *Strategic Plan for Management of Wild Horses and Burros on Public Lands*. One of the objectives is to establish initial Appropriate Management Levels (AMLs) for all herd areas. In order to establish an AML for wild horses in the Wassuk Herd Management Area (HMA), it is necessary to evaluate resource management within all the allotments included within the HMA. One of these is Black Mountain (03507).

Specifically, the purpose of the allotment evaluation is to determine if current grazing practices are consistent with attainment of Land Use Plan (LUP) and allotment specific objectives. If current grazing practices are not consistent with attainment of these objectives, appropriate changes in management will be identified and implemented. The allotment is classified as category "C¹". It was placed in this category because a majority of the acreage has low ecological site potential and the conflicts were minimal. The evaluation period is from 1983 to 1995. Roberts Sheep Company is the permittee of record in this allotment. In order to avoid confusion, note the following changes that have occurred over the past year.

95
83
12

Prior to 1996, the Carson City District was divided into two Resource Areas (Walker and Lahontan). In 1996, the two Resources Areas were consolidated into a single entity: the Carson City District. Under the previous organization, Black Mountain Allotment was in the Walker Resource Area.

In describing the level of grazing use in the allotment, this evaluation does not use the terms "grazing preference" nor "permitted use". In the Decision of Public Lands Council v. Babbitt, the court set aside the provision of the Bureau's grazing regulations that redefined the term "grazing preference," and introduced the term "permitted use". The Department of Justice has since filed an appeal in the case. Pending resolution of this court case, the phrase "the total number of animal unit months of specified livestock grazing" is used in lieu of either "grazing preference" or "permitted use".

On February 12, 1997, Secretary of the Interior Bruce Babbitt approved the Standards and Guidelines for Nevada. These standards for rangeland health and the guidelines for grazing management were developed in consultation with the Resource Advisory Councils for the Bureau of Land Management (BLM) in Nevada to help ensure productive sustainable rangelands. The implementation process for the standards and guidelines is occurring in two separate processes. The first is the determination that the terms and conditions of grazing permits must ensure compliance with the standards and guidelines. In the absence of other information, it is the position of the BLM that terms and conditions of existing permits are in conformance. The second process is the allotment evaluation process. Therefore, reference is made within this document to the standards and guidelines developed for the Sierra Front - Northwestern Great Basin Area (the specific area that includes the Black Mountain Allotment)².

¹ "Custodial - Manage in custodial capacity, while protecting existing resource values.

² Copies available at the Carson City District Office.

II. INITIAL STOCKING LEVEL

A. Livestock Use

1. Total Animal Unit Months of specified Livestock Grazing

TOTAL AUMs	Period of Use	PERCENT PUBLIC LAND
900	12/1 to 2/28	100

2. Other Information

Black Mountain allotment is located in Mineral County, approximately 12 miles east-southeast of Yerington, Nevada. The Walker River Indian Reservation forms the eastern boundary, while Reese River Canyon is the southern border. (Refer to Map No. 1, Appendix I). A total of 14,618 acres of public land are contained in the allotment. There are no fenced pastures nor any private land in the allotment.

Documented improvements are:

BLM Job Number	Name	Completion Date
544173	Rocky Mountain Well	1968
544174	Reese River Drift Fence	1940
544488	Black Mtn. Guzzler #1	1976
544489	Black Mtn. Guzzler #2	1976
544490	Black Mtn. Guzzler #3	1976
546339	Black Mtn. Bndry. Fence	1986

The guzzlers were constructed for chukar. Improvement locations can be found on Map No. 2, Appendix I.

The Roberts Sheep Company acquired the grazing privileges from the Hussman Land and Livestock Company in August of 1966. The general operation is as follows: During the fall, after selling lambs, the sheep are grazed on ranch property from four to six weeks, then moved to leased land in Smith and Mason Valleys. In the winter, the bands are moved to the winter range in Butler Mountain and Black Mountain Allotments. Following lambing, which occurs on ranch property, the bands are moved to Forest Service allotments and grazed during the spring and summer months. The operation then repeats itself.

B. Wild Horses

1. Herd Management Area (HMA)

The Wassuk Wild Horse HMA consists of 50,100 acres of which the Black Mountain Allotment accounts for 8.6% of the total HMA. Within the Butler Mountain Allotment there are 4,300 acres which are part of the Wassuk HMA (approximately 30% of the allotment is within the HMA). Refer to Map Nos. 3, Appendix I for location of HMA boundaries.

2. Management Level

The **initial management level** identified in the LUP is 151 wild horses for the entire Wassuk HMA, with a total of 1,812 AUMs as the estimated potential stocking level.

C. Wildlife Use

1. Mule Deer (*Odocoileus hemionus*).

a. Existing Numbers

The LUP identified no existing demand for mule deer. The crest of the Wassuk Range, which comprises only a fraction of the allotment, has been identified as yearlong mule deer range (Refer to Map No. 4, Appendix D).

b. Key and Crucial Areas

No key or crucial habitats exist within the allotment.

2. Bighorn Sheep (*Ovis canadensis nelsonii*).

The LUP recognized a substantial portion of the Wassuk Range as potential bighorn sheep habitat. This potential habitat extends into the Black Mountain allotment (Refer to Map No. 5 Appendix I). Due to the potential conflicts between domestic sheep and bighorn sheep, there are no plans to expand the bighorn sheep population onto BLM administered lands. BLM policy does not support the release of bighorn sheep in proximity to domestic sheep use areas unless topographic features or other barriers prevent physical contact.

3. Other Key or Crucial Management Areas

a. Aquatic Habitats

None have been identified.

b. Riparian Habitats

None have been identified.

4. Wildlife - General

Some of the more common furbearing species are coyote (*Canis latrans*), bobcat (*Felis rufus*), badger (*Taxidea taxus*), mountain lion (*Felis concolor*), and kit fox (*Vulpes macrotis*).

Upland game species include mountain cottontail (*Sylvilagus nuttallii*), desert cottontail (*Sylvilagus audubonii*), mourning dove (*Zenaidura macroura*), California quail (*Lophortyx californicus*), and chukar (*Alectoris chukar*).

Raptors include the prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), and American kestrel (*Falco sparverius*).

Also present are a host of small mammals, birds, and reptiles.

III. ALLOTMENT PROFILE

A. Description

1. Topography

The allotment is generally mountainous, with many areas having large rocks dominating the soil surface. Elevations range from approximately 4100 feet, to Black Mountain, located at the northeastern boundary, with an elevation of 8,102 feet.

2. Soils

The soils in this allotment are typical of the Western Great Basin and exhibit wide ranges in depth, drainage class, percent surficial and subsurface rock fragments, pH, and other diagnostic soil properties. Accelerated erosion, where present in the allotment, is mostly confined to small areas adjacent to seeps/springs, shallow/lithic soils and steep slopes. Appendix II contains a listing of the **soils and range sites** found in the allotment. This information was taken from the Department of Agriculture, Soil Conservation Service, Mineral County Soil Survey of 1985.

3. Water Resources

Rocky Mountain Well, located in the northwestern corner of the allotment, was constructed in 1968. It is the only dependable water. Hussman Spring, located in

the central portion of the allotment, and Cottonwood Spring, located in the southeastern portion of the allotment, are dry and have both been abandoned as projects. Mr. Roberts, in the past, has made proposals to develop wells, with the installation of storage tanks and troughs, in the vicinity of these springs. A snow lake located atop Black Mountain has intermittent water. The site was visited in April of 1995 and it was filling rapidly with abundant snow pack yet to melt.

4. Vegetation

The allotment is dominated by low sagebrush (*Artemisia arbuscula*) and Bailey greasewood (*Sarcobatus vermiculatus baileyi*). This vegetation is typically located on the lower foothill and plateau country. Pinyon-juniper (*Pinus monophylla-Juniperus sp.*) woodlands, located at the higher elevations, and shadscale (*Atriplex confertifolia*) areas, scattered throughout the foothills and plateaus, comprise the balance of vegetation within the allotment. Other species present are Sandberg bluegrass (*Poa secunda*), sand dropseed (*Sporobolus cryptandrus*), bottlebrush squirreltail (*Sitanion hystrix*), Indian ricegrass (*Oryzopsis hymenoides*), galletta (*Hilaria jamesii*), bud sagebrush (*Artemisia spinescens*), winterfat (*Ceratoides lanata*), desert globemallow (*Sphaeralcea ambigua*), rose pussytoes (*Antennaria rosea*), and phlox (*Phlox sp.*).

5. Key Species

a. Uplands

No **key areas** have been established that identify specific key species. All of the grass species are important to wild horses. Browse species and forbs are important for sheep. Cheatgrass (*Bromus tectorum*) is important for chukar.

The most common range sites include woodlands (various range sites); 27-49, Cobbly Claypan 8-10" P.Z. (Precipitation Zone); 27-20, Shallow Claypan 8-10" P.Z.; 29-17, Loamy 5-8" P.Z.; and 27-15, Stony Loam 4-8" P.Z.

b. Riparian

Riparian vegetation is important to wildlife, wild horses, livestock and humans. Hussman and Cottonwood springs are both currently dry and for the most part void of riparian vegetation. Generally, vegetation located in and around water sources is composed of coyote willow (*Salix exigua*), Pacific tree-willow (*Salix lasiandra*), baltic rush (*Juncus balticus*), Nebraska sedge (*Carex nebrascensis*), silver sedge (*Carex praegracilis*), wild rose (*Rosa woodsii*), tufted hairgrass (*Deschampsia caespitosa*), spikerush (*Eleocharis palustris*), Kentucky bluegrass (*Poa pratensis*), and creeping wildrye (*Elymus triticoides*) and sedges (*Carex sp.*). Watercress

(*Nasturtium officinale*) can also be present in shady areas where pooling and/or overland flow occurred.

6. Threatened and Endangered Species

a. Vegetation

A Sensitive³ species that may be present are William's combleaf (*Polyctenium williamsiae*), in conjunction with the more common species, crowded combleaf (*Polyctenium fremontii* var. *confertum*). The identity of the population has not yet been determined. Both plants are found around the margins of seasonal lakes on volcanic substrates in the pinyon/juniper/sagebrush zone. The lakes are neither saline nor alkaline, and may be turbid to clear. This habitat type is present in the allotment. A large majority of the potential habitat for these taxa in Nevada is now believed to have been identified and surveyed.

While not listed as threatened or endangered, Bureau policy requires that these species be treated the same as threatened or endangered. That is, no action will be taken that would increase the likelihood that the species would need to be listed as threatened or endangered.

No other threatened, endangered, candidate, or sensitive plant species are known to inhabit the allotment.

b. Wildlife

Sensitive species that may occur in the allotment are the pygmy rabbit (*Brachylagus idahoensis*), the Fletcher dark kangaroo mouse (*Microdipodops megacephalus nosutus*) and the spotted bat (*Euderma maculatum*).

The spotted bat spends daylight hours and reproduces in caves and among the rocks on cliffs and talus slopes. It generally feeds on flying insects in the vicinity of juniper grasslands and tall sagebrush. The pygmy rabbit reproduces and feeds in sagebrush/grasslands and riparian habitats. The Fletcher dark kangaroo mouse is nocturnal, feeds mostly on seeds, but takes some insects. It is found in association with fine sandy soils with sagebrush and rabbitbrush. Since these habitats occur in the Wassuk Range, there is a possibility that these species occur in the allotment.

No other threatened, endangered, or candidate species are known to inhabit the allotment.

³ Sensitive species include plants and animals on which currently existing information indicates that federal listing may be warranted, but which substantial biological information to support a listing is lacking.

B. Allotment Specific Objectives

The applicable objectives identified in the LUP have been combined where they were similar. All these objectives have been determined to be in conformance to the standards and guidelines developed for the Sierra Front - Northwestern Great Basin Area.

1. Short Term

- a. Initially provide for 900 AUMs of forage for livestock.
- b. Initially provide for approximately 180 AUMs of forage for wild horses which is the prorated demand based on an estimate of 10% of the HMA in the allotment.

2. Long Term

- a. Maintain or improve the condition of public rangelands to enhance productivity for livestock, wildlife and wild horses (within the HMA).
- b. Continue rangeland and watershed monitoring to determine if management objectives are being met and what future adjustments in grazing use are necessary.
- c. Maintain or improve wild horse habitat consistent with wildlife and livestock objectives.
- d. Maintain or improve wild horse habitat by assuring that all waters remain open to use by wild horses.
- e. Develop and implement an HMAP for wild horses and maintain or improve free-roaming behavior of wild horses by protecting or enhancing the HMA.
- f. Maintain existing wildlife habitat and manage wildlife habitat to achieve a long term goal of reasonable numbers of big game species.
- g. Protect and maintain existing and potential riparian areas in good or better condition.
- h. Support the re-introductions of endemic species into suitable habitats.

IV. MANAGEMENT EVALUATION

A. Actual Use

1. Livestock

The use level has been well below the total AUMs of specified livestock grazing during the evaluation period. Actual Use information supplied by the permittee is an accurate record of what occurred during any given year and identified deviations from the use requested on the annual grazing bill. Although requested, the permittee is not required to submit actual use records.

Year	Actual Use (AUMs)	Licensed Use (AUMs)
1994/1995		269
1993/1994	0	NON-USE
1992/1993		188
1991/1992		92
1990/1991		201
1989/1990		245
1988/1989		38
1987/1988		38
1986/1987		90
1985/1986	275	264
1984/1985	98	819
1983/1984	707	814
1982/1983	183	264

2. Wild Horses

Aerial census data was collected in 1995, 1994, 1993, 1991, and 1989 for the Wassuk HMA. Results were as follows:

DATE OF CENSUS	WILD HORSE CENSUS NUMBERS (ADULT/FOAL/TOTAL)
JUNE 1995	118/23/141
AUGUST 1994	96/20/116
JULY 1993	111/12/123
NOVEMBER 1991	153/4/157
SEPTEMBER 1989	153/21/174

Census data has shown that wild horses do not favor this portion of the Herd Management Area. This is likely attributable to the absence of perennial water.

In 1995, no horses were recorded in the allotment; in 1994, 1 horse; in 1993, 2 horses; in 1991, no horses; and in 1989, 2 horses.

The wild horses concentrate south of the allotment in the vicinity of Buckbrush Summit, and Abraham springs, all of which are located in the Gray Hills allotment. These perennial waters allow the horses to range substantial distances. Wild horses also show a preference for Perry Springs allotment which lies to the west of Black Mountain allotment and is outside of the HMA.

The population declined between 1989 and 1994, then took an abrupt jump between 1994 and 1995. The percentage of foals to the total population has ranged from a high of 17.24% in 1994 to a low of 2.61% in 1991. The normal recruitment range for herds in Nevada is from 14-24% annually. Between 1994 and 1995, the only time there was a positive recruitment rate, it was 21.55%.

3. **Wildlife**

The allotment lies at the northern end of NDOW's Management Unit 202 (Wassuk Range). Though the Division is aware that some use of this area is made by mule deer, it is not significant enough to warrant a monitoring effort.

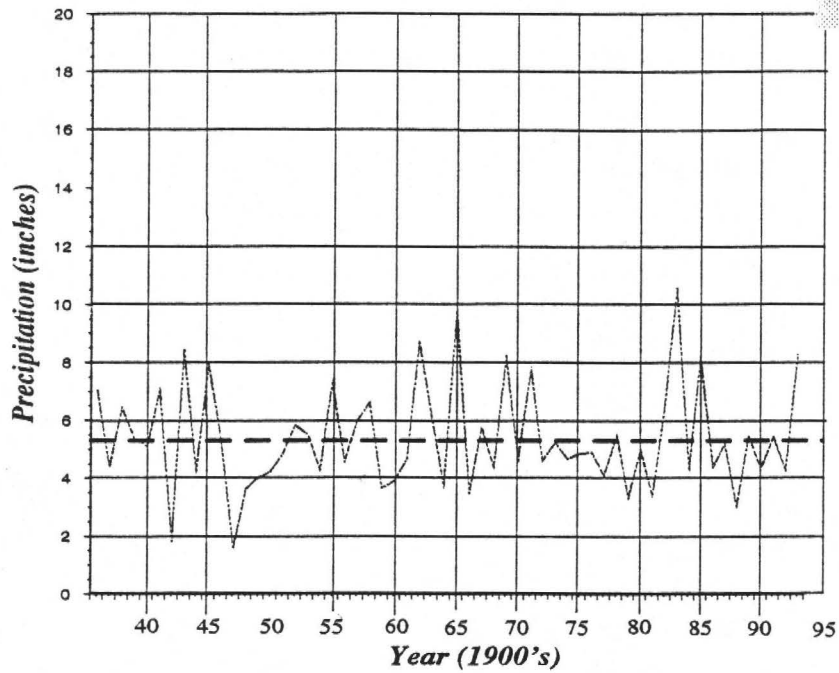
As noted in Section C.2, bighorn sheep occupy the Mount Grant area within the military withdrawn area. There are no bighorn sheep in this allotment.

B. **Precipitation**

Yerington, Nevada is the closest available weather station to the allotment. The mean annual precipitation is 5.38 inches. Depending upon the path, intensity, and duration of storms, mountainous areas can influence precipitation amounts. The data presented provides an idea of what may have occurred over the evaluation period. The higher elevations of the allotment generally receive larger amounts of precipitation than what is recorded at the station.

Handwritten calculations:

$$\begin{array}{r} 2 \\ 12 \overline{) 234} \\ \underline{24} \end{array}$$
$$\begin{array}{r} 19 \\ 12 \overline{) 234} \\ \underline{12} \\ 114 \\ \underline{108} \end{array}$$
$$\begin{array}{r} 12 \\ 12 \\ \underline{108} \end{array}$$



_____ Annual Precipitation - - - - - 55 Year Mean

C. Use Pattern Mapping

Use pattern mapping data was gathered in April of 1995, March of 1994 and May of 1985 (Refer to Map Nos. 6, 7 and 8, Appendix I). Results are as follows, with the balance of the allotment's acreage not shown being in the no use category:

1995

UTILIZATION CLASS	ACRES IN HMA BY CLASS	ACRES OUTSIDE HMA BY CLASS
SLIGHT	121	1944
LIGHT	551	949
MODERATE	0	713
HEAVY	0	348
SEVERE	0	0
TOTALS	672	3954

1994

UTILIZATION CLASS	ACRES IN HMA BY CLASS	ACRES OUTSIDE HMA BY CLASS
SLIGHT	0	0
LIGHT	0	0
MODERATE	0	0
HEAVY	259	971
SEVERE	29	25
TOTALS	288	996

1984

UTILIZATION CLASS	ACRES IN HMA BY CLASS	ACRES OUTSIDE HMA BY CLASS
SLIGHT	2850	5297
LIGHT	653	1312
MODERATE	332	44
HEAVY	0	1600
SEVERE	0	0
TOTALS	3835	8253

D. Trend

Two photo trend plots are located in the allotment (Refer to Map No. 9, Appendix D). They were established in 1977 and were photographed again in 1979, 1981, 1984, 1987, 1990, and 1993.

Plot 1 - Within the plot, the grass component has changed. In the 1977 photo, there are two needlegrass plants and one Indian ricegrass plant. In the most current photo (1993) there are three needlegrass plants. The low sagebrush plant in the middle of the plot died out but was replaced with another. There does not appear to be any soil movement. The panoramic view, looking from the plot which is located in a draw, to the foothills, shows a static trend overall. In the early 80's, abundant moisture resulted in substantial amounts of annuals.

Plot 2 - Within the plot, needlegrass plants that were present in 1977, but showing signs of decadence, have completely died out. In their place, young needlegrass plants are present. Within the plot there has been a reduction in production and frequency of plants. However, just outside the plot, needlegrass plants are present in the 1993 photo that were not present in 1977. This appears to reflect an overall increase in production and frequency. The panoramic view shows the shrub component has remained stable but still gives the appearance of reduced vigor. Overall trend is judged to be static.

E. Range Survey Data

An ocular reconnaissance vegetative survey, conducted by the Bureau in 1960 for the Walker Planning Unit, identified that sheep were best suited for the allotment and winter was the most desirable period of use. Based upon this survey and adjudication notice, dated December 12, 1960, the result was the establishment of the active preference and period of use mentioned at the beginning of this document (II.A.1.).

F. Ecological Condition

An Order 3⁴ Soil Survey has been completed for the Walker Planning Unit which encompasses the Black Mountain Allotment. Though ecological sites were identified at that time, ecological status was not completed.

G. Wildlife Habitat

As noted earlier, the Black Mountain allotment provides habitat for an assortment of wildlife species; a majority of these being small to medium sized mammals and birds. Reptile species are well represented and are typical of Great Basin habitats. A small amount of mule deer yearlong range is located on Black Mountain itself. Though the allotment is identified as having potential bighorn sheep habitat, this potential cannot be realized as long as there are domestic sheep operations in the immediate area. Current operations are not expected to change significantly in the near future.

H. Riparian/Fisheries Habitat

There is no riparian/fisheries habitat.

I. Wild Horse Habitat

Wild horse utilization can be heavy as field studies have indicated. A large portion of the allotment is dominated by galleta grass. Though not a preferred forage species, it is being used along with squirreltail, Indian ricegrass, and Sandberg bluegrass. These lower elevations are favored, though they do not contain any permanent or intermittent waters, other than the Rocky Mountain Well. The upper elevations of the allotment receive limited use. The snowlakes provide an intermittent source of water. Because of the terrain and amount of tree cover, it appears that the wild horses are wary to use the area. This may perhaps be due to a considerable mountain lion population.

⁴Third-order surveys are made for land uses that do not require precise knowledge of small areas or detailed soils information. Such survey areas are usually dominated by a single land use and have few subordinate uses. The information can be used in planning for range, forest, recreational areas, and in community planning.

The majority of use is probably made during the late fall and winter months when snow is more likely to be present. An less substantial amount of use likely takes place during the late spring, summer, and early fall periods. The horse are watering in the northern portion of the adjacent Gray Hills Allotment.

V. CONCLUSIONS

The accomplishment of the objectives shown in Section III are discussed below.

B.1.a. Initially provide for 900 AUMs of forage.

Actual and licensed use has been substantially below the active preference during the evaluation period. Forage availability is not the limiting factor.

The absence of water limits use. The roughness/steepness of some of the existing roads limits the areas currently being used for water haul sites. Other areas that are accessible for water haul sites have not been used. Opportunities exist to expand the scope of use.

The objective has not been met but can be met with additional management.

B.1.b. Initially provide for approximately 180 AUMs of forage for wild horses, which is prorated demand based on an estimate of 10% of the HMA in the allotment. Initially manage wild horses at present estimated population levels.

The AUM level identified for wild horses was a target level and was to be used for the purpose of monitoring. This evaluation considered the target level and monitoring data was used to determine the potential stocking level for wild horses identified in Appendix III.

The Technical Recommendations section of this evaluation addresses this objective.

B.2.a. Maintain or improve the condition of public rangelands to enhance productivity for livestock use, wildlife and wild horses (within the HMA).

Based upon photo plot interpretation, trend and range condition is being maintained (static).

An allotment analysis was completed circa 1983. That year 707 AUMs were harvested based upon actual use records. The analysis noted that when the allotment average use approaches 50%, the use is typically heavy near Rocky Mountain Well and downslope of Hussman Spring, moderate on the lower mountain side slopes and fans, slight above 6000 feet on Black Mountain and above 6800 feet on the ridge running southeast of Black Mountain. When overall use is light, the use is typically moderate on the alluvial fans downslope from Northern Lights Mine, light in the vicinity of Hussman Spring, and slight over the remainder of the allotment.

Depending upon the amount of livestock use and the number of horses using the allotment, there can be competition.. This is minimal since sheep use occurs during the winter months and sheep utilize browse whereas wild horses prefer grass species.

The objective is being met.

B.2.b. Continue rangeland and watershed monitoring to determine if management objectives are being met and what future adjustments in grazing use are necessary.

The studies intensity, due to Custodial classification, has been limited but data continues to be gathered.

Aerial census data of wild horses has been collected five times during the evaluation period. Trend plots are photographed every three years. The frequency of use pattern mapping has been limited for both wild horses and livestock. The reasons being the lack of water, horse census revealing few animals present, and livestock use being extremely limited.

This objective has been met.

B.2.c. Maintain or improve wild horse habitat consistent with wildlife and livestock objectives.

Trend and condition have been maintained (static).

The objective has been met.

B.2.d. Maintain or improve wild horse habitat by assuring that all waters remain open to use by wild horses.

When Rocky Mountain Well is being pumped, water is available for wild horses. Hussman and Cottonwood Springs are dry. The snow lake atop Black Mountain is available for wild horses, however water availability is intermittent. As noted earlier, the guzzlers were constructed for upland game birds and are therefore not usable by wild horses.

The objective has been met.

B.2.e. Develop and implement an HMAP for wild horses. Maintain or improve free-roaming behavior of wild horses by protecting or enhancing the HMA.

The appropriate management level is being established for the entire Wassuk HMA and is based on the stocking levels determined for all the allotments in the HMA. The stocking level reflects the amount of forage (AUMs) for wild horses as determined through monitoring. Individual potential stocking levels are not relevant on an allotment basis since these horses move amongst the allotments. This concept recognizes the mandate that horses are to be managed within their herd area in balance with their habitat.

This evaluation is the first step in developing management direction for the allotment, including management of wild horses. Once evaluations for all the allotments in the Wassuk HMA have been submitted for public review, a Multiple Use Decision (MUD) will be issued. The Wild Horse Management Decision of the MUD will then be incorporated into a herd management area plan (HMAP) for the Wassuk HMA.

The process is in motion to meet this objective.

No actions have been taken that would impede the free roaming behavior of wild horses or result in detriment to the HMA.

The objective has been met.

B.2.f. Maintain existing wildlife habitat and manage wildlife habitat to achieve a long term goal of reasonable numbers of big game species.

The LUP did not establish reasonable numbers for big game species in the allotment. It is recognized that some use by mule deer is being made in the allotment, with the focus being in the upper elevations. The upper elevations are not being utilized by wild horses, and are seldom used by livestock, thus mule deer face little competition in their use areas.

The objective is not applicable.

B.2.g. Protect and maintain existing and potential riparian areas in good or better condition. Support the re-introductions of endemic species into suitable habitats.

Both Hussman and Cottonwood Springs are dry. The snowlakes atop Black Mountain appear to hold water for lengthy periods of time in the absence of any extended drought. Livestock do not appear to utilize this area. There is limited sign of wild horses in the area. The area appears to be stable.

This portion of the objective has been met.

The area cannot be considered suitable for the expansion of the bighorn sheep population due to the proximity of domestic sheep operations.

This objective is not applicable.

B.2.h. Maintain existing range condition and trend.

As noted in B,2 a, trend and condition remains static.

The objective has been met.

VI. TECHNICAL RECOMMENDATIONS

All of these recommendations are in conformance to the standard and guidelines developed for the Sierra Front - Northwestern Great Basin Area.

A. Potential Stocking Level - Livestock

Large portions of the allotment are seldom used due to poor water distribution, not forage availability. When snow is available, the entire allotment is accessible to sheep. Adequate browse is present to meet the sheep demand. Since horses do not readily utilize browse species, competition between these grazing animals is negligible.

It is recommended that the active preference (900 AUMs) for sheep be maintained.

The existing period of use is 12/1 to 2/28. Although early snows (prior to 12/1) are rare, expanding the period of use to take advantage of such an event(s) would be beneficial. It provides the opportunity to more fully utilize the allotment while at the same time confining livestock use to the vegetations dormant period. In addition it allows the opportunity to haul water to take advantage of forage conditions or objectives for improving forage conditions over a much wider time frame.

It is recommended that the period of use be changed from 12/1 -2/28 to 10/1 - 2/28.

B. Grazing Management Strategy

Even though the allotment is dominated by low potential range sites, the benefits of intensive livestock management are becoming better understood. By using a closed herding technique, the vegetation is more evenly and fully utilized. Closed herding can be defined as keeping sheep in close proximity to one another so that it forces them to utilize a majority of the plants and result in individual plants having a portion of the vegetative component being placed upon the ground. This increases the rate of nutrient cycling by placing this material in contact with soil and thereby exposing it to microbial activity. The sheep droppings are concentrated, trampled into the ground, providing a boost to the nutrient value of the soil. The placement of litter on the ground provides soil protection. It creates a cooler micro-climate that is more conducive to seedling establishment. It catches and holds in place soil particles. Overall the water cycle is improved. Though there are other tools which could accomplish the same objective (prescribed burning, mechanical manipulation, etc.) this is the most efficient and economical means available. A similar management action is occurring in the Belleville allotment. In 1994, after the first year of grazing, there was a noticeable increase in ricegrass seedlings. After the second year of grazing, monitoring results indicated that the bare space between perennial plants decreased from approximately 16 inches before grazing to 5 inches. Most of this was due to an increase in Indian ricegrass. Perennial plant seeds must be worked into the soil with organic matter to produce seedlings. Otherwise the solid surface becomes crusted and is impenetrable to both seed and plant

litter (seeds do not germinate and litter dries up and is not broken down into the essential organic compounds). Also, an accumulation of dead material in grass plants will cause them to become unhealthy and eventually die out.

It is recommended that closed herding be applied to the greatest extent possible in order to modify the landscape to a more diverse, productive vegetative community that will benefit wildlife, wild horses, and livestock.

This would be in conformance to the standards and guidelines developed for the Sierra Front - Northwestern Great Basin Area.

An increase in the grass component would favor wild horses. However, if successful in rehabilitating the watersheds that surround the dry springs, there is the possibility of returning flows to Hussman and Cottonwood Springs. The potential positive effects of implementing closed herding is in direct accord with the fullback standards and guidelines identified under 43 CFR §4180 of the grazing regulations.

C. Water

The lack of water is a serious problem. It is believed that the reason for the springs totally drying up is due to unsuitable vegetative composition and inadequate plant density (not enough grasses). Certainly the effects of the drought can't be dismissed. However, even in the driest of periods, these springs should supply water if the capability for capture and ground storage of water were to be enhanced. Increasing grass cover is key to effectively capturing and storing water. These areas can act like a sponge and make very effective use of moisture. By applying closed herding on the uplands in the vicinity of springs, it is possible to modify the landscape to the extent that we should be able to attain flows from the springs again, even through extended dry periods. If water hauling is not expanded and snow pack is inadequate, livestock use in the allotment will continue at the low levels of the past. Although water hauling is a relatively expensive proposition, it is necessary to achieve the goal of restoring spring flows.

Until the benefits of closed herding are realized, when there is insufficient snow present, water hauling should continue to be used to endeavor to increase the frequency and density of grasses.

Another option to be considered is to allow the permittee to develop wells in the vicinity of Hussman and Cottonwood Springs. The burden of cost would be that of the permittee, while the Bureau would provide the necessary paperwork, clearances, and CCC with the interested public. Realistically the cost of this proposal far outweighs the benefits. In all likelihood, this action will not be pursued.

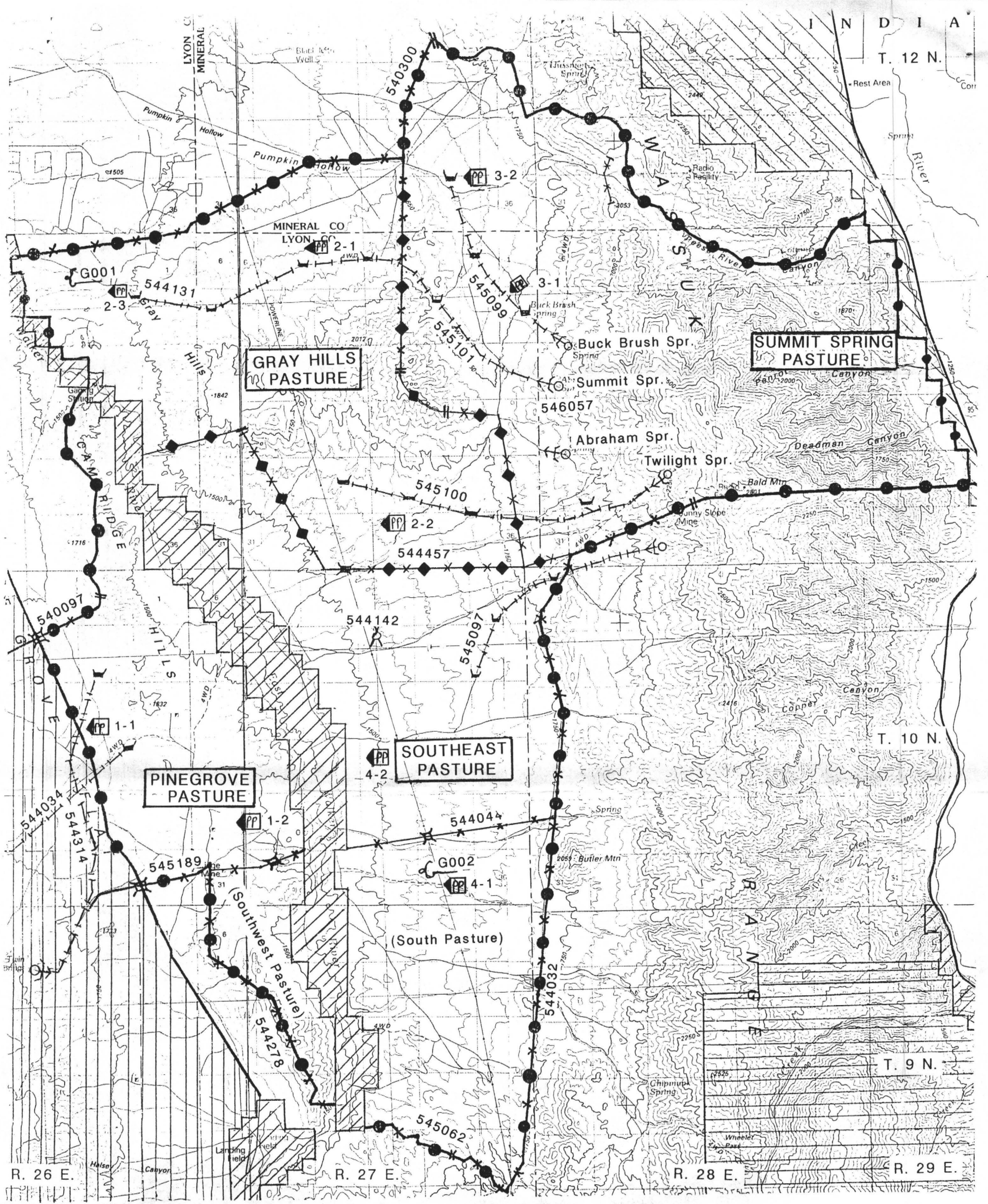
The long term objective, "*Protect and maintain existing and potential riparian areas in good or better condition*", should be modified as follows:

"Protect and maintain existing and potential riparian areas in proper functioning condition⁵."

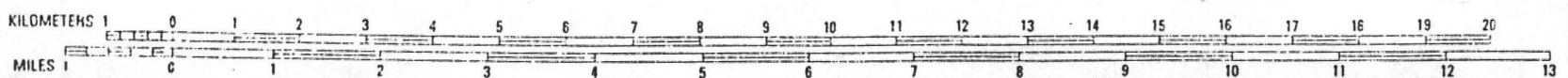
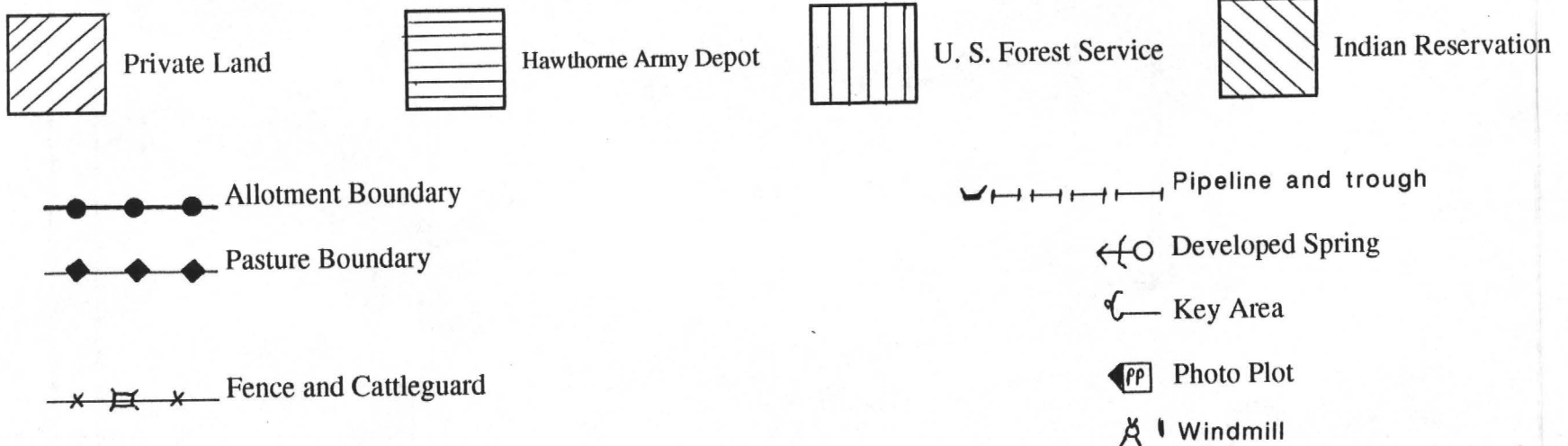
D. Potential Stocking Level - Wild Horses

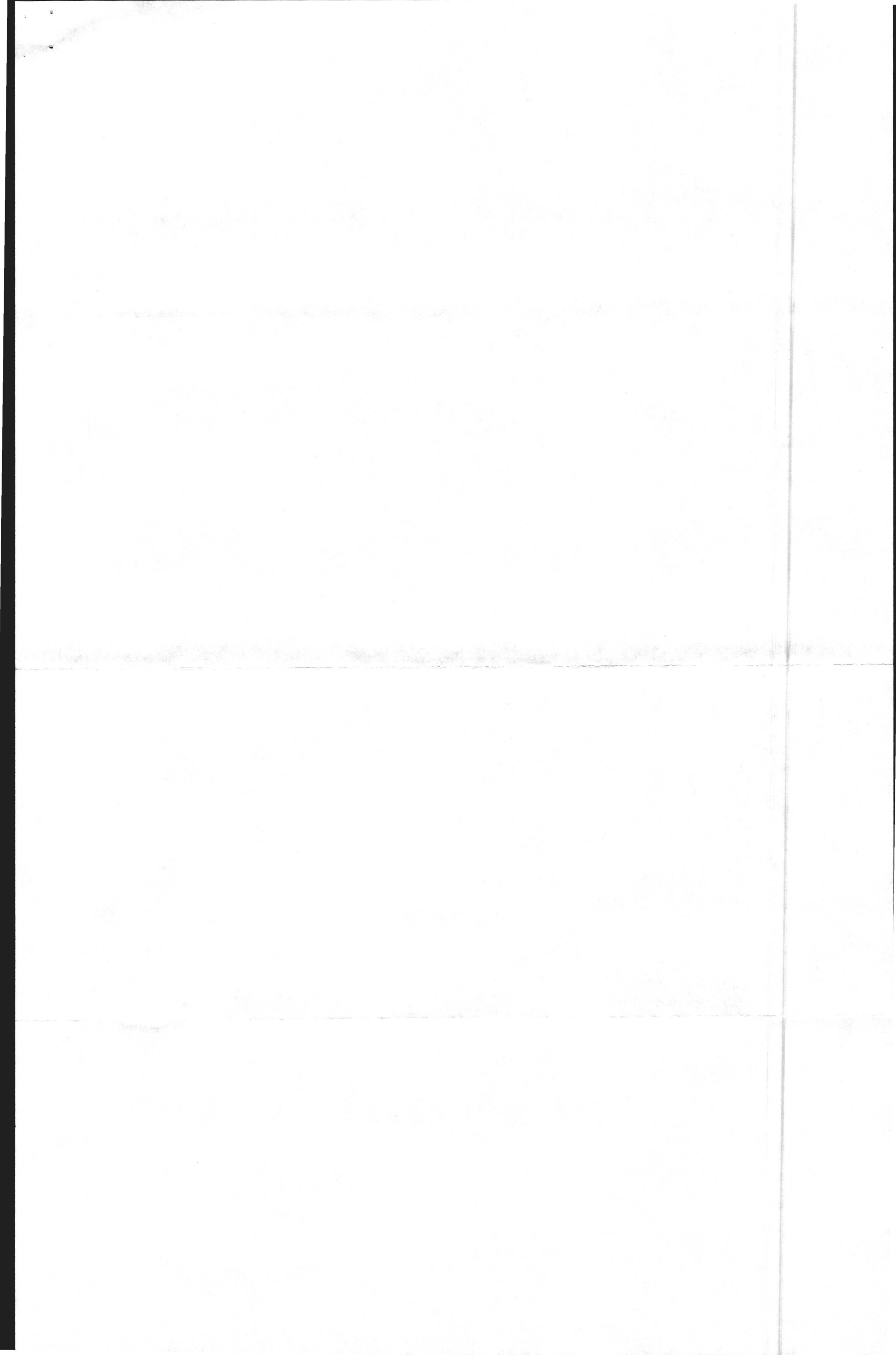
Due to the proximity of the allotments, accessibility of allotments by the wild horse herd, and the movement amongst these allotments, it was logical to develop a potential stocking level for the entire HMA. This allows for the free-roaming behavior of the herd while at the same time not creating a situation whereby emergency gathers would be needed if at any time the number of horses within one of these allotments should exceed a level that was established on an individual allotment basis. It is recommended that the Potential Stocking Level for the Wassuk Herd Management Area be 1984 AUMs, with 234 AUMs provided from the Black Mountain Allotment (Refer to Appendix II for the Potential Stocking Level Calculations).

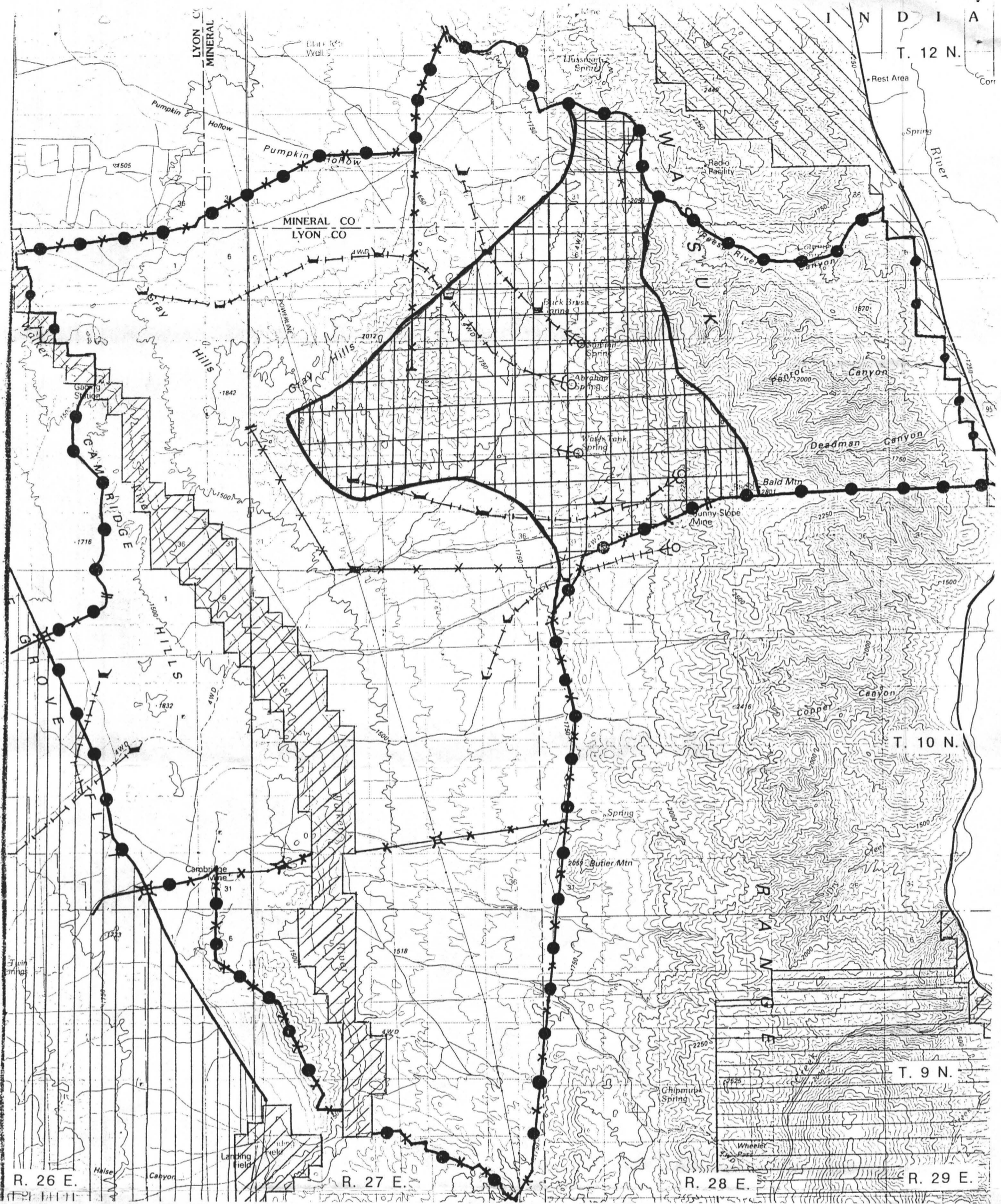
⁵ Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to: 1) dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; 2) filter sediment and aid floodplain development; 3) improve flood-water retention and ground-water recharge; 4) develop root masses that stabilize islands and shoreline features against cutting action; 5) restrict water percolation; 6) develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; and 7) support greater biodiversity.



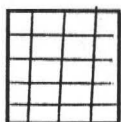
MAP NO. 2
GRAY HILLS ALLOTMENT: IMPORTANT FEATURES



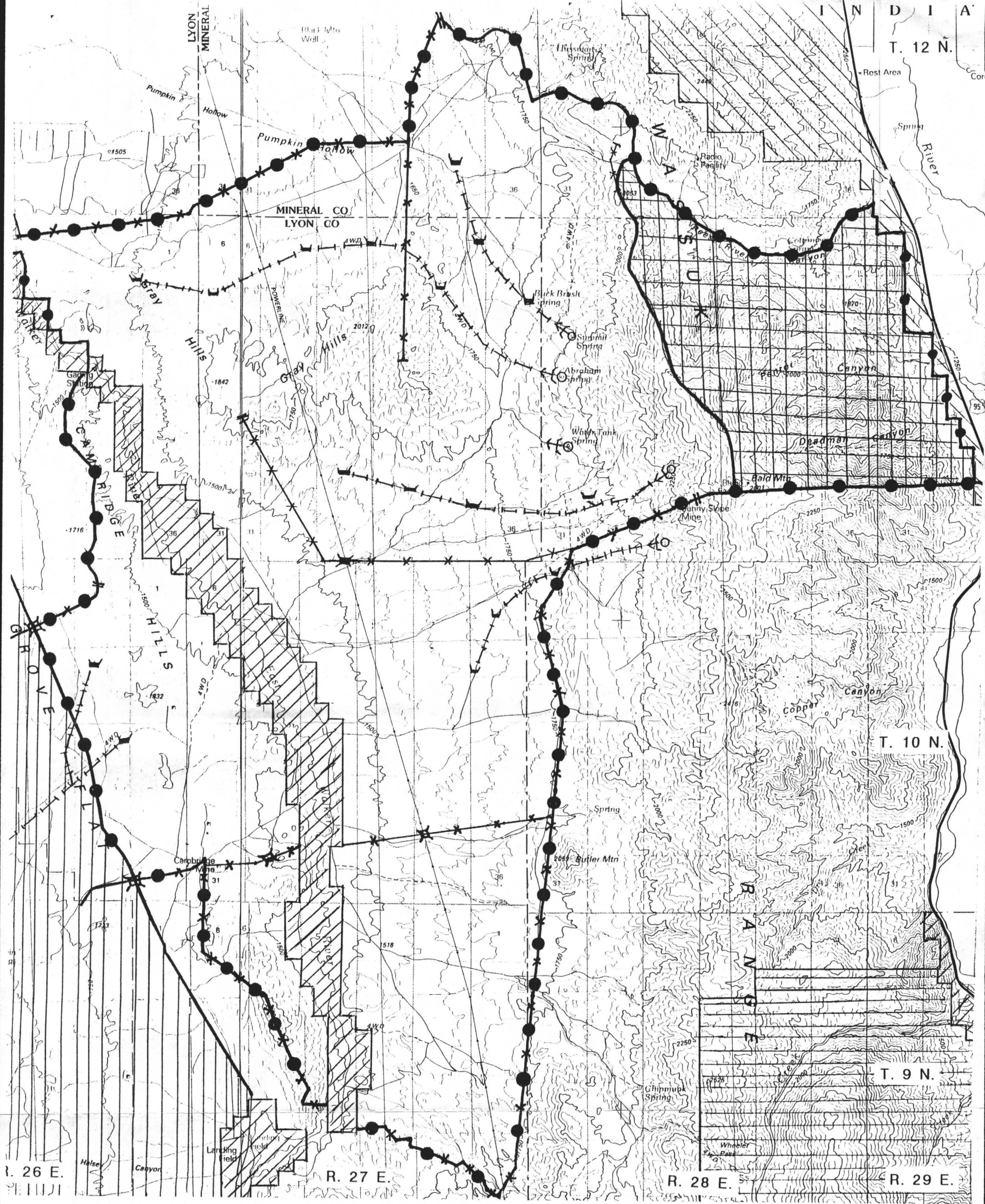




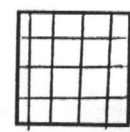
MAP NO. 3
GRAY HILLS ALLOTMENT: WASSUK HERD MANAGEMENT AREA



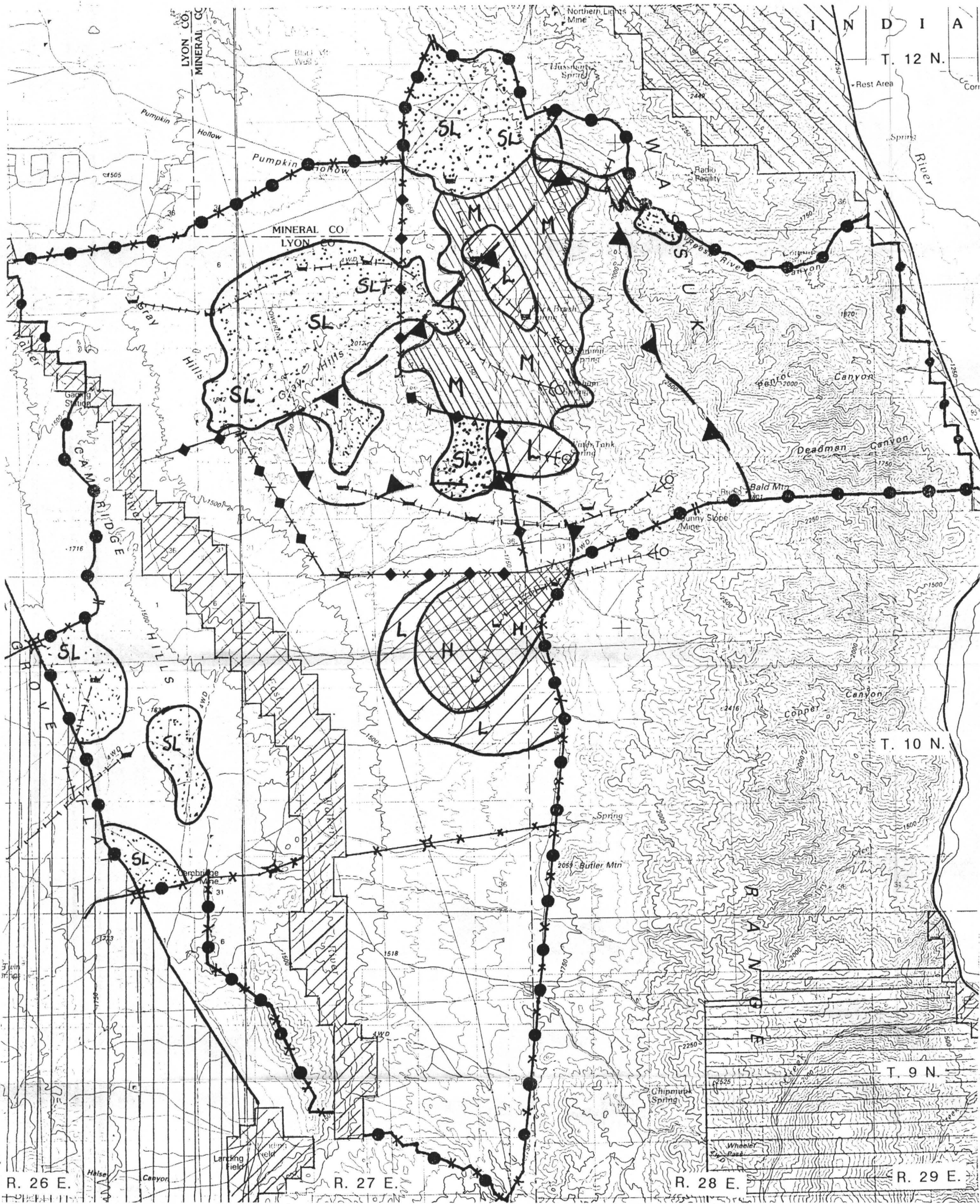
Wassuk Herd Management Area



MAP NO. 4
 GRAY HILLS ALLOTMENT: POTENTIAL BIGHORN SHEEP HABITAT


 Potential Bighorn Sheep Habitat

KILOMETERS 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
 MILES 1 0 1 2 3 4 5 6 7 8 9 10 11 12



MAP NO. 5
 GRAY HILLS ALLOTMENT: 1995 USE PATTERN MAPPING



Wassuk Herd Management Boundary

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

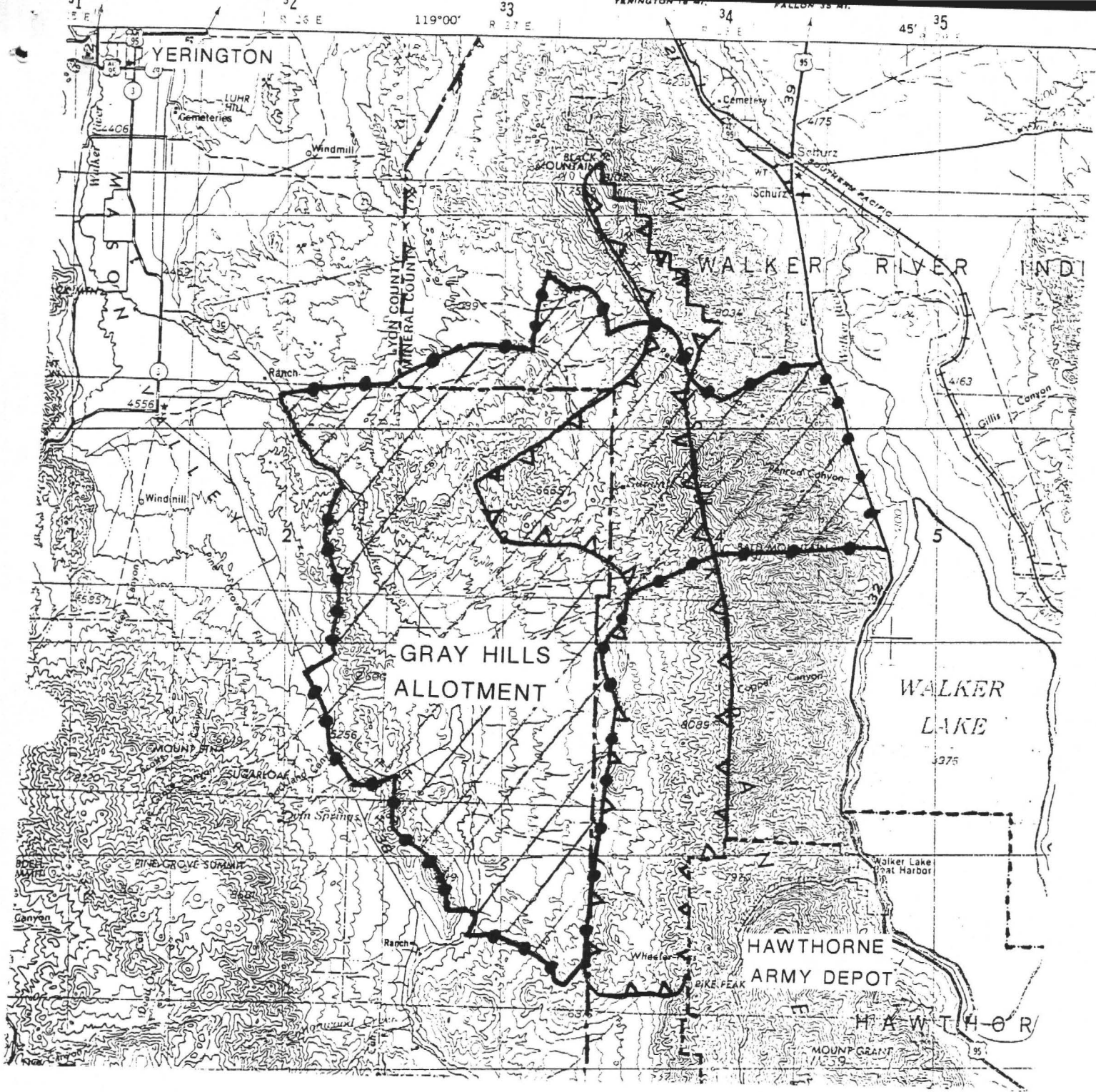
Carson City District Office
1535 Hot Springs Road, Suite 300
Carson City, Nevada 89706-0638

GRAY HILLS ALLOTMENT
EVALUATION

March 11, 1997

*732 WUP
921 Gray Hills*





MAP NO. 1
Location of Gray Hills Allotment
 Scale: 1 : 250,000

- Allotment Boundary
- ▲▲▲▲▲ Wassuk Herd Management Area Boundary
- County Line
- Hawthorne Army Depot Boundary

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GRAY HILLS ALLOTMENT EVALUATION

I. INTRODUCTION

Contained within this document is the Gray Hills Allotment Evaluation, prepared by the staff of the Carson City District (refer to Map No.1 on page i for general location of the allotment). For the convenience of all readers, many of the technical terms and acronyms used in this evaluation are defined in Appendix I (Glossary of Terms). Reference sources are identified under the Bibliography section found on page 27. Common and scientific plant and animal names are identified in Appendix II and Appendix III. In order to avoid confusion, note the following changes that have occurred over the past year.

Prior to 1996, the Carson City District was divided into two Resource Areas (Walker and Lahontan). In 1996, the two Resources Areas were consolidated into a single entity: the Carson City District. Under the previous organization, Gray Hills Allotment was in the Walker Resource Area.

In describing the level of grazing use in the allotment, this evaluation does not use the terms "grazing preference" nor "permitted use". In the Decision of Public Lands Council v. Babbitt, the court set aside the provision of the Bureau's grazing regulations that redefined the term "grazing preference," and introduced the term "permitted use". The Department of Justice has since filed an appeal in the case. Pending resolution of this court case, the phrase "the total number of animal unit months of specified livestock grazing" is used in lieu of either "grazing preference" or "permitted use".

On February 12, 1997, Secretary of the Interior Bruce Babbitt approved the Standards and Guidelines for Nevada. These standards for rangeland health and the guidelines for grazing management were developed in consultation with the Resource Advisory Councils for the Bureau of Land Management (BLM) in Nevada to help ensure productive sustainable rangelands. The implementation process for the standards and guidelines is occurring in two separate processes. The first is the determination that the terms and conditions of grazing permits must ensure compliance with the standards and guidelines. In the absence of other information, it is the position of the BLM that terms and conditions of existing permits are in conformance. The second process is the allotment evaluation process. Therefore, reference is made within this document to the standards and guidelines developed for the Sierra Front - Northwestern Great Basin Area (the specific area that includes the Gray Hills Allotment)¹.

A. Purpose

In June, 1992, the Bureau of Land Management issued its *Strategic Plan for Management of Wild Horses and Burros on Public Lands*. One of the objectives is to establish initial Appropriate Management Levels (AMLs) for all herd areas. In order to establish an AML for wild horses in the Wassuk Herd Management Area (HMA), it is necessary to evaluate resource management within all the allotments included within the HMA. One of these is the Gray Hills Allotment.

¹BLM (1997), copies available at the Carson City District Office.

Specifically, the purpose of the allotment evaluation process is to determine if current grazing practices are consistent with the attainment of Walker Resource Management Plan (RMP) and allotment specific objectives for the Gray Hills Allotment. If current grazing practices are not consistent with attainment of these objectives, then appropriate changes in management needed to meet these objectives will be identified, and appropriate change(s) in management implemented.

- B. **Allotment Name and Number:** Gray Hills Allotment (03539). The allotment name is derived from the hills that lie in the northern portion of the allotment (refer to Map No. 2).

- C. **Permittee:** ELW Ranches, Inc. (Rafter 7 Ranch is the name of the base property that adjoins the allotment). For the purpose of this allotment evaluation, the permittee will simply be referred to as "ELW Ranches".

- D. **Evaluation Period:** This evaluation will concentrate on management after the Walker Resource Management Plan (RMP) Record of Decision, issued in 1986. Note that much of the baseline data was collected prior to this period.

- E. **Selective Management Category:** "M", which means to "maintain" in current satisfactory condition (BLM, 1982).

II. INITIAL STOCKING RATES

A. Livestock Use

1. Total Number Of Animal Unit Months Of Specified Livestock Grazing

The total number of animal unit months of specified livestock grazing in the Reese River, Salles Ranch, Cambridge Hills, and Summit Springs Allotments were established during the rangeland adjudications in 1960 and 1961. Since grazing in all four allotments was controlled by the same permittee (Rafter 7 Ranch), they were combined into the Gray Hills Allotment in 1966. The combined number of animal unit months of specified livestock grazing of all four allotments resulted in 4,620 AUMs. This figure had resulted from reductions of the original "priority" allocations due to nonuse rather than lack of forage. The results from the 1960 ocular reconnaissance showed that 6,546 AUMs of forage was available for winter cattle grazing. The old Summit Springs Allotment (now the Summit Springs Pasture of the Gray Hills Allotment, which is discussed in the next section) had been historically grazed by sheep and was also rated at 2,855 AUMs for winter sheep grazing (i.e., if sheep were grazed instead of cattle).

The number of animal unit months of specified livestock grazing remained unchanged until 1989, when a portion of the allotment was transferred to the U.S. Forest Service in accordance with the National Forest and Public Lands of Nevada Enhancement Act of 1988. The remaining AUMs on BLM managed public lands was 4,281 AUMs. In 1990, the allotment was converted from cattle to sheep.

2. Season of Use and Pasture System

The Rafter 7 Allotment Management Plan (AMP), which was approved by the Walker Area Manager in 1982, established a four pasture, rest - rotation system in the Gray Hills Allotment. The transfer of a portion of the allotment to the U.S. Forest Service in 1989 and the conversion of cattle and sheep in 1990 necessitated a change in this AMP. In 1993 a modified grazing system was presented to the BLM. ELW Ranches agreed to graze for at least two years within the system before a final grazing plan would be developed.

As in the original AMP, the proposed system is based on a rest-rotation system during the fall, winter, and summer. Under the new system, Pasture No. 1 (Pinegrove/Southwest Pasture), which includes the lands transferred to the Forest Service, would be grazed every winter. Since this pasture was adjacent to the Rafter 7 Ranch, improved security and supervision would be maintained during the winter months. Winter grazing would improve the range and still provide adequate forage for sheep.

The other three pastures would be rotated through the following treatments: (1) a full season of rest; (2) a light summer grazing season from mid-June to early August; and (3) a late summer/fall grazing season from early August to early November. Initially, ELW Ranches agreed to run only 20-25% of the total number of animal unit months of specified livestock grazing. This pasture system is projected over a four-year grazing cycle in Table 1. Pasture boundaries are shown on Map No. 2.

Table 1. Pasture Sequence Through Four-Year Cycle. *Shown is the general season-of use, estimated sheep numbers and on - off dates (S. = Sheep). *Note that the Pinegrove and Southeast pasture had been subdivided when the allotment was grazed by cattle in order to promote better distribution. They became Pinegrove / Southwest Pasture, and South / Southeast Pasture.*

Pasture Number	Pasture Name	Treatments by Year			
		1993	1994	1995	1996
1	Pinegrove *	«----- Winter Grazing (710 Sheep 1/1 to 4/1) -----»			
2	Gray Hills	Fall 500 S. (8/1 - 11/1)	Summer 230 S. (6/10 - 8/1)	Rest	Fall 600 S. (8/1 - 11/1)
3	Summit Springs	Rest	Fall 500 S. (8/1 - 11/1)	Summer 230 S. (6/10 - 8/1)	Rest
4	Southeast*	Rest	Rest	Fall 600 S. (8/1 - 11/1)	Summer 230 S. (6/10-8/1)

B. Wild Horse and Burro Use

1. Herd Management Area (HMA) in Allotment

The Wassuk Wild Horse HMA consists of 50,100 acres of which the Gray Hills Allotment accounts for 40.7% of the total HMA. Within the Gray Hill Allotment there are 20,400 acres which are part of the Wassuk HMA; of which 16,116 acres are in the Summit Springs Pasture (50% of pasture) and 4,284 acres are in the Gray Hills Pasture (16% of pasture). Refer to Map Nos. 1 and 3 for location of HMA boundaries.

2. Management Levels

The Walker Rangeland Program Summary (RPS), issued in November 1989, stated that 732 AUM's will *initially* be provided for wild horses within the Gray Hills Allotment. Since this was an estimate based on a proration of acreage applied to the population that existed in 1989 (i.e., not on monitoring data), it was not considered as the Appropriate Management Level (AML).

The AML for the Wassuk HMA will be based on the stocking levels for wild horses determined for all the allotments within the HMA. The stocking level for the Gray Hills Allotment will be determined through the analysis of monitoring data contained within this document.

C. Wildlife Use

1. **Mule Deer** (*Odocoileus hemionus*)

a. Existing Numbers

The Walker RMP (1985) identified 65 deer in the Gray Hills Allotment. This area is a low priority for deer censuses by the Nevada Division of Wildlife.

b. Mule Deer Ranges

Approximately 8,560 acres of mule deer yearlong habitat is located in the Summit Springs Pasture of the Gray Hills Allotment. This habitat is located in the vicinity of Bald Mountain in the northern end of the Wassuk Range. No key or crucial habitat has been identified in the allotment.

2. **Bighorn Sheep** (*Ovis canadensis*)

The Land Use Plan recognized a substantial portion of the Wassuk Range as potential bighorn sheep habitat. This potential habitat includes a portion of the Gray Hills Allotment (refer to Map 4). In November of 1967, the Nevada Department of Fish and Game², in conjunction with the Hawthorne Naval Ammunition Depot, decided to establish a confined (450 acre enclosure) population of bighorn sheep on Mount Grant. The population was to serve as a reservoir of capture stock for future bighorn transplants. The bighorn suffered extensive predation by mountain lions within the enclosure. In June of 1976 the decision was made to abandon the enclosure, and the remaining sheep were released. The bighorn sheep have remained primarily within the withdrawn military area, utilizing the east and southeast side of Mount Grant. The population periodically receives small augmentations to bolster the health of the population. Due to the potential conflicts between domestic sheep and bighorn sheep, there are no plans to expand the bighorn sheep population onto BLM administered lands. BLM policy prevents the release of bighorn sheep in proximity to domestic sheep use areas unless topographic features or other barriers prevent physical contact.

3. **Other Species**

The Gray Hills Allotment contains animal species typical of the mountains and alluvial fans of the Great Basin. Also included are species associated with the East Walker River, which is mostly private land. Refer to Appendix III for a detailed list of wildlife species.

²This organization is current known as the Nevada Division of Wildlife (NDOW).

III. ALLOTMENT PROFILE

A. Description

The Gray Hills Allotment is approximately 12 miles south of Yerington, Nevada (refer to Map No. 1, page i). The East Walker River runs through the west side of the allotment and the east side is dominated by the Wassuk Mountain Range. Access through the allotment is via the East Walker River Road - West (portion of allotment west of East Walker River), East Walker River Road - East (portion of the allotment east of the East Walker River), Reese River Road (through Summit Springs Pasture), and the Intertie Powerline Road (from north to south).

1. Acreage and Land Status

The Gray Hills Allotment currently contains 98,302 acres of public land (refer to Table 2). A large block of private land lies adjacent to the East Walker River and divides the allotment in two sections (refer to Map No. 2). Otherwise, there are no intermingled private lands.

Table 2. Public lands in the Gray Hills Allotment by Pasture and County.

Pasture	Lyon County		Mineral County		TOTAL
	Acres	Percent of Pasture	Acres	Percent of Pasture	
Gray Hills	23,211	85%	3,945	15%	27,156
Pinegrove	14,746	100%	0	0	14,746
South	11,060	100%	0	0	11,060
Southeast	10,213	100%	0	0	10,213
Southwest	2,956	100%	0	0	2,956
Summit Springs	5,584	17%	26,587	83%	32171
Totals	67,770	69%*	30,532	31%*	98,302

* Percent of total allotment (i.e. 69% of the allotment is in Lyon County).

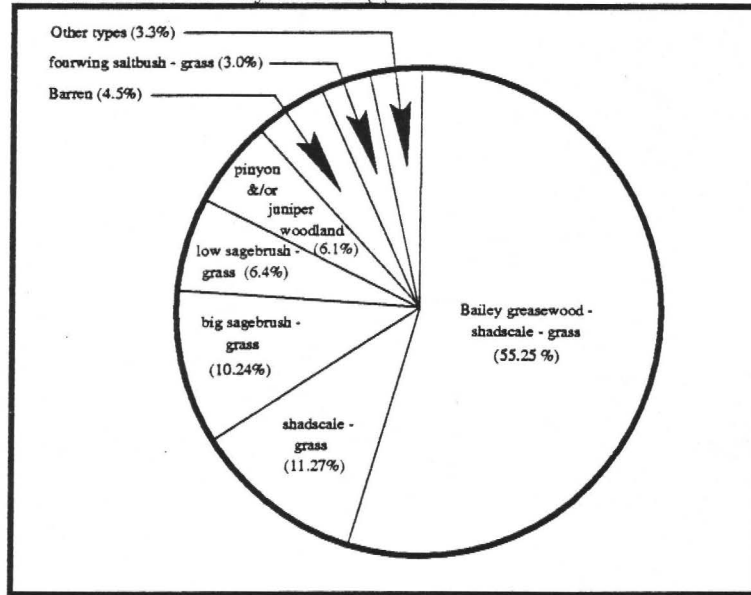
2. Topography and Elevation

Elevation varies from 4,549 feet near the East Walker River to 9,191 feet at the peak of Bald Mountain in the Wassuk Mountains. The northern and east-central portions of the allotment are dominated by rolling hills (the Gray and Cambridge Hills, respectively). The northwestern portion includes mountain slopes (Wassuk Mountains) and alluvial fans. The remainder of the allotment is composed mostly of alluvial fans (refer to Map No. 2).

3. Vegetation

Figure 1 shows the major vegetation types found on public lands in the allotment. Specific ecological sites and plant species are identified in Appendix II. A majority of the allotment is dominated by relatively low producing plant communities. The pinyon - juniper dominated communities are found in the Wassuk Mountains (Summit Springs Pasture). Although the Walker River runs through the western portion of the allotment, most of the riparian vegetation is on private lands (refer to Map No. 2).

Figure 1. Major Vegetation Types. *Specific ecological sites are identified in Appendix II.*



4. Range Improvement Projects

Appendix IV shows the range improvement projects that have been constructed in the Gray Hills Allotment. Many of these are associated with the old AMP, when cattle were grazed in the allotment.

B. Allotment Specific Objectives

Listed below are the original objectives that relate directly or indirectly to the Gray Hills Allotment. Note that some of these objectives may have been modified at a later date due to changes in BLM policy (discussed in more detail in the Conclusions Section, beginning on page 19). All these objectives have been determined to be in conformance to the standards and guidelines developed for the Sierra Front - Northwestern Great Basin Area.

1. Land Use Plan Objectives

The Walker Resource Management Plan (RMP) Record of Decision was issued in June, 1986.

- a. Initially authorize livestock use at the three year average licensed use level of 36,962 AUMs (the total for Walker and Mina Planning Units). There will be no initial change in the total number of animal unit months of specified livestock grazing.
- b. Develop and implement AMPs on seven Category I allotments and continue implementation of existing AMPs on one Category I and four M allotments to improve and/or maintain condition; provide for proper utilization within key areas; achieve better livestock distribution to obtain more uniform utilization; and provide an increase in available forage for livestock, wild horses, and wildlife. Gray Hills is one of the "M" Allotments mentioned in this objective.
- c. Initially manage wild horses and burros in current herd areas at present estimated population levels.
- d. Develop and implement four Herd Management Area Plans (HMAPs) for wild horses and burros. The Wassuk HMA was included as one of these four areas.
- e. Support reintroductions of bighorn sheep and other endemic species into suitable habitats.

2. Rangeland Program Summary (RPS)

The Walker RPS was issued in November, 1989.

- a. Maintain existing trend and condition as recorded on key areas.
- b. Initially provide 4,281 AUMs of livestock forage.
- c. Maintain an acceptable use level on key species on key areas. Initial allowable use level will generally³ be 60%.
- d. Maintain habitat to support a population of 72 mule deer yearlong.
- e. Limit utilization of key forage species plants at Buckbrush Spring to 55%.
- f. Maintain or improve wild horse habitat consistent with wildlife and livestock objectives.

³It was recognized during the time of the RPS that the "allowable use level" may change as additional monitoring data is collected on the allotment, and that these levels may vary due to allotment specific conditions. (Walker RPS, footnote 4)

- g. Maintain or improve free-roaming behavior of wild horses by protecting or enhancing the Herd Area.
- h. Maintain or improve wild horse habitat by ensuring that all waters remain open to use by wild horses.
- i. Initially provide for approximately 732 AUMs of forage which is the prorated demand based on the estimate of 40% of the herd area in this allotment.
- j. Continue management in accordance with the AMP.
- k. Prepare an HMAP.

3. **Rafter Seven Ranch AMP** (approved September 15, 1982)

As noted previously, the transfer of a portion of the allotment to the U.S. Forest Service in 1989 and the conversion from cattle to sheep in 1990 necessitates a change in this AMP. Shown below are the original allotment objectives that relate to ecosystem management.

- a. Increase vegetative cover to 25%.
- b. Increase the composition of Indian ricegrass (*Oryzopsis hymenoides*) to 15%.

C. **Key Species Identification**

1. **Uplands**

Based on their importance to mule deer, livestock and wild horses, late seral perennial grasses are considered key species. These include Indian ricegrass, Thurber needlegrass (*Stipa thurberana*), needle-and-thread (*Stipa comata*), desert needlegrass (*Stipa speciosa*), basin wildrye (*Elymus cinereus*), and on some ecological sites, bottlebrush squirreltail (*Sitanion hystrix*). Due to its importance as a forage species for livestock in early spring, bud sagebrush (*Artemisia spinescens*) is considered a key species on Key Areas G001 and G002 (discussed under "Trend" on page 14).

2. **Riparian**

Riparian vegetation is important to wildlife, wild horses, livestock and humans. Woody species include Fremont cottonwood (*Populus fremontii*), coyote willow (*Salix exigua*), Pacific tree willow (*Salix lasiandra*), and yellow willow (*Salix lutea*). Meadow species include creeping wildrye (*Elymus triticoides*), sedges (including *Carex nebrascensis* and *Carex praegracilis*), rushes (including *Juncus balticus*), spikerushes (including *Eleocharis palustris*), smooth horsetail (*Equisetum laevigatum*), Kentucky bluegrass (*Poa pratensis*), and Nevada bluegrass (*Poa nevadensis*).

D. Threatened and Endangered Species

No threatened or endangered species have been identified in the Gray Hills Allotment. Although no BLM sensitive species have been identified inside the allotment, Mono County phacelia (*Phacelia moneinsis*) and Fletcher dark kangaroo mouse (*Microdipodops megacephalus tiehmi*) have been observed in the vicinity. Due to its preference to habitats common in the Gray Hills Allotment, there is a possibility that the spotted bat (*Euderma maculatum*) may exist in the allotment.

As typical among many species of annual plants, the Mono County phacelia is generally associated with early seral and low productive sites in the Wassuk Range⁴. Therefore the major conflict might be management toward a higher seral stage or plant community with a high density of perennial plants (what is usually associated with proper management).

The Fletcher dark kangaroo mouse has been found in plant communities associated with sagebrush (*Artemisia* sp.) and singleleaf pinyon pine (*Pinus monophylla*), which will exist in the mid, late and potential natural community seral stages of several ecological sites in the Summit Springs Pasture. This habitat would also produce insects consumed by the spotted bats and be near the talus slopes and caves which may be used by the bat. No conflicts have been identified in the Gray Hills Allotment.

⁴Based on information from Nevada Natural Heritage Program (1993).

IV. MANAGEMENT EVALUATION

A. Actual Use

Authorized livestock use is shown below. A grazing year consists of a complete cycle of pasture treatments. Note that after the conversion from cattle to sheep in 1990, ELW Ranches was very cautious about grazing until a management strategy had been developed and implemented. After the BLM accepted ELW's plan in 1993, the permittee still wanted to run only a small portion of the total number of animal unit months of specified livestock grazing until there was evidence that the system produced positive responses on the range. Refer to page 18, for wild horse census data.

Table 3. Livestock Actual Use During Evaluation Period.

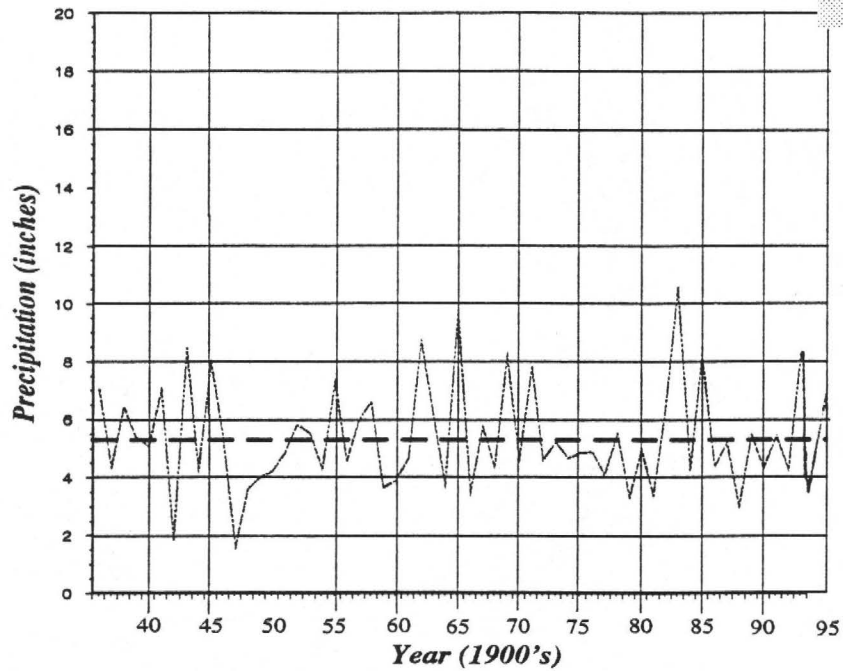
Grazing Year	Kind of Livestock	Pinegrove/Southwest Pasture		Gray Hills Pasture		Summit Springs Pasture		Southeast / South Pasture		Total AUMs
		AUMs	Use Period	AUMs	Use Period	AUMs	Use Period	AUMs	Use Period	
1985/86	Cattle	348	1/15-4/15/86	0	Rested	621	1/16-4/15/86	205	1/1-1/15/86	1,817
		424	6/2-7/15/86							
1986/87	Cattle	0	Rested	216	11/18-1/16/87	1234	1/16-4/1/87	50	6/15-7/15/87	1,500
1987/88	Cattle	304	3/25-4/25/88	815	6/5-8/5/88	0	Rested	0	Rested	1,119
1988/89	Cattle	83	10/3-11/22/88	113	2/6-4/15/89	0	Rested	417	2/6-4/15/89	993
		380	12/18-2/5/89							
1989/90	Cattle	96	2/1-4/10/90	0	Rested	0	Rested	647	12/6-4/15/90	743
1990/91		0		0		0		0		0
1991/92	Sheep	0		114	7/3-8/7/92	360	8/7-10/15/92	38	6/22-7/3/92	512
1992/93	Sheep	261	1/6-3/29/93	314	8/10-10/25/93	0		0		575
1993/94	Sheep	146	1/5-1/29/94	0		0		0		210
		73	3/5-3/19/95							
1994/95	Sheep	432	1/1-3/23/95	0		0		295	8/20-10/19/94	727
1995/96	Sheep	686	12/01-4/01	0		0		215	9/01-10/01/95	

B. Precipitation

The annual precipitation shown in Figure 2 is from Yerington, Nevada, which is the closest station with consistent and reliable data. The fifty-five year mean annual precipitation is 5.4 inches. The fifty-five year mean monthly precipitation is shown in Figure 3. The Yerington Recording Station is located at 4,380 feet elevation, which is lower than most of the ecological sites in Gray Hills Allotment. Due to the effects of orographic lifting⁵, sites at higher elevation will have a higher annual precipitation than Yerington. This was documented throughout the state in the *Nevada Watershed Studies* (Houng-Ming Joung, etal, 1983).

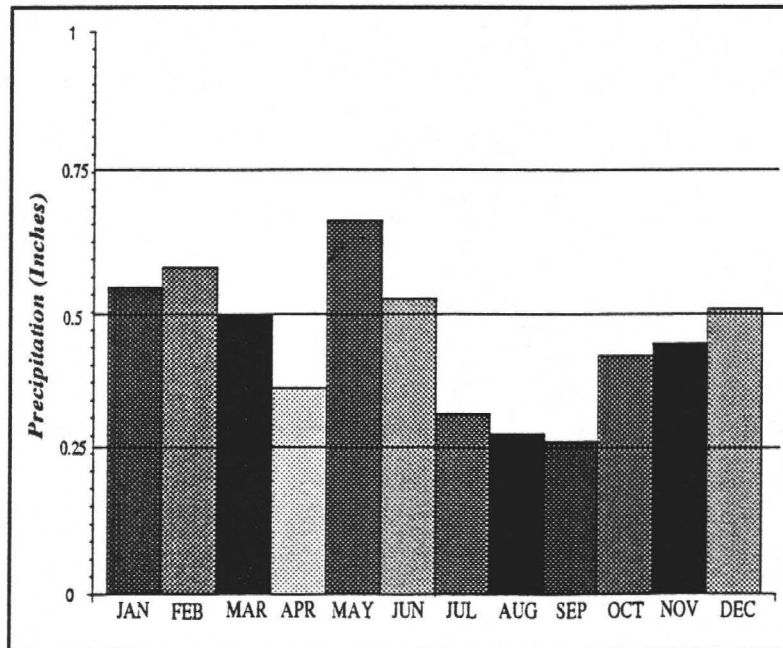
⁵Orographic lifting is defined in Appendix II.

Figure 2. Annual Precipitation. Shown below is the annual precipitation recorded at Yerington, Nevada.



———— Annual Precipitation - - - - - 55 Year Mean

Figure 3. Monthly Precipitation. This information is based the fifty-five year mean monthly precipitation for Yerington, Nevada.



C. Utilization

Several years of use pattern mapping have been done for the Gray Hills Allotment. Table 4 shows the data summarized for the entire allotment. Type of use is based on the presence of animals and animal sign, which includes hoof prints and droppings. In 1995, a detailed use pattern map was completed throughout the entire HMA in preparation for the allotment evaluations. Since this is the most concise and complete recording of the HMA, it was used in the stocking level calculations appearing in Appendix V. The use recorded in 1995 in the Southeast Pasture was by wild horses (outside the HMA) due partly to the Summit Springs Pipeline being left on after livestock had been removed from that pasture. Utilization transects were first run on key areas on key areas in 1987 (refer to Table 5).

Table 4. Use Pattern Mapping During the Evaluation Period

Date	Pasture	Kind of Animal	Utilization Classes					
			No Use, Slight, & Light		Moderate		Heavy and Severe	
			Acres	% ¹	Acres	%	Acres	%
04/14/87	Gray Hills	Cattle & Wild Horses ²	13,268	49%	13,888	51%	0	0%
04/14/87	Summit	Cattle & Wild Horses ³	20,907	65%	1,600	5%	9,664	30%
08/09/88	Gray Hills	Cattle	19,572	72%	3,904	14%	3,680	14%
09/28/89	Summit	Wild Horses	32,171	100%				
04/19/90	Southeast	Cattle	15,705	74%	3,136	15%	2,432	11%
04/19/90	Pinegrove	Cattle	12,774	72%	4,288	24%	640	4%
04/21/94	Pinegrove	Sheep	16,614	94%	1,088	6%	0	0%
04/25/95	Pinegrove	Sheep	17702	100%	0	0%	0	0%
04/25/95	South	Wild Horses	11060	100%	0	0%	0	0%
04/27/95	Southeast	Wild Horses	7397	72%	0	0%	2816	28%
04/25/95	Gray Hills	Wild Horses	27,092	99%	64	<1%	0	0%
04/26/95	Summit	Wild Horses	25,599	80%	6,572	20%	0	0%

¹ "%" means percent of the pasture (i.e., the area referred to under the "Pasture" column).

² Most of the use was by livestock.

³ Most of the use was by wild horses.

Table 5. Key Area Utilization. The location of key areas are shown on Map No. 2. The term "No Use" means the use levels was in the "No Use" utilization class (0-5%). G001 is in the Gray Hills Pasture and G002 is in the South Pasture.

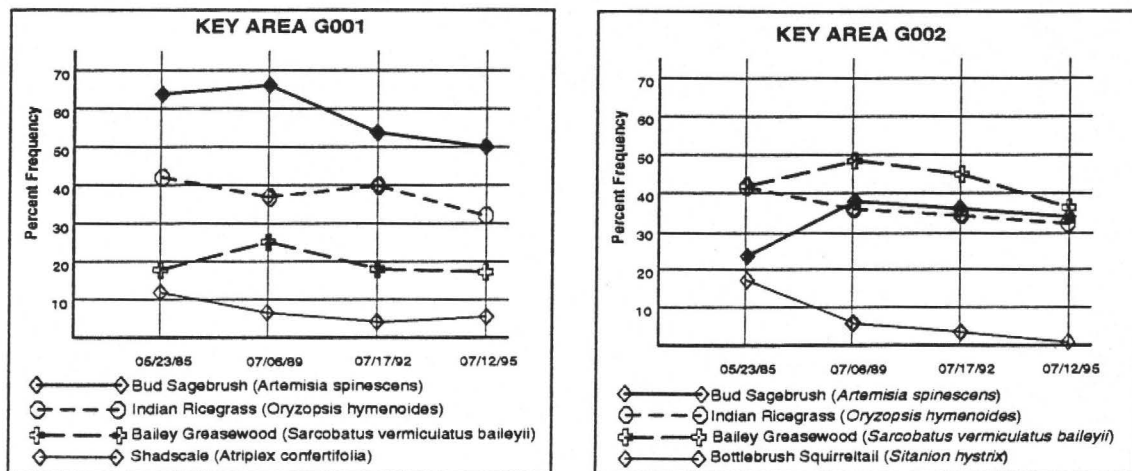
Key Area	Key Species	Date / % Utilization By Year									
		1987	1988	1989		1990	1991	1992	1993	1994	1995
G001	ORHY	4/14/87 48%	8/9/88 54%	4/5/89 No Use	9/28/89 No Use	4/19/90 No Use	4/17/91 No Use	9/11/92 No Use	4/6/93 No Use	5/4/94 No Use	4/26/95 No Use
	ARSP5	27%	No Use	No Use	No Use	No Use	No Use	No Use	No Use	No Use	No Use
G002	ORHY	4/15/87 No Use	8/9/88 No Use	4/6/89 No Use	9/28/89 No Use	3/28/90 54%	4/17/91 5.25%	9/11/92 No Use	4/6/93 No Use	8/10/94 No Use	4/25/95 No Use
	ARSP5	No Use	No Use	No Use	No Use	No Use	No Use	No Use	No Use	No Use	No Use

D. Trend

1. Frequency

Two quadrat frequency studies were established in the Gray Hills Allotment in 1985. Trend data from these studies are shown in Figures 4 and 5. The key species on both key areas are Indian ricegrass and bud sagebrush. Note that Indian ricegrass showed a statistical significant decrease in frequency between 1985 and 1995 on both key areas⁶. Bud sagebrush showed a statistically significant decrease on Key Area G001. Compare this with the Key Area Utilization in Table 5, above.

Figures 4 and 5. Summary of Frequency Study Results. The key areas are located in the Gray Hills Pasture (G001) and South Pasture (G002), refer to Map No.2.



⁶For all the reading this document, the level of significance was tested at both the 80% and 95% confidence levels. In both cases, the changes were determined to be significant. For the non statisticians, this means there was a big change, no matter how you look at it.

2. Photo Plots

Several photo plots were established in the allotment in 1968 and photographs have been taken frequently since then (the most recent being 1996). Locations of the plots are shown on Map No. 2. Two photo points are recorded at least every three years: a close-up of a five-foot square plot and a panoramic photograph of the area in vicinity of the plot. A team was formed to evaluate these photos comprising of individuals familiar with the ecological sites of the Wassuk Mountain Range and vicinity. Observations by the team are summarized below.

For the purposes of this evaluation, trend in ecological status is referred to as either downward (moving toward an earlier seral stage) or upward (moving toward the potential natural community). However, ecological status should not be confused with rangeland health. In addressing the ecological status concept, the Committee on Rangeland Classification formed by the National Research Council⁷ stated that it "... will not serve as an adequate evaluation of rangeland health, as defined by the committee. The current system does not adequately assess soil stability or the integrity of ecological process such as nutrient cycles and energy flow."

Therefore, the team tried to analyze factors such as perennial plant density, cover, bare ground and other factors that may indicate the health of the rangeland in vicinity of the study sites. Use by livestock and wild horses is discussed for each plot and is based on use pattern mapping data.

Photo Plot 1-1 (Pinegrove Pasture): There has been a steady decrease in Indian ricegrass since 1981, although plants were very healthy and producing much seed in 1993. However, galleta (*Hilaria jamesii*) has increased. Very little change in shrub cover and density was observed. Since most of the ecological sites in the vicinity of this plot have more Indian ricegrass than galleta in their potential natural community, the ecological status may be in a downward trend. However, soil stability may be improving. Galleta binds the soil more effectively since it is a mat forming perennial grass while Indian ricegrass is a bunch grass. This site generally has not received much use by livestock. The exception was in 1990, when 44.6% (Moderate) utilization by cattle was recorded on a transect ran in the vicinity of this site.

Photo Plot 1-2 (Pinegrove): Since 1981, there has been a steady increase in perennial plant cover, including Indian ricegrass, and a decrease in bare ground. However, there may have been a decrease in number of plants (i.e., fewer, but larger individual plants). This may indicate that there has been little or no seedling establishment of perennial plant species. This site has received very little use by livestock.

Photo Plot 2-1 (Gray Hills Pasture): Perennial plant density decreased between 1968 to 1975. However, there has been a slight increase in perennial plant density since 1981.

⁷National Research Council (1994), p.82.

The change in trend corresponds to an increase in use levels on this site by livestock beginning in 1982.

Photo Plot 2-2 (Gray Hills Pasture): The dominant perennial grass is sand dropseed (*Sporobolus cryptandrus*), which has decreased since 1981. Shrubs have also decreased and bare ground has increased. Soil movement was also noted, which indicates a lack of soil stability. This site has not received much use by livestock.

Photo Plot 2-3 (Gray Hills Pasture): Perennial plant density showed a slight increase between 1969 and 1987. However, there has been a decrease in Indian ricegrass and shrub plants since 1987. Very little livestock use has occurred in the vicinity of this plot in the past ten years.

Photo Plot 3-1 (Summit Springs Pasture): Winterfat (*Eurotia lanata*) has almost disappeared in the vicinity of the photo plot, which may indicate a downward trend in ecological status. However, Indian ricegrass and galleta have increased and there has been an overall increase in perennial plant cover. The increase in plant cover should result in greater soil stability. This area has historically received heavy use by both livestock and wild horses.

Photo Plot 3-2 (Summit Springs Pasture): Indian ricegrass has increased while galleta has decreased, which would indicate an upward trend in ecological status. Otherwise, very little change has occurred since 1981. This plot has also received heavy use by both livestock and wild horses.

Photo Plot 4-1 (South Pasture): Located in the vicinity of Key Area G002 (refer to previous section discussing frequency studies). There has been a decrease in Indian ricegrass and an increase in galleta, which may indicate a downward trend in ecological status. Shrub health and density has decreased. Soil movement was noted. Very little use has been recorded in the vicinity of this plot.

Photo Plot 4-2 (Southeast Pasture): Results are similar to Photo Plot 4-1.

E. Ecological Status

Ecological sites correlated from soil data are shown in Appendix II. A summary of the major vegetation types is shown in Figure 1, on page 7. Although ecological sites were identified during the soil survey, ecological status was not determined. The ecological status has been identified for the key areas and is shown in Table 6.

Table 6. Ecological Status of the Key Areas in Gray Hills Allotment. Refer to Map No. 2 for location of key areas and Appendix I for definition of technical terms. Data was collected on July 11, 1985 on G001 and May 31, 1985 on G002.

Key Area	Pasture	Ecological Site Number & Name	% Potential Natural Community	Ecological Status
G001	Gray Hills	027X018NV - Gravelly Loam 4-6" P.Z.	70%	Late Seral
G002	South	027X018NV - Gravelly Loam 4-6" P.Z.	62%	Late Seral

F. Wildlife Habitat

Aside from the monitoring that has already been discussed, no additional monitoring has been conducted to determine specific aspects of change relative to wildlife habitat suitability. This is due to the relatively small number of mule deer and lack of key or critical mule deer habitat. Based on the type of ecological sites present in the allotment the major limiting factor is suitable habitat (refer to Appendix II). Yearlong habitat in the Summit Springs Pasture is dominated by Bailey greasewood (*Sarcobatus vermiculatus baileyi*), shadscale (*Atriplex confertifolia*), low sagebrush (*Artemisia arbuscula*) and singleleaf pinyon (*Pinus monophylla*). Approximately 2,900 acres of suitable ecological sites are dominated by big sagebrush (*Artemisia tridentata*) and mountain sagebrush (*Artemisia vaseyana*).

Though the allotment is identified as having potential bighorn sheep habitat, this possibility cannot be realized as long as there are domestic sheep operations in the area. Current operations are not expected to change significantly in the near future.

G. Riparian Habitat

The riparian areas discussed below were visited in 1995. These areas were evaluated based on the definition of healthy and functioning riparian areas described in the *Riparian - Wetland Initiative for the 1990's* (BLM, 1991) and using procedures described in Technical References (TR) 1737-9 and TR 1737-11. Buckbrush and Summit Springs are sources for pipelines. Although these two sources are fenced, there is sufficient water for wild horses. Refer to Map No. 2 for locations.

Buckbrush Spring: Although the fenced portion was identified as proper functioning condition (PFC), the vegetation inside the enclosure has little new growth and generally appears unhealthy. This situation is being caused from an accumulation of dead material.

Summit Spring: This area was identified as proper functioning condition. The fence has failed in the past, allowing horses to graze riparian vegetation. However, this is probably why there is less dead material accumulated and why the plants show a higher vigor than Buckbrush Spring. The unfenced portion of the riparian zone was also functional and was not showing negative impacts from wild horse use. Observations indicate that the horses are watering at this and the other springs, but are not staying around. This may be attributed to the presence of mountain lions.

Twilight Spring: The spring source is not fenced. This riparian area is in proper functioning condition though the vegetation is not very healthy. The soil is very skeletal and is currently supporting a plant community dominated by coyote willow (*Salix exigua*), which is showing an accumulation of dead branches. The willow did not show evidence of past use by livestock or wild horses.

Abraham Spring: Although this spring has completely dried up, it still supports a stand of mature coyote willow and a few wild rose (*Rosa woodsii*) plants. The area was visited in April, 1995, which was a wet spring and therefore it should have been at peak flow. Because

of the lack of a surface flow and lack of grass, grass-like and forb species, functionality was difficult to determine. However, young willow and wild rose plants were noted at the site.

East Walker River: The majority of the riparian zone along the East Walker River lies on private land. The approximately half mile that lies on public land is in proper functioning condition. There is a good diversity of vegetation in terms of height and age classes, and the soil appears quite stable.

H. Wild Horse Habitat and Numbers

Shown below is census data specific to the Gray Hills Allotment. Much of the HMA overlaps the yearlong mule deer habitat in the Summit Springs Pasture (refer to Map Nos. 3 and 4), although wild horses have tended to avoid the thicker stands of singleleaf pinyon. This may be due to the presence of mountain lions. Predation may also help explain why the population has not exceeded the 1991 population level and why they do not linger near water sources.

Table 7. Wild Horse Numbers in the Wassuk HMA.

Year	Wild Horse Numbers in Allotment	Wild Horses in HMA
1989	113	174
1991	81	157
1993	51	123
1994	51	116
1995	67	141

V. CONCLUSIONS

The accomplishment of the objectives shown in Section III B (Page 7) are discussed below. Objectives have been grouped due to similarities.

A. Utilization, Trend, and Condition

Maintain an acceptable use level on key species on key areas. Initial allowable use level will generally be 60%.. [Walker RPS]

As shown in Table 5, page 14, utilization has not exceeded the 60% utilization level on both key areas. Therefore, the above objective was been met. However, the 60% utilization level was established as a short term objective to facilitate a positive trend on the range. As stated in the Walker RPS, the source of this objective, "As additional monitoring data is collected on this allotment, the allowable use level may be higher or lower depending on allotment-specific conditions. These utilization levels are consistent with those identified by the Nevada Rangeland Monitoring Handbook issued September 1984." As noted in the Nevada Rangeland Monitoring Handbook (1984), "[i]n monitoring degrees of utilization, the primary concern is the trend in the plant community resulting from various levels of use." It is therefore important to determine if the use levels are causing a positive or negative effects on trend and condition. Objectives that relate to trend and condition are shown below.

Maintain existing trend and condition as recorded on key areas. [Walker RPS]

Increase vegetative cover to 25%. [Rafter 7 AMP]

Increase the composition of Indian ricegrass (Oryzopsis hymenoides) to 15%. [Rafter 7 AMP]

These objectives are not being met on specific portions of the allotment. Both key management areas G001 and G002 show a significant downward trend in Indian ricegrass. However, the utilization data from key area G001 has shown that use levels have exceeded the "no-use" category only twice in the past nine years. Use has exceeded "no-use" only twice on key area G002 and one of those instances it only exceeded "no use" by less than one percent. In all cases the use was below the 60% utilization limit.

Conversely, the photo plots showed an increase in ricegrass and a decrease in bare ground (i.e., an increase in perennial plant cover) on areas that have received heavy and severe utilization in the past (refer to Photo Plots 2-1, and 3-1). Most areas of no or slight use showed either a static trend or a decrease in perennial grasses and perennial plant cover (refer to Photo Plots 1-1, 2-2, 4-1, and 4-2). Although Photo Plot 2-1 (which has shown very little use in the past) showed an increase in plant cover, it appears that there have been a decrease in number of perennial plants (i.e., fewer, but larger plants). This may indicate that there has been very little or no seedling establishment of perennial plant species, which may eventually result in a decrease of cover as older plants die. Based on these observations, the limiting factor for perennial grasses and perennial plant cover may be *lack* of properly timed animal impacts.

Although the objectives relating to Indian ricegrass and vegetative cover were being met on Photo Plot 3-1, there was a decrease in winterfat. This study site is located on a Sandy 5-8" P.Z. ecological site (029X012NV) which should support a potential natural community (PNC)⁸ dominated by Indian ricegrass and fourwing saltbush (*Atriplex canescens*). This site should also have from 5-20% winterfat (SCS, 1989). Since the reason for the decline in winterfat is not site potential, and since perennial grasses are increasing under heavier use levels, the timing of this use may be in conflict with the specific growth cycle of winterfat. During use mapping in April, 1995, it was noted that utilization levels by wild horses on winterfat exceeded that of perennial grasses. This use is during the critical growth period of winterfat (March 15 to June 15), but prior to the critical growth period for Indian ricegrass at the same elevation of (April 15 to June 15).⁹

Since the schedules in the AMP were based on phenology data, very little change in livestock season of use would be needed to cause a positive change in trend. The fall and winter use was established based on the growth periods of Indian ricegrass, which means it may need to be changed to accommodate the growing cycle of winterfat. Spring use by all grazing animals between March 15 and April 15 could be allowed as long as use levels do not exceed 30%¹⁰ during two consecutive years on winterfat (accomplished with the current rest-rotation system). Summer use was intended to trample seed into the ground, increasing seedling establishment. The summer grazing could accomplish this without causing injury to established plants if use occurs after June 15, and plants are not grazed continuously during this time period every year (accomplished with the current rest rotation system).

B. Authorizing Livestock Use and Allotment Management Plan

Initially authorize livestock use at the three year average licensed use level of 36,962 AUMs (the total for Walker and Mina Planning Units). There will be no initial change in the total number of animal unit months of specified livestock grazing. [Walker RMP]

ELW Ranches has used only a small portion of the total number of animal unit months of specified livestock grazing every year since it began grazing. After the conversion from cattle to sheep in 1990, ELW Ranches was very cautious about grazing until a management strategy based on sheep, rather than cattle grazing, had been developed and implemented. After the BLM accepted the plan in 1993, ELW Ranches still wanted to run only fewer sheep until it were confident that the system produced positive responses on the range.

Develop and implement AMPs on seven Category I allotments and continue implementation of existing AMPs on one Category I and four M allotments to improve and/or maintain condition; provide for proper utilization within key areas; achieve better livestock distribution to obtain more uniform utilization; and provide an increase in available forage for livestock, wild horses, and wildlife. Gray Hills is one of the "M" Allotments mentioned in this objective. [Walker RMP]

⁸Defined in Appendix I.

⁹Based on data published in BLM, 1979.

¹⁰The recommended spring use level for half shrubs from the Nevada Rangeland Monitoring Handbook (1984), p. 23

Initially provide 4,281 AUMs of livestock forage. [Walker RPS]

Continue management in accordance with the AMP. [Walker RPS]

As explained in the previous section, the schedules identified in the AMP should accomplish a positive change if livestock are actually grazed. Although the specific pasture sequences proposed by ELW Ranches may be slightly different, they are still based on the same parameters established in the original AMP and therefore should accomplish the same results with only slight modifications. The one place where the sheep system varies is using the Pinegrove Pasture every winter rather than rotating in the system. As long as this occurs during the dormancy period of major perennial forage species, the system should not harm the plant communities and may be advantageous in maintaining plant health and seedling generation. At current stocking levels, very little use is occurring on perennial plants in this pasture. This may be due to a preference for cured annual vegetation during the winter. Assuming that in lieu of cured annuals and a shift of diet to sprouting perennial grass and winterfat in spring, the dormancy period of perennial plants used by sheep will be from August 15 to March 15¹¹ during most years.

Unlike wild horses, livestock movements can be directly controlled by humans and can be forced or attracted into areas the animals would not normally use. The amount of rangeland available to grazing will vary depending on individual livestock operations. This factor makes it extremely difficult to determine a potential stocking level in areas where use mapping has shown large areas classified as "no use". The ocular reconnaissance data is thirty-six years old and the forage amounts determined from that data would be obsolete. Due to this, ELW's cautious approach of using smaller numbers of livestock, and adjusting the system based on monitoring data is appropriate in this situation.

C. Wild Horses

Develop and implement four Herd Management Area Plans (HMAPs) for wild horses and burros. The Wassuk HMA was included as one of these four areas. [Walker RMP]

Prepare an HMAP. [Walker RPS]

The Wassuk HMAP will be completed in FY 98.

Maintain or improve wild horse habitat by ensuring that all waters remain open to use by wild horses. [Walker RPS]

Water is not a limiting factor for wild horses in this allotment. All water have remained open for use by wild horses. Their major source of water is from the trough below Buckbrush Spring. Each spring is discussed in more detail in section IV. G.

¹¹Phenology stages based on Walker RMP and Environmental Impact Statement (EIS), page 3-12 and BLM (1979).

Initially manage wild horses and burros in current herd areas at present estimated population levels. [Walker RMP]

Initially provide for approximately 732 AUMs of forage which is the prorated demand based on the estimate of 40% of the herd area in this allotment. [Walker RPS]

Maintain or improve wild horse habitat consistent with wildlife and livestock objectives. [Walker RPS]

Maintain or improve free-roaming behavior of wild horses by protecting or enhancing the Herd Area. [Walker RPS]

Wild horses were initially managed at the numbers that occurred at the time of the RMP. The initial management level published three years later in the Walker RPS was based on a simple proration of acreage within the HMA and was not based on resource data. Wild horse numbers (i.e., the appropriate management level) will be established for the entire Wassuk HMA and will be based upon the stocking levels determined for all the allotments in the HMA. The stocking level reflects the amount of forage that can be utilized by wild horses (AUMs) while meeting allotment objectives as determined through monitoring.

Based on the calculations for Potential Stocking Level in Appendix V, 920 AUMs of forage is available to wild horses in the Gray Hills Allotment. Note that determination of *potential* stocking level is a determination of forage use and does not necessarily determine if the distribution, timing or the duration of the grazing is meeting trend and condition objectives. As stated under the discussion on trend and condition objectives under Section A, page 20, there may be a problem with the timing of grazing as it relates to winterfat in the Summit Springs Pasture. Therefore, if use levels after March 15 by wild horses and livestock should proper use levels (the desired use level for wild horses is 27.5%) a selective removal of wild horses from the Summit Springs Pasture may be necessary .

D. Wildlife and Riparian Habitat

Support reintroductions of bighorn sheep and other endemic species into suitable habitats. [Walker RMP]

The habitat within the Gray Hills Allotment cannot be considered suitable for the expansion of the Mount Grant bighorn sheep population due to the existing and adjacent domestic sheep allotments unless topographic features or other barriers prevent physical contact. When and where appropriate, this effort will be supported by the Bureau.

Limit utilization of key forage species plants at Buckbrush Spring to 55%. [Walker RPS]

Refer also to the discussion of utilization objectives on page 19. The purpose of this objective was to maintain or improve wildlife habitat by limiting herbivore use on important riparian plant species to less than 55%. It was assumed at the time of the RPS that a major threat to riparian vegetation was any level of use by livestock and wild horses. As shown by the poor health of vegetation inside Buckbrush Spring Enclosure, complete exclusion of grazing may

be as detrimental to the health and vigor of as overutilization. In contrast, the riparian vegetation inside the Summit Springs Exclosure, which has occasionally been grazed by wild horses, is healthier.

Riparian objectives should now relate to the Bureau mandate to manage riparian areas so they are in proper functioning condition¹². All riparian areas in the Gray Hills Allotment are in proper functional condition with the possible exception of Abraham Spring, which could not be determined. Abraham Spring should continue to be visited in the event that the hydrologic factors return due to such factors as changes in plant communities in watershed, geological activity, and periods of increased precipitation.

Maintain habitat to support a population of 72 mule deer yearlong. [Walker RPS]

Although it is uncertain whether there is enough habitat for 72 mule deer, the main limiting factor appears to be ecological site potential (refer to page 17). A possible way of enhancing yearlong habitat in unsuitable ecological sites may be to improve plant diversity by increasing the herbaceous plant component (perennial forbs and grasses). The photo plot information indicates that properly timed animal impacts would cause an increase of grass, while improperly timed impacts may cause a decrease in plants such as winterfat (refer to A, on page 19). Therefore, livestock grazed under schedules in the AMP should cause a positive change to wildlife habitat.

E. Threatened and Endangered Species

As stated on page 10, no threatened endangered, candidate, nor BLM sensitive plant or animal species have been found in the Gray Hills Allotment. If the spotted bat exists in the vicinity, it may be enhanced by wild horse and livestock management that results in more diverse plant communities. This would be due to an increase in the variety of insects that the bats feed on. The Fletcher kangaroo mouse may also be enhanced by a more diverse plant community. An advance toward a later seral stage dominated by perennial plants may pose a threat to the Mono County phacelia, since the plant prefers earlier successional stages or areas of disturbance, including road banks. Since Gray Hills has not been proposed as a wilderness area or other area of special protection, it is not very likely that road maintenance and similar human impacts being eliminated.

¹²BLM (1991), page 1.

VI. TECHNICAL RECOMMENDATIONS

In order to prevent resource deterioration, maintain or improve the health of the range and maintain wildlife habitat, the following technical recommendations are offered. All of these recommendations are in conformance to the standard and guidelines developed for the Sierra Front - Northwestern Great Basin Area.

A. Livestock Grazing

1. *Sheep will be authorized to graze in any pasture during the dormancy of key perennial forage species used by sheep: August 15 to March 15. These dates may vary from year to year based on field examinations by BLM Rangeland Management Specialists.*
2. *Any pasture grazed outside the dormancy period will be followed by a year of rest.*
3. *No more than 920 AUMs of livestock use will be allowed inside the Wassuk HMA. This is based on an equal division of forage between wild horses and livestock calculated in Appendix V.*
4. *The Pasture treatments established in the Rafter 7 AMP will be retained. The following grazing schedules will be followed during a three year period.*

Table 8. Recommended Pasture Sequence Through Three-Year Cycle.

Pasture Number	Pasture Name	Treatments by Year		
		Year 1	Year 2	Year 3
1	Pinegrove	(-- Winter Grazing 1000 S (11/1 - 3/15) ¹⁰ --)		
2	Gray Hills	Summer 1000 S(6/15- 7/31)	Rest	Fall 1000 S(8/1 - 11/1)
3	Summit Springs	Fall 1000 S(8/1 - 11/1)	Summer 1000 S (6/15- 7/31)	Rest
4	Southeast	Rest	Fall 1000 (8/1 - 11/1)	Summer 1000 S(6/15-7/31)

The above pasture system will result in the following livestock stocking level for the Gray Hills Allotment:

Summer Treatment - 1000 Sheep from 6/15 to 7/31 @ 100% Public Land	=	309 AUMs
Fall Treatment - 1000 Sheep from 8/1 to 10/31 @ 100% Public Land	=	605 AUMs
<u>Winter Treatment - 1000 Sheep from 11/1 to 3/15 @ 100% Public Land</u>	=	<u>894 AUMs</u> ¹³
TOTAL STOCKING LEVEL DURING ONE GRAZING SEASON	=	1,847 AUMs

5. *At the end of two three - year cycles, a determination will be made as to whether the stocking level should be maintained, decreased, or increased, and/or whether the pasture treatments should be modified.*
6. *Although the actual use billing will be retained, the permittee will be required to submit an application every year prior to grazing. Nonuse strictly for conservation purposes will not be approved except in situations of drought, insect infestation, or other natural crisis.*
7. *In the event that the permittee does not plan to graze the allotment, another permittee may be authorized to graze either cattle or sheep.*
8. *Cattle may be authorized in the Pinegrove and Southeast Pastures (i.e., outside the Wassuk HMA) under the same limitations as Recommendation 1 and 2. Seasons of use and stocking levels (AUMs) will be restricted to the treatments in Recommendation 3:*

Summer Treatment - 200 Cattle from 6/15 to 7/31 @ 100% Public Land	=	309 AUMs
Fall Treatment - 200 Cattle from 8/1 to 10/31 @ 100% Public Land	=	605 AUMs
<u>Winter Treatment - 200 Cattle from 11/1 to 3/15 @ 100% Public Land</u>	=	<u>894 AUMs</u> ¹⁴
TOTAL STOCKING LEVEL DURING ONE GRAZING SEASON	=	1,847 AUMs

9. *The pipelines that provide water to troughs outside the Wassuk HMA will be turned off after livestock are removed from those pastures.*
10. *Replace the riparian objective for Buckbrush Spring with the follow:*

"Maintain all riparian areas in proper functioning condition."
11. *Modify the AMP objectives as follows:*
 - a. *Maintain or increase vegetative cover.*
 - b. *Increase the composition of late seral perennial grasses and winterfat on ecological sites that will include these species at a significant level in the potential natural community.*

¹³Winter Pasture may actually be used in accordance to Recommendation No. 1, and 3 provided that no more than 894 AUM's are used (the result of the stocking rate shown above during leap years).

¹⁴Winter Pasture may actually be used in accordance to Recommendation No. 1, provided that no more than 894 AUM's are used (the result of the stocking rate shown on Table 8 for leap years).

12. *A six year grazing permit will be issued as a part of the Multiple Use Decision incorporating the above terms and conditions.*
13. *The updated AMP will also be issued as a part of the Multiple Use Decision. The AMP will incorporate the above terms and conditions as well as the updated information contained within this Evaluations.*

B. Wild Horse Management

1. *Refer to Appendix V for the stocking level calculations for wild horses for the entire Wassuk HMA. The AML for the Wassuk HMA will be based on the stocking levels for wild horses in all the allotments within the HMA. The recommended stocking level for the Wassuk HMA is 1984 AUMs and 921 AUMs for Gray Hills allotment. If use on winterfat decreases in early spring in the Summit Springs pasture, populations of wild horses will be allowed to increase, but not exceed the potential stocking level.*
2. *The modified allotment objective in Technical Recommendation A11a and A11b will also apply to wild horse management.*

B. Wildlife

1. *Augmentation of bighorn sheep will not be supported as long as domestic sheep are authorized to graze in the Gray Hills Allotment or on adjacent allotments until interaction between domestic and bighorn sheep can be controlled.*

BIBLIOGRAPHY

- BLM, 1979. Nevada Rangeland Phenology. Report contracted by the BLM on file at most Nevada District Offices.
- BLM, 1982. Final Grazing Management Policy. On file at most BLM offices.
- BLM, 1991. Riparian - Wetland Initiative for the 1990's. BLM publication BLM/WO/GI-91/001+4340.
- BLM, 1997. Standards and Guidelines, Sierra Front-Northwestern Great Basin Area. Available at the Carson City District Office.
- Houng-Ming Joung, John H. Trimmer, Richard Jewell (1983). Nevada Watershed Studies (1963 to 1980). BLM Nevada State Office Technical Publication BLMNVPT830014340.
- National Research Council (1994). Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands. National Academy Press, Washington D.C.
- Nevada Natural Heritage Program (1993). Sensitive Species of Nevada, 1993 Report. Compiled for the Bureau of Land Management, Carson City District.
- Nevada Rangeland Monitoring Handbook, First Edition (1984). Compiled by the Nevada Range Studies Task Group.
- Society of Range Management (1983). Guidelines and Terminology for Range Inventories and Monitoring. Report of the Range Inventory Standardization Committee, SRM.
- Soil Conservation Service¹⁵ (1981). Land Resource Regions and Major Land Resource Areas of the United States. Agricultural Handbook 296
- SCS (1987) Major Land Resource Area 27 Nevada Site Descriptions. Technical Guide, Section IIE. Includes Revisions for specific sites.
- SCS (1989) Major Land Resource Area 29 Nevada Site Descriptions. Technical Guide, Section IIE. Includes Revisions for specific sites.
- SCS (1992) Major Land Resource Area 26 Nevada Site Descriptions. Technical Guide, Section IIE. Includes Revisions for specific sites.
- Technical Reference (TR) 1737-9 (1993). Process for Assessing Proper Functioning Condition. BLM Service Center Publication BLM/SC/ST-93/003+1737

¹⁵Soil Conservation Service (SCS) is now the Natural Resource Conservation Service (NRCS). The organization was called the SCS when most of the publications used in this evaluation were published.

TR 1737-11 (1994). Process for Assessing Proper Functioning Condition for Lentic Riparian- Wetland Areas. BLM Service Center Publication BLM/SC/ST-94/008+1737.

TR 4400-1 (1984). Planning for Monitoring. Published by BLM Service Center, Denver, CO.

TR 4400-7 (1985). Rangeland Monitoring Analysis, Interpretation, and Evaluation (November, 1985).
Published by BLM Service Center, Denver, CO.

ERRATA AND ADDITIONS TO BLACK MOUNTAIN ALLOTMENT EVALUATION

Please add the attached Sections VII and VIII to your copy of the BLACK Mountain Allotment Evaluation. Place these sections immediately after Technical Recommendations (page 23). In addition, the following corrections should be made.

Table of Contents Add the following two sections after Section VI D.

VII. CONSULTATIONS.....	19
VIII. MANAGEMENT ACTIONS SELECTED	21

VII. CONSULTATIONS

In June, 1995, a scoping letter was sent out to interested publics to request any data or information related to the three grazing allotments that contain the Wassuk Herd Management Area (HMA). All comments received were considered in the preparation of the allotment evaluations.

On March 14, 1997, the Black Mountain, Butler Mountain and Gray Hills Allotment Evaluations were sent out to the following organizations and individuals:

Nevada Division of Wildlife
Resource Concepts Inc.
International Society for the Protection of Mustangs & Burros
Joanne Hardesty
Craig C. Downer
Hudson Glimp
United States Forest Service, Bridgeport Ranger District
Bobby Royle
Lyon County Public Lands Commission
Nevada Commission for the Preservation of Wild Horses
Wild Horse Organized Assistance
ELW Ranches, Inc.
George C. Roberts 1990 Trust

Copies of the evaluations were also sent to the Nevada State Clearinghouse for distribution among state agencies.

When reviewing the comments received during the public review, it was noticed that some individuals on the interested public list had not been sent evaluations. Therefore, on June 26, 1997, the Allotment Evaluations were sent to the following organizations and individuals:

Natural Resource Defense Council
Sierra Club, Toiyabe Chapter
The Nature Conservancy
Mineral County Public Land Advisory Board
Nevada Cattlemen's Association
Bureau of Indian Affairs, Western Nevada Agency
Walker River Paiute Tribe
U.S. Fish and Wildlife Service, Nevada State Office
United States Senator Richard H. Bryan
United States Senator Harry Reid
United States Congressman James Gibbons

Comments on the evaluations were received from Hudson A. Glimp (for ELW Ranches), the Commission for the Preservation of Wild Horses, Joanne Hardesty, Nevada Department of Environmental Protection, Nevada Natural Heritage Program, and Nevada Division of Water Resources.

Pertinent comments are summarized and addressed below. Note that some of the errors pointed out in the comments are addressed in the Errata that accompany this section.

- A. Several comments acknowledged that the proposed AML recommended for the Wassuk HMA is larger than the 1995 census.
- B. There was some confusion on why these evaluations addressed rangeland health as well as ecological status. Subsection 4180 of the Bureau's grazing regulations requires that standards and guidelines for rangeland health be developed and implemented. Accordingly, standards and guidelines for rangeland health were developed in consultation with the Sierra Front / Northwest Great Basin Resource Advisory Council and approved by Secretary Interior Bruce Babbitt on February 12, 1997.

Implementation of these standards and guidelines is to take place in two phases, the second phase being the allotment evaluation process. Therefore, it is required that these evaluations address the same elements of rangeland health as used in the Standards and Guidelines developed for the Carson City District.

- C. Some comments wanted total exclusion of one use over the enhancement of another use. The BLM, however is mandated to pursue multiple use management of the public lands.
- D. One comment noted that data was collected during a "drought period" and should be adjusted accordingly. The precipitation data presented in Section IV.C. of this evaluation did show a trend of low precipitation in the late 1980s (following extremely high precipitation in the early 1980s). However, the years between 1990 and 1995 show normal fluctuations when compared to the all the data from 1935 to 1995. The use pattern mapping in which the calculations in Appendix II was done in 1995.
- E. One comment objected to more AUMs being provided for livestock than wild horses in the Black Mountain Allotment. First, it must be realized that less than 9% of the Wassuk HMA overlaps into the Black Mountain Allotment.. Since sheep can be herded into areas outside the HMA, livestock are cable of using more of the allotment.
- F. One comment noted the presence of cheatgrass (*Bromus tectorum*) and wanted to know the effect of animal impacts on promoting "further invasion and establishment of noxious or exotic plant species". The seed sources for many introduced species are constantly being transported throughout the State by the wind, vehicles, migratory wildlife, horse-back riders, etc. This is evidenced in the fact that introduced annual grasses such as cheatgrass have become dominant in areas that are not grazed.² The problem is not whether these species will become established, but rather if perennial plant communities are healthy enough to compete once these introduced annual plants become established. Therefore, in analyzing the photo plots, the interdisciplinary team addressed such factors as bare ground, cover and density of perennial plants.

²Tausch, Robin J., Tony Svejcar, J. Wayne Burkhardt (1992) Patterns of Annual Grass Dominance on Anaho Island: Implications for Great Basin Vegetation Management. Paper presented at the Symposium on Ecology, Management and Restoration of Intermountain Annual Rangelands, Boise, ID, May 18-22, 1992.

It also must be considered that conditions for the establishment of cheatgrass are often the same conditions that favor native annuals. Trying to prevent the establishment of the "exotic" annuals may also restrict the establishment of some of our native plants.

- G. One comment stressed that the impacts to the "cryptobiotic soil crust communities" should be addressed. Cryptobiotic communities refer to the interaction of cryptogams and their environment (cryptogams are plants such as ferns, moss, lichen, and fungus that reproduce by spores rather than flowers and seed). These species may be dominant in some plant communities and are important in soil stabilization, nutrient interaction, etc. In the Butler Mountain Allotment and vicinity, the cryptobiotic communities are represented by fungus and algae-covered soil crusts, although the number of species present might be considered complex.

In cases where no opportunity exists to advance in seral stages, a cryptogam dominated site may be better left alone. However, according to the Ecological Site Descriptions published by the NRCS, the ecological sites in the Butler Mountain Allotment have the potential to advance in seral stage to plant communities dominated by grasses, forbs and shrubs in addition to cryptogams. These later seral plant communities would provide more suitable habitat for wildlife, wild horses and livestock than the cryptogam dominant communities. Therefore, the management actions proposed in this evaluation are intended to produce mid to late seral plant communities rather than early seral.

VIII. MANAGEMENT ACTIONS SELECTED

The Walker RMP includes the objective to protect and maintain riparian areas in a good or better condition. Good condition or better now equates to "late seral" or "potential natural community" ecological status. The adoption of the Riparian / Wetland Initiative for the 1990s, and the Standards and Guidelines in accordance with 43 CFR §4180.2, has made it mandatory to evaluate other factors than just ecological status in determining the health of riparian habitats. Since these factors have been addressed in national policy, there is no need to include it within the Multiple Use Decision. Therefore, the recommendation to modify the riparian objective (page 18), is not included in the Multiple Use Decision.

All management other actions stated under Section VI, Technical Recommendations (pages 16 to 18) are incorporated into the Proposed Multiple Use Decision.



COMMISSION FOR THE
PRESERVATION OF WILD HORSES

1105 Terminal Way
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Reno, Nevada 89502
(702) 688-2626

March 27, 1997

Black/Butler/

*Gray Hills
A E*

Mr. John Singlaub
Carson City District
Bureau of Land Management
1535 Hot Springs Road
Carson City, Nevada 89706-0638

Subject: Black Mountain Allotment Evaluation - Wassuk HMA

Dear Mr. Singlaub:

Thank you for consulting the Commission for the Preservation of Wild Horses concerning the Black Mountain Allotment Evaluation. Previous comments concerning Gray Hills and Butler Mountain Allotment Evaluations best explain procedural errors in the determination of the appropriate management level for the Wassuk Wild Horse Herd.

In general, the Black Mountain Allotment is not used by livestock and sparsely used by wild horses. While wild horse may be intermediately present, livestock use could be improved with water hauls. What limited data are available suggest that the allotment was never used and therefore, vegetation communities have naturally evolved and are static trends. There is little support that desertification of the Great Basin is caused by lack of livestock grazing. Scientists support the opposite.

We support leaving the Black Mountain Allotment in its present state and use.

Sincerely,

Catherine Barcomb

CATHERINE BARCOMB
Executive Director

3/26/97



**COMMISSION FOR THE
PRESERVATION OF WILD HORSES**

1105 Terminal Way

Suite 209

Reno, Nevada 89502

(702) 688-2626

March 26, 1997

Mr. John Singlaub
Carson City District
Bureau of Land Management
1535 Hot Springs Road, Suite 300
Carson City, Nevada 89706-0638

Subject: Butler Mountain Allotment Evaluation - Wassuk HMA

Dear Mr. Singlaub:

Thank you for consulting the Commission for the Preservation of Wild Horses concerning the Butler Mountain Allotment. This allotment is a portion of the Wassuk HMA. We are pleased that present livestock management is in balance with this sustaining wild horse herd. We offer the following comments:

Page 9, Actual Use

Actual use of livestock are a mere fraction to the initial use levels of the land use plan. It is confusing to understand if the numbers presented are known use or reported use for billing purposes?

Page 11, Precipitation

This allotment suffered drought conditions from 1986 to 1993. These data are relative to your conclusions.

Page 13, Use Pattern Mapping Data

It was determined that wild horses used the allotment in 1995. Use pattern mapping data indicates "slight" utilization with a range from 1 to 20 percent. These data are critical to the carrying capacity computations for the herd management area.

Mr. John Singlaub
March 26, 1997
Page 2

Page 16, B.1 Maintain existing range conditions

We concur that plant species frequency fluctuations naturally occur. Failing to consider the impacts of over seven years of drought discounts the theories that "wolfy" plants promote invader species. It is difficult to understand Carson City District's theory that over-resting is causing range degradation.

Page 17, B.1.d. Wild Horses

The land use plan numbers were initial levels to start monitoring. Target or appropriate management levels of the land use plans were dropped as a result of an IBLA ruling. Monitoring data supports the appropriate management level.

Page 17, B.2.b.

Please explain how P-J woodlands influence the proper functioning condition evaluation for riparian areas?

Page 19, Develop HMAP

A wild horse management plan must contain more information than a mere appropriate management level for a herd. Population dynamics are not addressed in multiple use decisions. A grazing decision does not substitute proper resource activity planning.

Page 19, B.2.I

Your conclusion to sustain the "grazing preference" is contrary to statements and court decision stated on page 1.

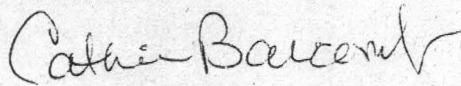
Page 19, Technical Recommendations

The evaluation abandons the land use plan objectives and allocation of forage for wild horses. It has been established that wild horses will receive 27.5 percent of the total allowable use level of 55 percent of key forage species. As previously stated, the 1995 use pattern mapping data found that wild horse use resulted in "slight use" or 10% observed utilization. Therefore, any carrying capacity computation would result in doubling the present herd to meet the 27.5 allowable use level.

Mr. John Singlaub
March 26, 1997
Page 3

This error and the lack of assessing the effects of seven years of drought, limits the validity of your recommendations.

Sincerely,

A handwritten signature in cursive script that reads "Catherine Barcomb". The signature is written in dark ink and is positioned above the typed name.

CATHERINE BARCOMB
Executive Director

3/26/97

BOB MILLER
Governor

STATE OF NEVADA

CATHERINE BARCOMB
Executive Director



**COMMISSION FOR THE
PRESERVATION OF WILD HORSES**

1105 Terminal Way
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March 26, 1997

Mr. John Singlaub
Carson City District
Bureau of Land Management
1535 Hot Springs Road
Carson City, Nevada 89706-0638

Subject: Gray Hills Allotment Evaluation - Wassuk HMA

Dear Mr. Singlaub:

The Commission for the Preservation of Wild Horses has received and reviewed the Gray Hills Allotment Evaluation that can affect a portion of the Wassuk Herd Management Area. We are pleased to find the current livestock and wild horses are in balance with the capacity of the range; However, we were surprised by the unique use of data and Bureau of Land Management policies supporting your recommendations. Please consider our following comments:

Page 3, Season of Use

Please mention that ELW Ranches agreed upon a stocking rate that was not based upon rangeland monitoring data. Their agreements were experimental in nature and subject to future monitoring. We find no correlation as to the stocking rate and "preference" as suggested in your narrative.

Page 8, Photo Plots

We find a unique interpretation of land use planning, national policy and federal regulations. We have never witnessed an allotment evaluation where the achievement of basic range management goals or objectives, has resulted in conclusions stating the exact opposite. Your new definition of "range land health" discounts land use plan thresholds that have been in effect for over eleven years under the Walker RMP, and endorsed consistently with Bureau policy. These views are totally unique to Carson City District.

Mr. John Singlaub
March 26, 1997
Page 2

Page 14, Trend

It would appear that allotment objectives have been met. Has precipitation levels been assessed in regard to the static trend of key species since 1985?

Photo plot data are important to assess ecological status objectives of the land use plan. We are surprised that the author suggests abandoning the land use plan ecological condition objectives for a new definition of "range health". It is disappointing that the management decisions by Rafter 7 accomplished the specific land use plan objectives, and yet the allotment evaluation thrives for more vague interpretations of broad concepts under the auspices "range health". The evaluation is contrary to Bureau of Land Management policies.

Page 16, Photo Plots

Plot 3-1 refers to site improvement as a result of "Heavy use by livestock and wild horses". The land use plan, "Nevada Range Monitoring Handbook" and new Standards and Guidelines do not support severe or heavy utilization of vegetation under any situation.

We suggest the drought conditions may have had a greater impact on site condition than the lack of cattle use.

Page 16, Riparian Habitat

We are pleased to find that Buckbrush and Summit Springs are in proper functioning condition. It is a common observation that wild horse use of riparian areas is often only slight. Wild horses often do not live on riparian areas as cattle do. It is shocking to find that the author judged, a proper functioning riparian, Buckbrush Spring as unhealthy, due to residual vegetation. Again, it would appear that wild horses and livestock are living in a thriving natural ecological balance. The author's unacceptance to land use plan objectives and Bureau of Land Management policies stems to the recommendations to re-establish "total preference" for cattle.

Page 19, Utilization

There is an apparent theme that suggesting the lack of cattle use on the allotment is resulting in range degradation. Severe drought conditions during early 1990's could have contributed to the response of perennial grasses that were provided rest and slight use with low horse numbers and livestock management by Rafter 7.

Mr. John Singlaub
March 26, 1997
Page 3

Proper phenology studies can justify a season of use for livestock. It is difficult to abandon the land use plan guidance to avoid soil compaction for the author's new objective to "trample seed into the ground".

Page 22, Wild Horses

Allocation of 27.5 percent utilization of key species is within the limitations of the land use plan. This amount is based upon the land use plan's allowable use level of 55 percent. It is confusing that the author supports this allocation or allowable use level relative to wild horses, but recommends heavy and severe prescriptions to initiate "total preference" for cattle.

Page 22, Wildlife and Riparian Habitat

As in the past, the Bureau of Land Management holds a policy that prohibit domestic sheep within nine miles of occupied bighorn habitat. Bighorn were present at the time of the land use plan. Any future conversion from domestic sheep to cattle should be permanent to allow for bighorn expansion into their historical distribution.

The following comment is contrary to policy and principles of sound watershed management: "complete exclusion of grazing may be as detrimental to the health and vigor of as overutilization". It escapes logic that bare ground is more desirable than residual vegetation. Literature shows that mature vegetation with litter provides diverse habitat important to an abundance of nongame wildlife species and stabilizes soils.

Page 24, Technical Recommendations

Item 1 of Livestock Grazing should include meaningful specific allotment criteria to authorize livestock grazing from August 15 to March 15 in any pasture.

Item 6 and Item 7 are contrary to the intent of Range Reform or present regulations. It was our understanding that the Bureau would accept nonuse for conservation purposes to protect permittees from losing their "total preference". As suggested throughout this entire allotment evaluation, the author seeks additional grazing at "total preference" despite the conservative efforts of Rafter 7 to restore and protect natural resources.

Mr. John Singlaub
March 25, 1997
Page 4

Item 10 reverses the land use plan allowable use level of 55 percent utilization at Buckbrush Spring. As found in the allotment evaluation, the author seeks to dismantle the range improvement project and prescribe heavy use to "improve" plant vigor. The purpose and intent of the Walker Resource Range Management Plan was to discourage past practices known to cause damage to riparian areas.

If there are to be any modification to allotment specific objectives, we suggest that they be more definitive and be measurable attributes of vegetation. It is discouraging that now that land use plan objectives are being achieved, with intensive livestock management at stocking levels in balance with a sustaining wild horse population, the Bureau seeks more use from interests outside of the present permittee. Implementing historical practices that are known to cause resource damage, based upon unproven conceptual ideas that are contrary to policy and regulatory direction, appears counter productive.

We hope the above comments will assist the District. In the past the District has had some confusion and misunderstanding of our comments, as in the past we have made efforts to resolve our differences, but can provide you with more detailed input at your request. It is our hope that all interested parties will accept the success based on the realities observed on the Gray Hills Allotment. There is no need to adjust livestock or wild horses. If adjacent allotments are having problems, we cannot support conveying these problems to other allotments managed at their carrying capacities.

Sincerely,



CATHERINE BARCOMB
Executive Director

Carson

~~1/20~~

Black Mountain Allot

Leivestock - 900 AUMs

Wild horses - 1812 AUMs (1984 AUMs) 8.6% HMA Wassuk HMA

Wildlife deer
big horn - Black Mtn. 234 portion

* Perry Springs allot (outside HMA) what portion & why?

* Abrupt jump pop levels 94+95 why

pg 17 developed water ^{near} Sussman & Cottonwood Springs? Co-develop?

Butler Allot

Leivestock - 3040 AUMs (Dec to May)

WH - 1812 Wassuk HMA

WL - 319 AUMs

Butler portion 50%
(cup 900 AUMs) 830

Gray Wells

Leivestock ^{range?} Sheep 4281 ^{3 yr av.} 36,962 AUMs 40.7% (732 AUMs)

WH 67 (61)

WL 65 deer (72) ^{RMP}

921

61
12 | 732
72
12

1984 AUMs