

WILD HORSE CAPTURE PLAN

see Little Humboldt - Rock Creek - Bullhead - Little Owyhee
Spruce/Pequop Herd Use Areas

INTRODUCTION

The proposed gathering area covers five wild horse herd use areas and portions of four adjoining allotments outside designated horse use areas. The majority of the area is located in the Elko Resource Area of the Elko District and the Paradise/Denio Resource Area of the Winnemucca District. This area straddles the north end of the boundary between Elko and Humboldt Counties. The gathering area also covers a herd management area in the Wells Resource Area of the Elko District. This area is in eastern Elko County (see Figs. 1 & 2).

This document outlines the process that will be involved in the wild horse gather for the Little Humboldt, Rock Creek, Bullhead, Little Owyhee, and Spruce/Pequop wild horse herd areas and portions of Jakes Creek, Tall Corral, Big Springs and Chase Spring Allotments. Included are the number of horses to be captured, the time and method of capture and the handling and disposition of captured horses.

None of the herd use areas are presently covered by a herd management plan (Little Owyhee Desert/Snowstorm Mountain Herd Area Activity Plan in draft), however RMP/EIS's have been developed for all three Resource Areas involved. There is also a CRMP for the Bullhead and Little Owyhee areas which recommended authorized management levels of horses. The RMP/EIS's established management numbers for horses in the respective herd areas. The Elko and Paradise/Denio RMP/EIS's were coordinated for horse management numbers in the Little Owyhee and Bullhead herd areas. The proposed gather is to reduce horse numbers to conform to the authorized management levels within herd use areas and to gather horses which are outside of designated herd use areas. This action is therefore considered a part of long-term management.

Number of Horses to be Gathered

The proposed number of horses to be gathered is shown by herd area as follows:

<u>Herd Area</u>	<u>Nos. to be Managed</u>	<u>No. Inventoried</u>	<u>Nos. to be Gathered</u>
Little Humboldt	107	168	61
Rock Creek	119	190	71
Bullhead	50 (adults)	133	67
Little Owyhee*	200 (adults)	409	159
Spruce/Pequop	64 to 80	116	52
TOTAL	540 to 556	1016	410

Horses from the above herd areas are expanding their range into allotments outside herd area boundaries specifically Jakes Creek, Tall Corral, Big Springs, and Chase Spring Allotments. Gathering efforts will be concentrated to remove all horses from these allotments and to leave the authorized management level within the herd area boundaries. This is based on census and 1987 estimated populations.

* Gathering efforts will be concentrated in the Lake Creek Field of the Little Owyhee Herd Area.

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Owyhee

Allotment Management Plan

Roaring Springs Associates

Tuscarora, Nevada 89834

OWYHEE
ALLOTMENT MANAGEMENT PLAN

Prepared by: Waive Stager
Waive Stager
Range Conservationist

7/22/87
Date

Concurred by: Bill Maupin
Bill Maupin, Ranch Manager
Roaring Springs Associates

6/11/87
Date

Approved by: Tim Hartzell
Tim Hartzell, Manager
Elko Resource Area

7/22/1987
Date

Introduction

I. General Information

The Owyhee Allotment is located in the northwest corner of the Elko Resource Area against the Idaho - Nevada border (Map 1). The 1986 Resource Management Plan (RMP) for the Elko Resource Area placed the Owyhee Allotment in the "I" or Improve category. The need for a grazing management plan was identified to improve the various resources on the allotment.

The majority of the allotment's boundaries are fenced, however a few portions are formed by natural barriers. The allotment (Map 2) is presently divided into four native pastures (Upper Fourmile, Lower Fourmile, Star Ridge, and Dry Creek) and one seeded pasture (Winters Creek). There are approximately 403,497 acres of grazing land within the allotment of which 371,431 acres are public domain and 32,066 are private.

This area is part of the Columbia Plateau physiographic region. It is characterized by a high rolling plateau underlain by basalt flows which are occasionally cut by deep, vertically walled canyons. Elevation ranges from about 5,100 to 5,600 feet.

The South Fork of the Owyhee River forms the northeastern boundary of the allotment while the Little Owyhee River forms a short section of the northwestern boundary. Most of the lands along the Fourmile and Winters Creeks are privately owned and are fenced separately from the allotment.

Good climate data for the allotment is scarce. From 1963 through 1967, the Weather Bureau maintained a climate station at the IL Ranch adjacent to the allotment. Over this period annual precipitation amounts ranged from 5.83 inches to 20.75 inches. The average was 12.46 inches per year. Temperatures ranged from highs of 94° to 98° F. in summers to lows of -11° to -30° F. in winters. Frost free periods ranged from 8 days in 1966 to 101 days in 1963. Presently, there is no good source of climate data for the allotment.

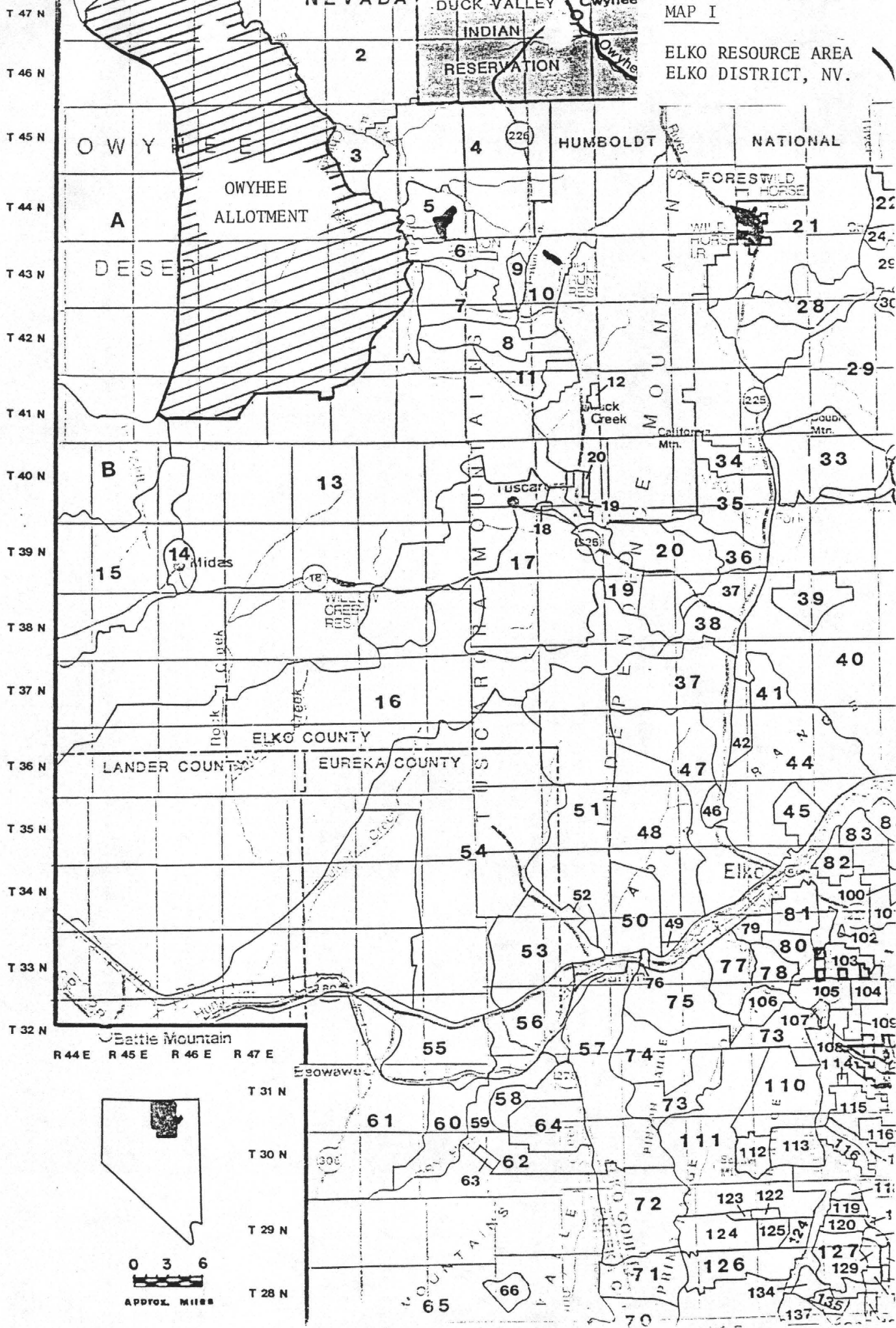
Historical Use

Domestic sheep, cattle, and horses have all been grazed in the area. It was primarily winter range for sheep due to lack of water during the summer. In areas near reliable water sources such as the Owyhee River and Fourmile Creek, some yearlong use was possible. As other water sources were developed, cattle use increased and sheep use declined to the trailing of 5,000 to 6,000 head through the south end of the allotment in mid-October. These are Roaring Springs Associates' sheep but their sheep operation is separate from their cattle operation.

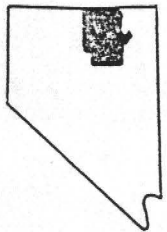
The Owyhee Allotment was formed from the old Owyhee Desert Unit. In 1949, the "Owyhee Division Fence" was constructed. This fence and natural barriers defined the eastern boundary of the allotment. The western and northern boundaries were fenced in the 1950's. Finally, in 1969 and 1970 the southern end was defined and fenced based on a sale contract between Allied Land and Livestock Company and the Ellison Ranching Company. Roaring Springs Associates, current operators in the

INDIAN RESERVATION

ELKO RESOURCE AREA
ELKO DISTRICT, NV.



Battle Mountain
R 44 E R 45 E R 46 E R 47 E



0 3 6
APPROX. MILES

T 31 N
T 30 N
T 29 N
T 28 N

allotment, bought out Allied Land and Livestock Company in 1976. Headquarters for Roaring Springs Associates in Nevada is the IL Ranch located east of the allotment.

In 1979, a grazing system was written for the Owyhee Allotment relying on natural boundaries and the existing fences to define areas of use for the cattle. However, the natural boundaries did not hold the cattle and waters were insufficient to support the system. The system was never successfully followed.

In addition to livestock grazing the Owyhee Allotment also provides habitat for wild horses, mule deer, pronghorn antelope, sage grouse, and numerous non-game species of wildlife. The South Fork of the Owyhee River supports a small population of rainbow trout.

II. Existing Information

A. Livestock Qualifications and Management

Roaring Springs Associates is the sole permittee in the Owyhee Allotment. Their total preference in the allotment is 31,917 AUMs of which 30,225 AUMs are active and 1,692 AUMs are suspended. Over the past six years their actual use on the allotment has been:

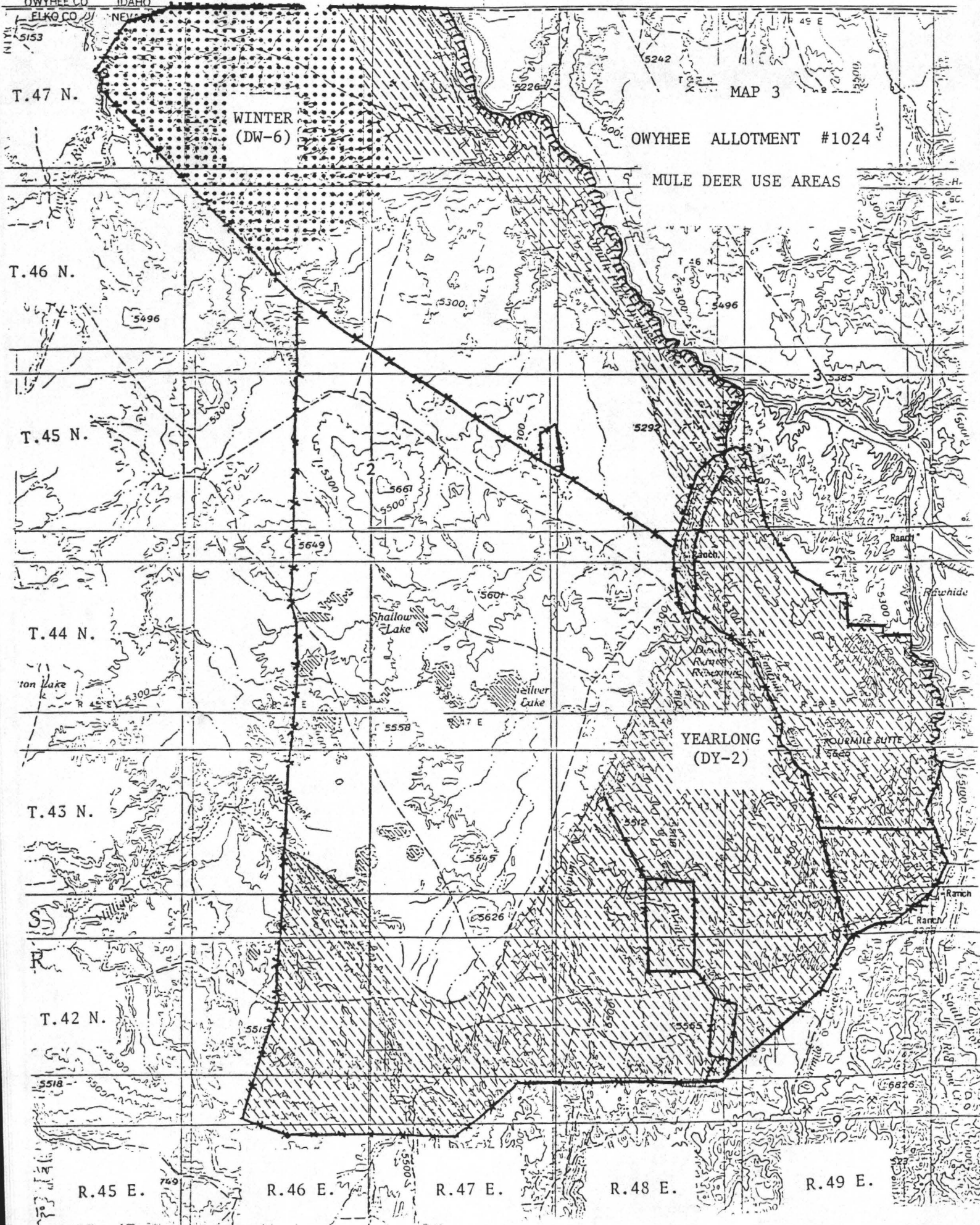
<u>YEAR</u>	<u>Federal AUMs</u>
1981	17,080
1982	11,320
1983	11,585
1984	14,412
1985	12,476
1986	17,140

with a six year average annual use of 14,002 AUMs.

This is primarily a cow/calf operation. In recent years they have run both a spring and fall calving herd. The two herds are turned out about March 1 each year into separate areas of the allotment. In June or July, the fall calving herd is moved to the Cornucopia and Lime Mountain Allotments then on to private range in the Columbia Basin. Later in July or in August half the spring calving herd is also moved to the Columbia Basin. For 45 days 1,000 head are grazed under a deferred-rotation system on a National Forest Allotment. The balance of the spring calving cows remain on the Owyhee Allotment until late November when they are gathered and the calves weaned. The base property hay ranches provide feed for both herds during the winter months. Due to economics, Roaring Springs Associates has been running about half the number of cattle they have preference for during the past few years. Forty-five head of domestic horses are licensed in the Upper and Lower Four-Mile Pastures each year.

B. Wildlife and Fisheries Resources

A small area in the northwest corner of the Owyhee allotment (Map 3) was identified as mule deer winter range (DW-6) in the Elko Resource



OWYHEE CO IDAHO

ELKO CO NEVADA

T. 47 N.

T. 46 N.

T. 45 N.

T. 44 N.

T. 43 N.

T. 42 N.

R. 45 E.

R. 46 E.

R. 47 E.

R. 48 E.

R. 49 E.

WINTER (DW-6)

OWYHEE ALLOTMENT #1024

MULE DEER USE AREAS

YEARLONG (DY-2)

Shallow Lake

Silver Lake

TOURNALE BUTTE

MAP 3

5226

5242

5496

5300

5496

5649

5667

5607

5292

ton Lake

5558

5518

5626

5572

5500

5565

5686

Management Plan (RMP). Season of use in the area is primarily November 15 to March 16. Reasonable deer numbers in DW-6 are 26 (26 AUMs). Existing deer numbers are 13 (13 AUMs).

A large area of the allotment was identified in the RMP as yearlong mule deer habitat (DY-2) used 12 months out of the year. Reasonable and existing numbers in DY-2 are 408 (516 AUMs) and 203 (255 AUMs), respectively.

The RMP identifies the entire Owyhee Allotment as yearlong habitat for antelope (AY-1). Map 4 shows part of the allotment identified as crucial yearlong habitat (CAY-1). These areas were rated as being in fair condition (Big Game Studies AY-1-001, AY-1-002, AY-1-003 in 1985). No reasonable or existing numbers of antelope were given in the RMP for AY-1. Reasonable and existing antelope numbers in the allotment are 204 (485 AUMs) and 102 (242 AUMs), respectively.

The Owyhee Allotment was identified in the RMP as a potential site for possible reintroduction of California Bighorn sheep. The area would provide yearlong habitat for a reasonable number of 10 animals (24 AUMs). Some bighorn sheep from Idaho may already have moved into the north end of the allotment along the South Fork of the Owyhee River.

Chukar, sage grouse, and mourning doves are the most common upland game species within the Owyhee Allotment. Of these, chukar and mourning doves are the most abundant.

Along the South Fork of the Owyhee river, some nesting and brood rearing habitat is provided for geese and ducks.

Rainbow trout and trash fish occur in the South Fork of the Owyhee River which is not on the Nevada Department of Wildlife (NDOW) list of priority streams.

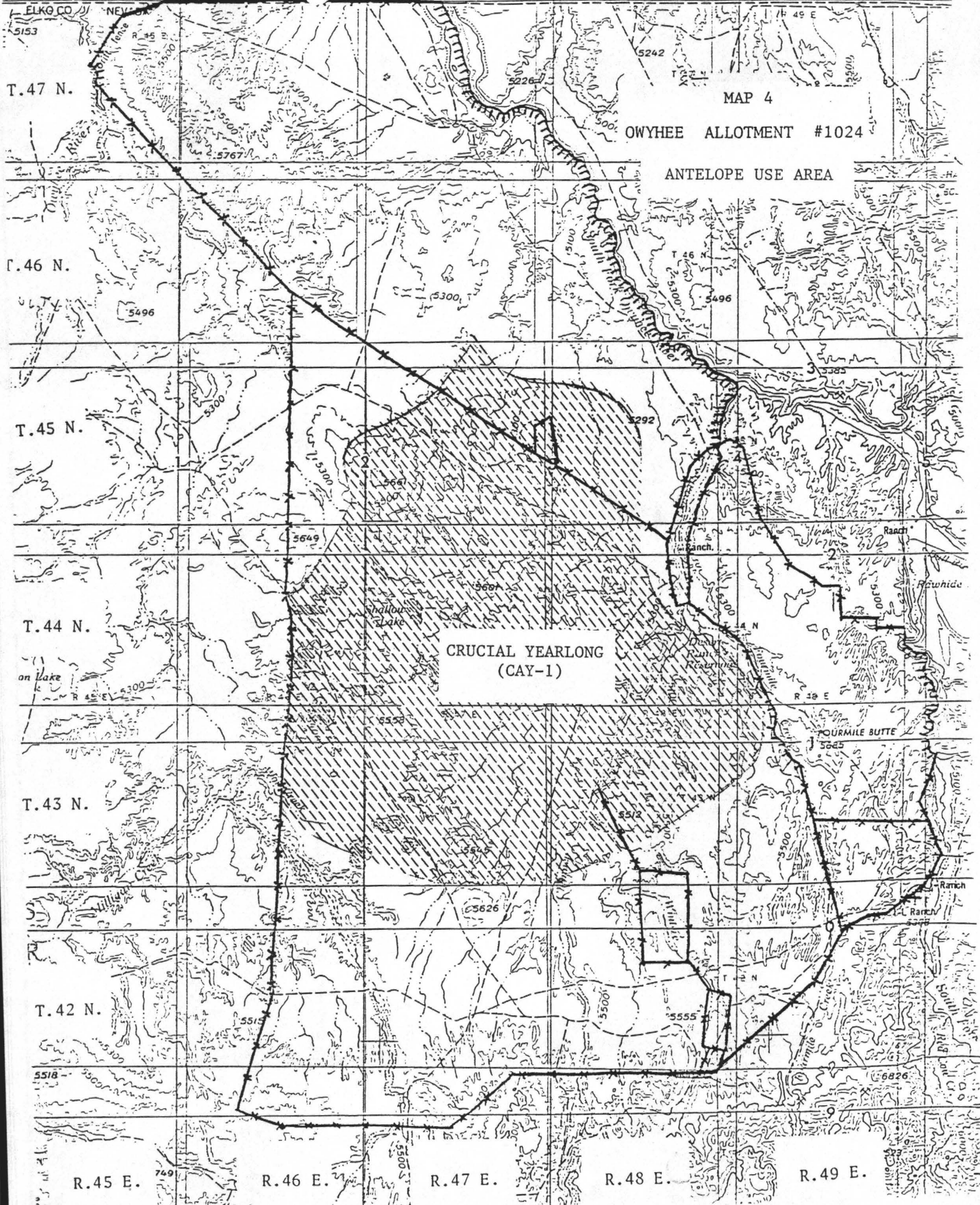
C. Wild Horses

The Elko RMP identifies the entire Owyhee Allotment as a Wild Horse Herd Area. The target herd size for the area is 58 horses. The most recent (7/25/86) inventory of the area counted 55 adult horses and 8 foals.

D. Recreation

The major recreation activities within the Owyhee Allotment are white water rafting on the South Fork of the Owyhee River (managed under the Owyhee River Recreation Area Management Plan, 1983) and big game hunting for antelope and mule deer. There is some upland game bird and water fowl hunting.

The South Fork Owyhee River Special Recreation Management Area (SRMA) is shown on Map 5a. This area (3,500 acres, the rim-to-rim portion) will be maintained for sport and commercial river recreation. Part of the river in this SRMA is a candidate for study



MAP 4

OWYHEE ALLOTMENT #1024

ANTelope USE AREA

CRUCIAL YEARLONG
(CAY-1)

T.47 N.

T.46 N.

T.45 N.

T.44 N.

T.43 N.

T.42 N.

R.45 E.

R.46 E.

R.47 E.

R.48 E.

R.49 E.

T. 47 N.

Map 5a
OWYHEE ALLOTMENT #1024

Special Recreation Management Area

T. 46 N.

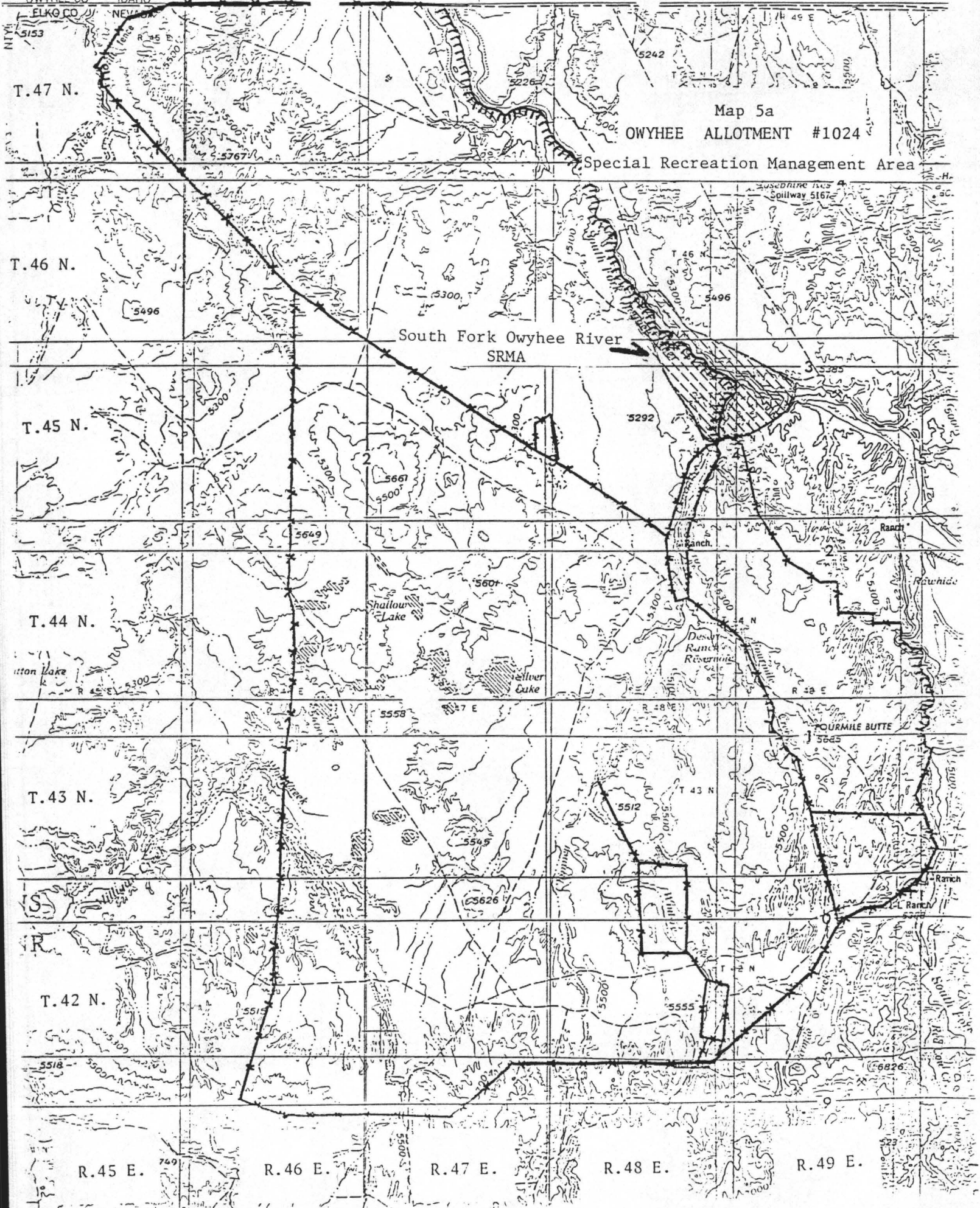
South Fork Owyhee River
SRMA

T. 45 N.

T. 44 N.

T. 43 N.

T. 42 N.



and nomination by the National Park Service under the Wild and Scenic Rivers Act.

E. Wilderness

Parts of two Wilderness Study Areas (WSAs) occur within the area, Devil's Corral and Owyhee Canyon (Map 5b). These areas were analyzed in the Draft Owyhee Canyonlands Wilderness EIS published in February, 1984. The majority of the allotment is in a Visual Resource Management (VRM) Class IV. Most of the area within the WSAs boundaries are in VRM Class II, although some of the area is in VRM Class III.

Areas within the two WSAs are designated as "limited" to off-road vehicle use. Under this designation, use is limited to designated roads and trails. The remainder of the allotment is "open" to off-road vehicle use.

F. Threatened, Endangered, and Sensitive Species

Wintering bald eagles (Haliaeetus leucocephalus), a federally listed endangered species, occasionally inhabit the Wilson Reservoir area which is approximately 5 miles east of the allotment.

Grimes ivesia (Ivesia rhypara) and Packard's stickleaf (Mentzelia packardiae) are known to occur on the Owyhee allotment and are classified as "sensitive" species by the U.S. Fish and Wildlife Service. They occur on barren or sparsely vegetated areas.

G. Lands, Realty and Corridors

No land actions are pending on the Owyhee Allotment.

A major natural gas pipeline traverses the northern end of the allotment from northeast to southwest (Map 5b). In addition, a 5-mile wide planning corridors were identified in the RMP to run east and west across the allotment in Township 45 North and North and South in Range 49 East (Map 5b).

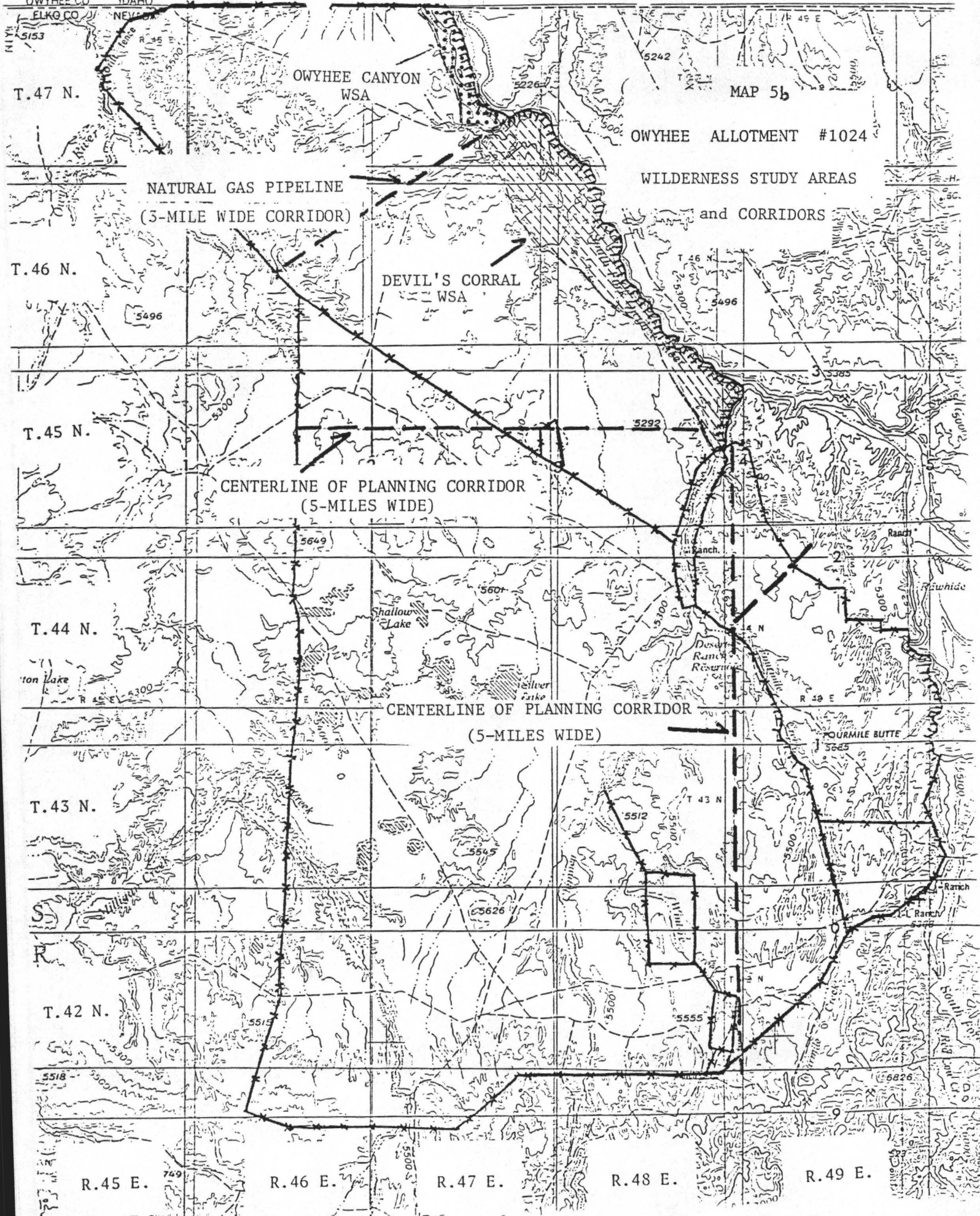
H. Archaeological Resources

Although there has been relatively little archaeological inventory, it appears that broad areas within the allotment have very little evidence of historic or prehistoric use. However, there is an abundance of archaeological and historical evidence associated with the limited water sources.

Aboriginal use is evident over at least the last 5000 years. The resultant variety of cultural sites includes isolated artifacts, large open sites, and rock shelters as well as the more recent historic ranching complexes.

I. Mineral Resources

Between 1982 and 1986, nearly 100 miles of seismic lines were run across the allotment in search of oil. These lines were primarily



T.47 N.

T.46 N.

T.45 N.

T.44 N.

T.43 N.

T.42 N.

R.45 E.

R.46 E.

R.47 E.

R.48 E.

R.49 E.

OWYHEE CANYON WSA

DEVIL'S CORRAL WSA

NATURAL GAS PIPELINE (3-MILE WIDE CORRIDOR)

CENTERLINE OF PLANNING CORRIDOR (5-MILES WIDE)

CENTERLINE OF PLANNING CORRIDOR (5-MILES WIDE)

MAP 5b

OWYHEE ALLOTMENT #1024

WILDERNESS STUDY AREAS and CORRIDORS

Shallow Lake

FOURMILE BUTTE

Desert Ranch Reserve

OWYHEE CO IDAHO

ELKO CO NEVADA

5153

5242

5226

5496

5496

5292

5649

5600

5626

5512

5545

5515

5555

5518

749

5500

5626

5500

concentrated within the Dry Creek Pasture. One site (T.43N., R.49E., Sec. 8 SW $\frac{1}{4}$) has been drilled but no oil was encountered. The well produced water and was signed over to Roaring Springs Associates. Seismic activity has since ceased but may resume if the price of oil and gas increases.

There are no mining claims staked on the allotment.

J. Watershed Resources

The Owyhee Allotment is characterized by high tablelands and a poorly defined drainage system with many small undrained playas. Except for Four Mile Creek and the South Fork of the Owyhee River, most drainages carry only intermittent flow. Both of these perennial drainages are confined along most of their length by basalt cliffs. Some downcutting has taken place within the deeper alluvial sediments on Four Mile Creek within the Lower Four Mile pasture. Most of this downcutting has taken place on private land.

K. Riparian Resources

The allotment's riparian areas are primarily found along Four-Mile Creek and the South Fork of the Owyhee River. Four-Mile Creek flows north from the southern end of the allotment through the eastern third for approximately 20 miles. The majority of the creek is privately owned with only 7 miles (estimated) flowing through public land. Vegetation along the creek is a mosaic of wet meadow and loamy bottom areas in mid-seral condition (1985 ecological inventory).

The northeastern boundary of the allotment (approximately 18 miles) is defined from the YP Allotment by the South Fork of the Owyhee River. The majority of this stretch of the river is publicly owned, with approximately 1.5 miles in private ownership at Twelve-Mile Crossing. Vegetation along the river is similar to that along Four-Mile Creek.

L. Baseline Data

Soils in the area formed in mixed alluvium with some degree of loess and volcanic ash. Weak to strong indurated silica and lime cemented hardpans have developed within most soils. Wind and water erosion hazards are generally slight. The area is generally suitable for rangeland seedings using drought resistant plants, but limitations occur from shallow soil depth to a hardpan or bedrock and mechanical limitations from surface cobbles or stones.

Fourteen different ecological sites were recorded on the Owyhee Allotment during an ecological site inventory in the fall of 1985. The ecological sites shown in Table 1 comprise 95% of the allotment. Eighty-five percent (85%) of the allotment is in mid-seral condition.

TABLE 1. Ecological sites, response potential*, condition of ecological sites, and percent of each within the Owyhee Allotment.

<u>Ecological Site (Number)</u>	<u>Response Potential</u>	<u>Condition</u>	<u>Percent of Allotment</u>
Loamy 10-12" (25-14)	High	Late-Seral	3
		Mid-Seral	T**
South Slope 8-12" (25-15)	Medium	Potential	T
		Late-Seral	1
		Mid-Seral	T
Claypan 10-12" (25-18)	Medium	Late-Seral	2
Loamy 8-10" (25-19)	Medium	Late-Seral	2
		Mid-Seral	84
		Early-seral	2
Seeding (N/A)	N/A	N/A	1

* Response potential is based upon the capacity of an ecological site to improve in condition within 20 years, in response to grazing and/or mechanical treatments.

** T = less than 1%

Vegetation of these ecological sites is characteristic of the sagebrush-grassland ecosystem: Predominant grasses are bluegrasses (Poa sp.), squirreltail (Sitanion hystrix), bluebunch wheatgrass (Agropyron spicatum), needlegrass (Stipa sp.), and Idaho fescue (Festuca idahoensis). Shrubs present include the three subspecies of big sagebrush (Artemisia tridentata), rabbitbrushes (Chrysothamnus sp.), bitterbrush (Purshia tridentata), low sagebrush (A. arbuscula), and alkali sagebrush (A. longiloba). The apparent trend for vegetation condition on the allotment, as identified in the RMP, is "upward".

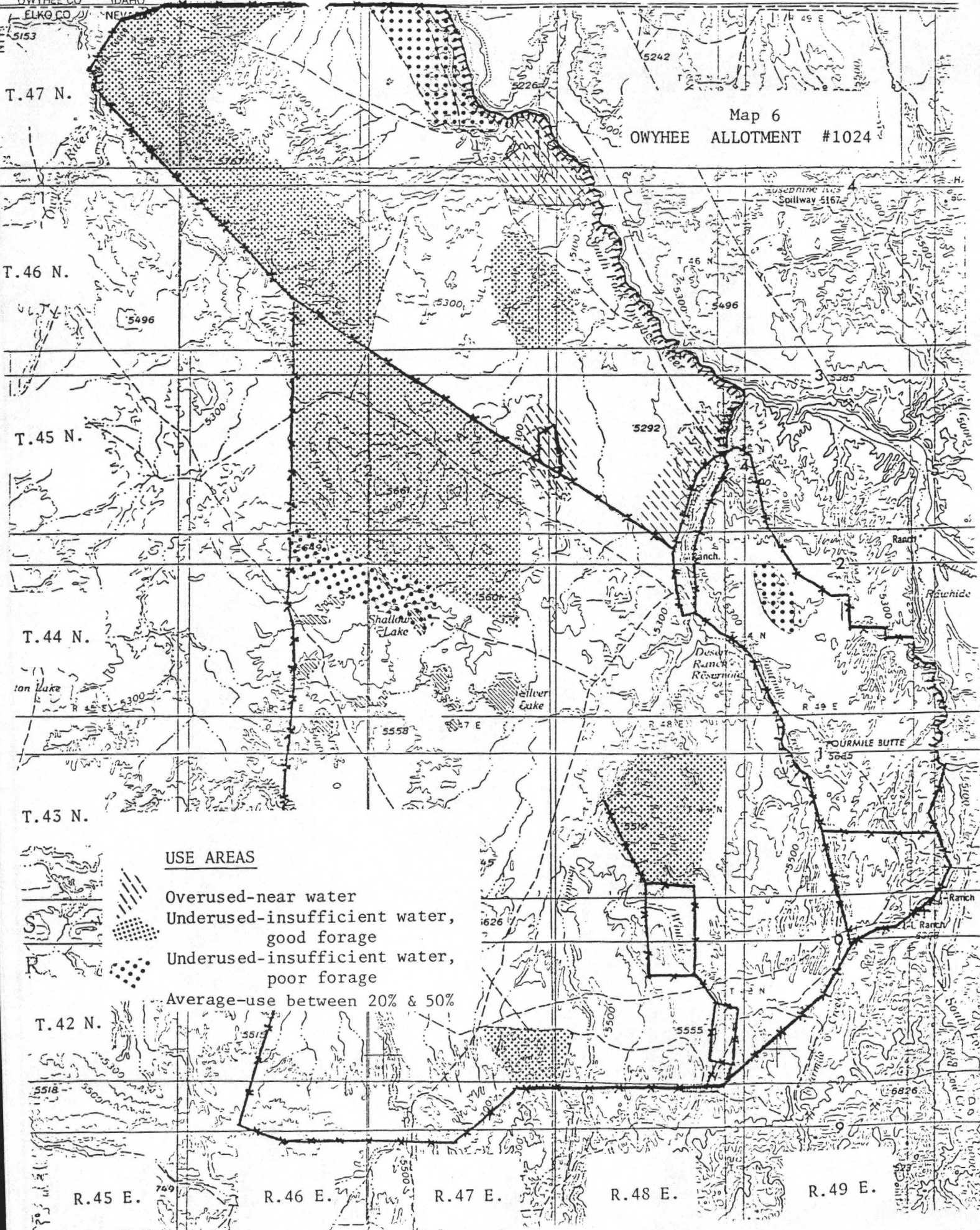
M. Issues and Conflicts

1. Livestock

- a) Low utilization in areas of good feed but little or no water during most of the grazing season (Map 6).
- b) Heavy use in areas around reliable water sources.
- c) The majority (85%) of the allotment is in mid-seral ecological status and is producing forage below its potential.
- d) Large areas of the allotment are heavily dominated by sagebrush, inhibiting the production of forage for livestock and wildlife.

2. Wildlife Resources

- a) Crucial antelope habitat is in fair condition (Big Game Studies AY-1-001 to -003) due to lack of forbs and grasses and competition between antelope, wild horses and domestic cattle.



Map 6
OWYHEE ALLOTMENT #1024

USE AREAS



- Overused-near water
- Underused-insufficient water, good forage
- Underused-insufficient water, poor forage
- Average-use between 20% & 50%

T.42 N.

R.45 E. R.46 E. R.47 E. R.48 E. R.49 E.

- b) Existing antelope numbers are below reasonable numbers (Elko RMP) due to fair condition of the crucial habitat.
- c) The ten miles of 4-strand pasture fence between Starr Valley and Dry Creek pastures is not an antelope-type fence and inhibits passage of antelope.
- d) There is insufficient water during dry periods within crucial antelope habitat which restricts their movement.
- e) Presently there exists a lack of water and forage diversity which is believed to be a limiting factor for mule deer within their existing range.

3. Wild Horses

- a) The wild, free-roaming nature of wild horses is restricted by fences necessary for livestock management.
- b) There is insufficient water during dry periods for wild horses.

4. Recreation

- a) During high water (early April to mid-June) the presence of cattle in the Owyhee Canyon detracts from the recreational experience of white water rafters. These cattle come from both the Owyhee and YP Allotments.
- b) The Recreation Area Management Plan for the Owyhee River (1983) identified that seasonal concentrations by livestock have caused a decline in vegetative condition along portions of the river where livestock access exists. Again, livestock are from both the Owyhee and YP Allotments.

5. Wilderness

At present, no issues or conflicts have been identified between livestock grazing and wilderness values in the two WSA's. Because of this, wilderness will not be addressed further in this document. However, basic management of the WSAs will continue as set forth in "Interim Management Policy and Guidelines for Lands Under Wilderness Review"(1979, revised 1983).

6. Riparian

- a) Riparian vegetation (wet meadows and loamy bottoms) is in mid-seral ecological status due to high levels of utilization annually.

III. PUBLIC PARTICIPATION AND INTERDISCIPLINARY APPROACH

The issues and objectives of this AMP were identified by the IL Ranch Manager, Bill Maupin, and Bureau Staff using an interdisciplinary approach. Management actions were developed in close coordination with Bill Maupin, taking into account the operation's time and financial constraints.

IV. MANAGEMENT OBJECTIVES

A. The general objective of this AMP is to work toward providing forage to meet the permittee's active preference (30,225 AUMs) while protecting and improving the allotment resources. General allotment objectives are summarized below.

1. Range Objectives

- a) By the year 2006, improve the ecological status of:
 - 1) 5,130 acres from mid-seral to late-seral condition,
 - 2) 12,526 acres from late-seral to potential natural-community condition,maintain or enhance the current livestock forage value on 5,588 acres of crested wheatgrass seeding, and maintain the remaining 313,187 acres in their present ecological condition as identified in the RMP.
- b) Obtain proper use of key species at key areas annually after implementation of the grazing system.
- c) Improve livestock distribution through development of additional watering sources.

2. Permittee Objectives

- a) Improve the current conception rate of 85% to between 90 and 95% within 5 years of implementation by confining the cattle to smaller pastures during breeding.
- b) Maintain two different herds of cattle on the allotment separately from March 1 thru May 15.

3. Wildlife Resources

- a) Improve wildlife habitat to provide 542 AUMs of forage for mule deer, 485 AUMs of forage for pronghorn antelope and 24 AUMs of forage for California bighorn sheep as identified in the RMP by the year 2006.
- b) Provide additional water sources for antelope and mule deer during dry periods.
- c) Eliminate impediments to wildlife movements, particularly antelope.
- d) Reduce competition between domestic cattle and wildlife by improving cattle distribution and rotating periods of use under the grazing system.
- e) Increase grass and forb forage diversity for pronghorn antelope and mule deer, especially within crucial pronghorn antelope habitat.

4. Wild Horse Objectives

- a) Maintain the wild horse herd on the allotment at the target level of 58 head identified in the RMP. Horse numbers will be allowed to fluctuate between 50 and 100 head.

- b) Provide additional water sources for wild horses during dry periods.
- c) Eliminate impediments to wild horse movements as far as possible while ensuring control of livestock movements.

5. Recreation

- a) Improve the recreational experience of white water rafters in the Owyhee Canyon by decreasing cattle use in the canyon from the Owyhee Allotment until after the end of the float season in mid-June.
- b) Improve vegetative condition along portions of the river by decreasing seasonal concentrations of livestock from the Owyhee Allotment.

6. Riparian

- a) Improve the ecological condition of riparian areas along Four-Mile Creek and South Fork of the Owyhee River by the year 2006.
- b) Protect approximately 1½ miles of riparian vegetation from livestock grazing by gap fencing Four-Mile Canyon above the river.

B. Key Area Management Objectives

The above listed management objectives are general in nature. Listed below are key area specific objectives. Key area and Big Game Study Plot locations (Map 7) and rationale for selection are documented on Form NSO 6630-1 in monitoring files.

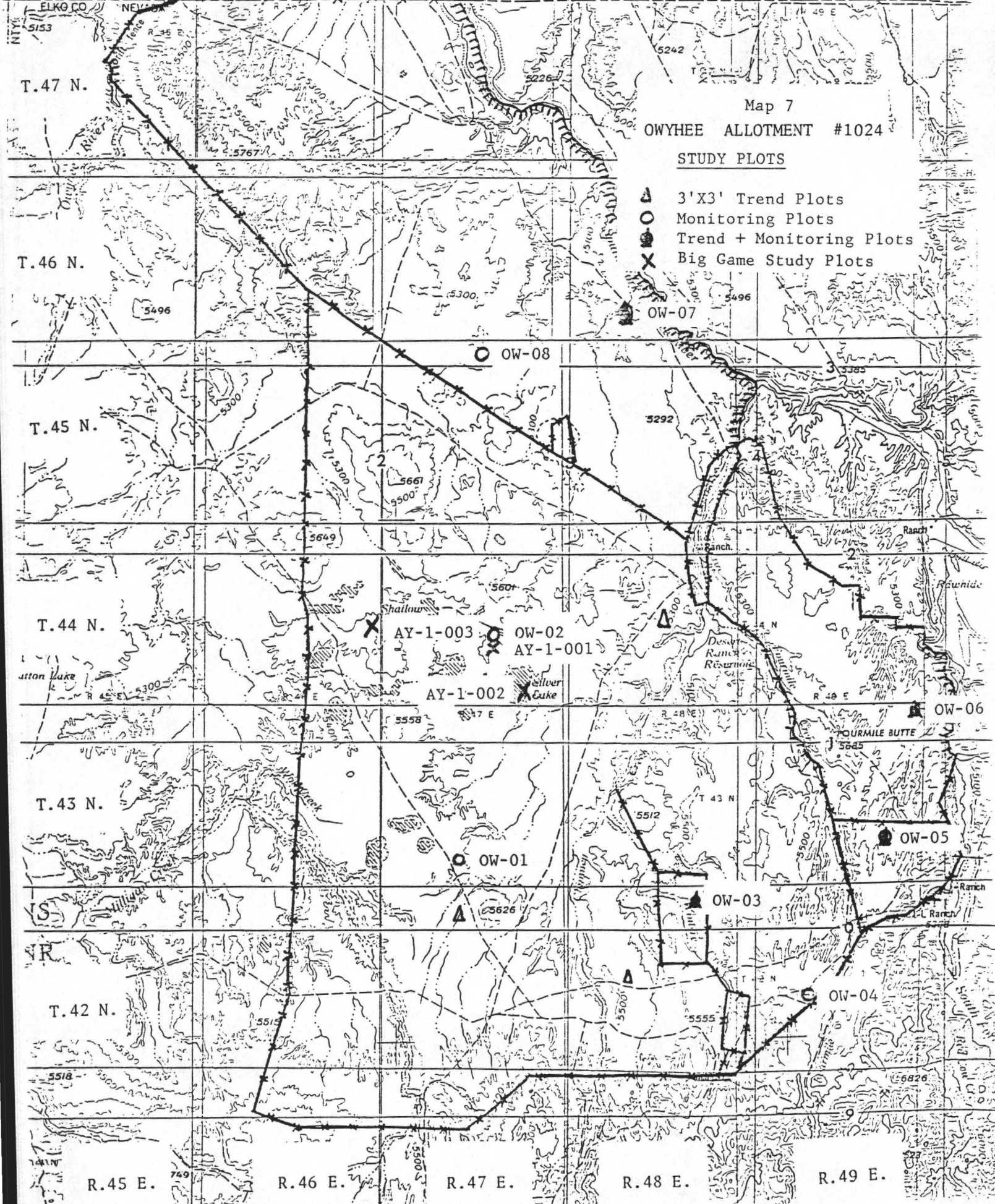
Key Area OW-01 - Dry Creek Pasture (Proposed)

- 1. Obtain 50% use or less on bottlebrush squirreltail and Sandberg bluegrass (Poa sandbergii) annually after implementation of allotment grazing system.
- 2. Achieve a statistically significant^{1/} increase in bottlebrush squirreltail and Sandberg bluegrass frequencies by the year 2006.
- 3. Increase the percent composition by weight of bottlebrush squirreltail in the community from .28% to 2% and Sandberg bluegrass from .08% to 2% by the year 2006.

Key Area OW-02 - Dry Creek Pasture

- 1. Obtain 50% use or less on bottlebrush squirreltail, Sandberg bluegrass and Indian ricegrass (Oryzopsis hymenoides) annually after implementation of allotment grazing system.

^{1/} As tested at $P \leq .10$ by the XMONITER Program on the Denver computer. This applies to all "statistically significant" changes discussed in this section.



Map 7
OWYHEE ALLOTMENT #1024
STUDY PLOTS

- ▲ 3'X3' Trend Plots
- Monitoring Plots
- Trend + Monitoring Plots
- × Big Game Study Plots

2. Achieve a statistically significant increase in bottlebrush squirreltail, Sandberg bluegrass and Indian ricegrass frequencies by the year 2006.
3. Increase the percent composition by weight of bottlebrush squirreltail in the community from .4% to 2%, Sandberg bluegrass from .2% to 2% and Indian ricegrass from .2% to 2% by the year 2006.

Key Area OW-03 - Winters Seeding Pasture

1. Obtain light (21-40%) use of crested wheatgrass (Agropyron spicatum) in spring and heavy (60-65%) use in fall.
2. Maintain or improve the current production of the crested wheatgrass at or above 514 pounds/acre.

Key Area OW-04 - Chimney Creek Pasture (Proposed)

1. Obtain 50% use or less on bluebunch wheatgrass when grazed during the growing season (or 60% use or less when grazed in the fall) after implementation of allotment grazing system.
2. Improve ecological status from mid-seral to late-seral by year 2006 as identified in IV.A.1.a.
3. Achieve a statistically significant increase in bluebunch wheatgrass frequency by the year 2006.
4. Increase the percent composition by weight of bluebunch wheatgrass in the community from 10.5% to 20% by the year 2006.

Key Area OW-05 - Upper Four Mile Pasture

1. Obtain 50% use or less during growing season grazing (or 60% use or less during fall grazing) on bluebunch wheatgrass and Thurbers needlegrass (Stipa thurberiana) annually after implementation of allotment grazing system.
2. Improve ecological status from mid-seral to late-seral by year 2006 as identified in IV.A.1.a.
3. Achieve a statistically significant increase in bluebunch wheatgrass frequency by the year 2006.
4. Increase the percent composition by weight of bluebunch wheatgrass from .4 to 20% by the year 2006.

Key Area OW-06 - Lower Four Mile Pasture

1. Obtain 50% use or less during growing season grazing (or 60% use or less during fall grazing) on bluebunch wheatgrass annually after implementation of allotment grazing system.

2. Improve ecological status from mid-seral to late-seral by year 2006 as identified in IV.A.1.a.
3. Achieve a statistically significant increase in bluebunch wheatgrass frequency by year 2006.
4. Increase the percent composition of bluebunch wheatgrass from 12.3% to 20% by the year 2006.

Key Area OW-07 - Star Ridge Pasture

1. Obtain 50% use or less during the growing season on bottlebrush squirreltail, Sandberg bluegrass, and Indian ricegrass (or 60% on Indian ricegrass during the fall) annually after implementation of the allotment grazing system.
2. Improve ecological status from mid-seral to late-seral by the year 2006 as identified in IV.A.1.a.
3. Achieve a statistically significant increase in bottlebrush squirreltail, Sandberg bluegrass, and Indian ricegrass frequencies by the year 2006.
4. Increase the percent composition of bottlebrush squirreltail from 6.3% to 10%, Sandberg bluegrass from 1.8 to 2% and Indian ricegrass from .3 to 2% by the year 2006.

Key Area OW-08 - Star Ridge Pasture

1. Obtain 50% use or less during the growing season on bottlebrush squirreltail, Sandberg bluegrass, and Indian ricegrass (or 60% use or less during the fall) annually after implementation of allotment grazing system.
2. Achieve statistically significant increases in bottlebrush squirreltail, Sandberg bluegrass, and Indian ricegrass frequencies by the year 2006.
3. Increase the percent composition of Indian ricegrass from .5% to 2% and Sandberg bluegrass from 0 to 2% by the year 2006.

Big Game Study AY-1-001 - Dry Creek Pasture

1. Improve habitat condition rating from fair to good by year 2006.
2. Increase line intercept percent composition of forbs from 1% to 5-10% by year 2006.
3. Increase line intercept percent composition of grasses from 7% to 20-50% by year 2006.
4. Increase dry weight production from 146 lbs./acre (1982 data) to 500 - 1,000 lbs./acre by year 2006.

Big Game Study AY-1-002 - Dry Creek Pasture

1. Improve habitat condition rating from fair to good by year 2006.
2. Maintain line intercept percent composition of forbs between 10 and 15%.
3. Maintain line intercept percent composition of grasses between 80 and 95%.
4. Increase line intercept percent composition of shrubs from 0% to 2-5%.
5. Maintain dry weight production at 400-450 lbs./acre (1982 data).

Big Game Study AY-1-003 - Dry Creek Pasture

1. Improve habitat condition rating from fair to good by year 2006.
2. Increase line intercept percent composition of forbs from 1% to 5-10% by year 2006.
3. Increase line intercept percent composition of grasses from 14% to 20-50% by year 2006.
4. Increase dry weight production from 208 lbs./acre (1982 data) to 500-1,000 lbs./acre by year 2006.

V. GRAZING PRACTICES

Map 8 shows the proposed improvements and Map 9 the pasture delineations to support the grazing system. Dry Creek Pasture will be divided into Dry Creek and Chimney Creek Pastures requiring construction of approximately 8 miles of fence. To provide adequate water for livestock under the grazing system, 23 reservoirs, 13 miles of pipelines and associated troughs, and 1 water gap will be constructed. These water developments will improve livestock distribution, correcting overuse of some areas, provide additional waters for wildlife and wild horses, and provide water away from the river to decrease livestock watering and concentration in the canyon during white water rafting periods.

To start with, this grazing system will accommodate 2,600 head of cattle on the allotment from March 1 to May 15. At this time, 600 head of cattle will be moved to the Lime Mountain and Cornucopia Allotments then on to private ground in the Columbia Basin. From May 15 to October 15, the system will accommodate 2,000 head of cattle. From mid-October to mid-November, all cattle are returned to the IL Ranch headquarters for weaning, sorting, pregnancy testing, etc. One thousand (1,000) head of cattle will return to the Owyhee Allotment to graze from November 15 to January 31, as the weather permits.

T. 47 N.

T. 46 N.








T. 44 N.

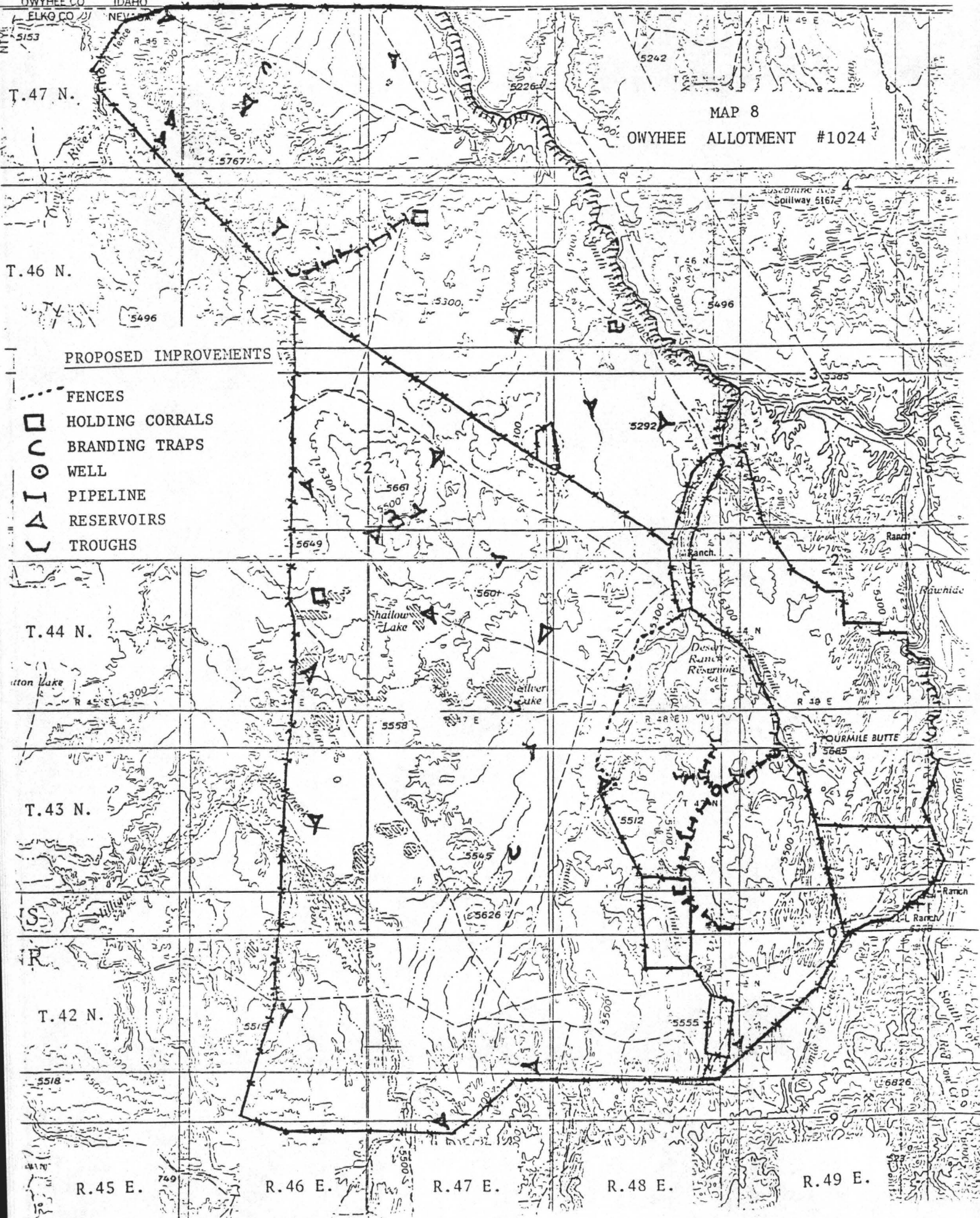
T. 43 N.

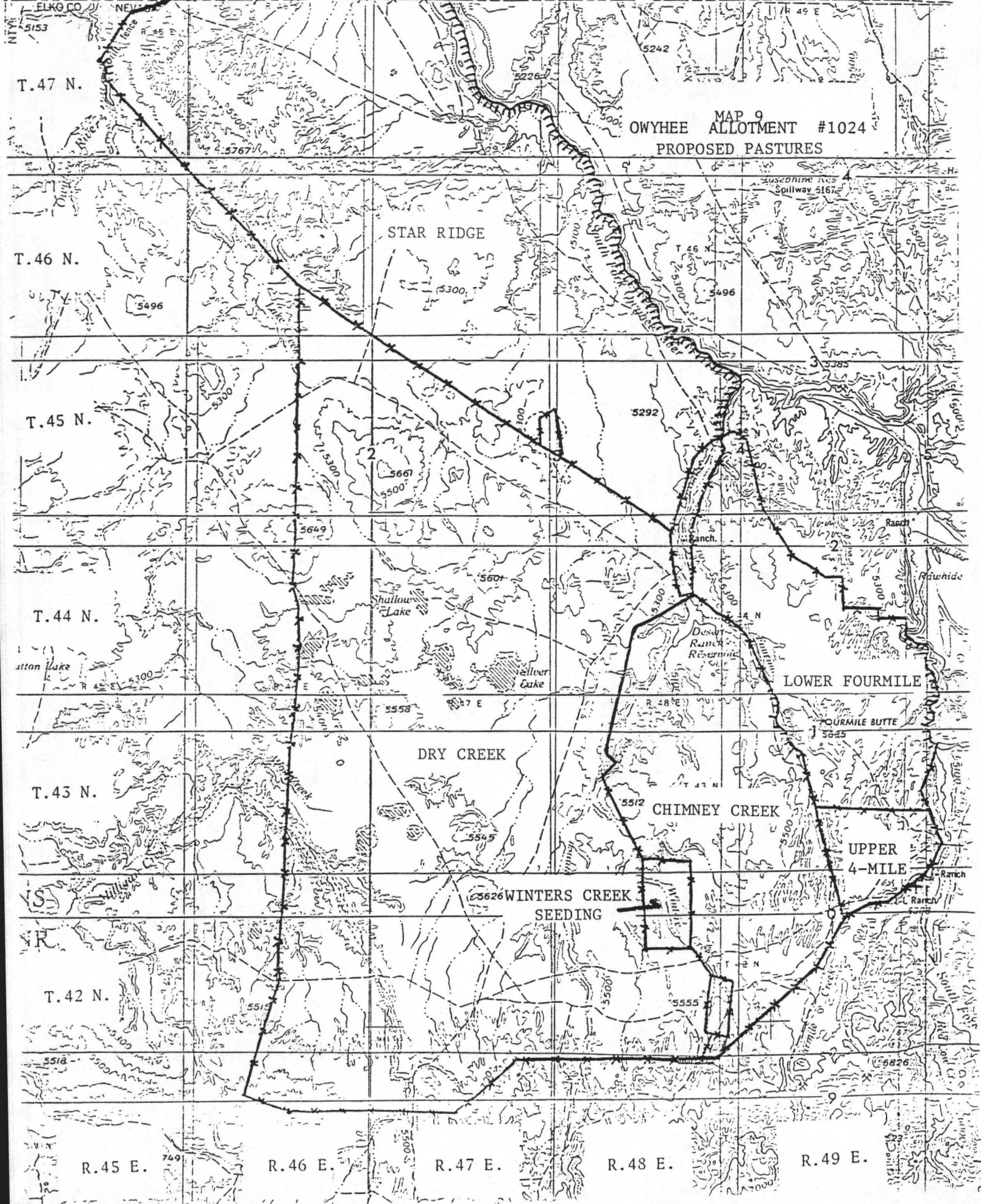
T. 42 N.

MAP 8
OWYHEE ALLOTMENT #1024

PROPOSED IMPROVEMENTS

-  FENCES
-  HOLDING CORRALS
-  BRANDING TRAPS
-  WELL
-  PIPELINE
-  RESERVOIRS
-  TROUGHS





MAP 9
OWYHEE ALLOTMENT #1024
PROPOSED PASTURES

STAR RIDGE

LOWER FOURMILE

DRY CREEK

CHIMNEY CREEK

UPPER
4-MILE

WINTERS CREEK
SEEDING

T. 47 N.

T. 46 N.

T. 45 N.

T. 44 N.

T. 43 N.

T. 42 N.

R. 45 E.

R. 46 E.

R. 47 E.

R. 48 E.

R. 49 E.

In addition to the above use, approximately 2,000 AUMs will be harvested annually by cattle from the Winters Creek Seeding. This use will continue to be applied for and licensed on an annual basis prior to use. Also, 45 head of horses will continue to graze in the Upper and Lower Four-Mile Pastures each year from March 1 to December 31 each year. When gates are opened for drift into and/or through these pastures, the operator will prevent these horses from moving into other pastures.

Cattle will harvest 21,000 AUMs annually from the allotment. Horses will harvest an additional 450 AUMs for a total annual harvest of 21,450 AUMs. Of these, 98% or 21,021 AUMs will be federal AUMs. This will account for approximately 70% of the active preference (30,225 AUMs) on the allotment. As it becomes economically feasible for the ranch to increase their stocking level, additional cattle will be grazed on the allotment under the system until the desired level of use (50% at most key areas) is achieved or active preference is reached.

The grazing system will consist of a two-pasture rest-rotation system and a two-pasture deferred rotation system. Under these systems, complete rest from grazing or the deferral of grazing during the critical growth period of key management plant species will allow these species to maintain and/or increase their density, composition, vigor, production, and reproduction. This should result in the improvement of ecological status of most areas and in wildlife habitat quality. Also, in alternate years, no livestock will graze the north end of the allotment. This will prevent livestock use in the canyon from the Owyhee Allotment during the white water rafting period.

- A. The Star Ridge and Dry Creek Pastures will be grazed under the rest-rotation schedule as follows:

2 - Pasture Rest-Rotation

Pasture	Herd Size	YEAR 1		% PL Use	Total AUMs
		Begin	End		
Star Ridge	2,000	03-01	08-15	98	10,780
Dry Creek		Rest			
TOTAL					10,780

Pasture	Herd Size	YEAR 2		% PL Use	Total AUMs
		Begin	End		
Star Ridge		Rest			
Dry Creek	2,000	03-01	08-15	98	10,780
TOTAL					10,780

- B. The Lower Four Mile and Chimney Creek Pastures will be grazed under the deferred-rotation system as follows:

Pasture	Herd Size	YEAR 1		% PL Use	Total AUMs
		Begin	End		
Lower Four Mile	2,000	08-16	10-15	98	3920 ¹ / ₀
Chimney Creek	600	03-01	05-15	98	1470
	1,000	11-15	01-31	98	2450 ² / ₀
TOTAL					7,840

		YEAR 2				
Lower Four Mile	600	03-01	05-15	98	1470	
	1,000	11-15	01-31	98	2450 ^{2/}	
Chimney Creek	2,000	08-16	10-15	98	3920 ^{3/}	
<u>TOTAL</u>					<u>7840</u>	

- 1/ Gates will be opened into the IL's hay meadows about Sept. 10 to allow cattle to start drifting into the ranch. All cattle will be gathered out of the pasture between October 1 and October 15.
 - 2/ This period of use will be dependent on weather conditions.
 - 3/ Gates will be opened into Upper Four Mile and the IL's hay meadows about September 10 to allow cattle to start drifting into the ranch. All cattle will be gathered out of the pasture between October 1 and October 15.
-

C. Winters Creek Seeding will continue to be licensed on an annual basis. An application for use will be submitted, and a license issued, each year before it is grazed. Use will be light (21-40%) during the spring and heavy (60-65%) in the fall and early winter.

VI. RANGE IMPROVEMENTS

A map and list of existing improvements can be found in Appendix A. Table 2 lists proposed range improvements. They include approximately 8 miles of new fence, 1 mile of fence reconstruction, 10 miles of fence modifications, 100 feet of gap fence, 23 reservoirs, 2 catchments, 1 guzzler, 13 miles of pipelines and associated troughs, 4 gathering/holding corrals, 6 branding traps and 12,526 acres of vegetation treatments.

The reservoirs, pipelines and troughs will provide additional waters to support the grazing system. They will take pressure off the existing, overused water sources and provide water during prescribed grazing periods. The additional water sources will distribute livestock use more evenly through the allotment and will benefit wild horses, antelope and other wildlife species by increasing the availability of water for these resources. To help provide water during dry periods, two catchments will be constructed for wild horses (4321 funding) and an additional guzzler for antelope (4351 funds). Additional waters in the Star Ridge Pasture should help draw livestock away from the South Fork of the Owyhee River during white-water rafting activity.

The operator will construct and maintain the reservoirs under Section 4 permits.

The Chimney Creek Fence will delineate the Chimney Creek Pasture from the Dry Creek Pasture. This pasture fence, which will be built to Bureau specifications, will be three wire (16"-10"-12" spacing), bottom wire smooth and line post spacing will be 22 feet. BLM will contract construction of the fence.

TABLE 2. PROPOSED IMPROVEMENTS TO SUPPORT THE OWYHEE GRAZING SYSTEM

<u>Job Name</u>	<u>Priority</u>	<u>Units</u>	<u>Maint. Respons.</u> ^{1/}	<u>Approx. BLM Cost</u>	<u>Approx. Oper. Cost</u>	<u>Implem. Date</u> ^{2/}
Silver Lake Res. (Sec. 4)	3	6	Operator		\$42,000	FY88
Branding Traps (Sec. 4)	3	3	"		\$ 1,800	"
Gathering/Holding Corrals (Sec. 4)	3	1	"		\$ 1,000	"
Chimney Creek Fence	1	8	"	\$25,600		FY89
Chimney Creek Water (Sec. 4)	1a	1	"		\$ 4,000	"
Owyhee Pipeline, Storage & Troughs	2	5.5	"	\$48,800 \$ 8,000	\$ 6,500	"
E Exxon Ppl (Sec. 4) & Troughs	2a	4	Operator		\$29,400	4/
Star Ridge Ppl (Sec. 4) & Troughs	4	3.5	"		\$28,000	FY89
Twelve Mile Res. (Sec. 4)	4	3	"		\$21,000	"
Branding Traps (Sec. 4)	4	3	"		\$ 18,00	"
Gathering/Holding Corral (Sec. 4)	4	1	"		\$ 1,000	"
Four Mile Creek Gap Fence	5	—	BLM	\$ 1,000		FY90
Fence Reconstruction ^{3/}	5	1	Operator	\$ 4,000		FY90
Star Ridge Res. (Sec. 4)	6	6	"		\$42,000	"
Gathering/Holding Corral (Sec. 4)	6	2	"		\$10,000	"
Dry Creek Res. (Sec. 4)	7	4	"		\$28,000	FY91
South Reservoirs (Sec. 4)	8	4	"		\$28,000	FY92
Owyhee Vegetation Treatment	10	12,526	Operator	\$50,104		5/
Wildhorse Catchments	11	2	BLM	\$10,000		7/
Fence Modification	12	10	Operator	\$ 2,500		7/
Antelope Guzzler	13	1	BLM	\$ 4,600		7/

1/ BLM will relocate or redesign and reconstruct fence sections damaged by wild horses when it is determined that the fence section restricts their wild, free-roaming nature. This will be contingent upon availability of Bureau funding and personnel.

2/ These are target dates contingent on availability of funds.

3/ Project No. 0688, Allied-McCleary Drift Fence

4/ This project may utilize the same contractor BLM uses for the Owyhee Pipeline or it may be constructed at a later date depending on the operator's budget.

5/ The need for these treatments was identified in the RMP. After the AMP is implemented the need for treatments will be reevaluated based on monitoring data and economics at that time. Cost estimate is based on burning rather than spraying.

6/ These catchments will be funded by the Wild Horse and Burro Program (4321).

7/ As funding is available.

8/ These projects will be funded by the Wildlife Habitat Management Program (4351).

Normal maintenance of these improvements will be the responsibility of the operator.

Approximately 10 miles of existing fence (Project No. 0688) will be modified to meet BLM standards for fences in antelope areas. The modification will be funded by the wildlife habitat management program (4351). An additional mile of this fence must be completely reconstructed and may be moved slightly due to terrain in order to prevent livestock movement between allotments. This will be funded by the range improvement program (3100).

To improve riparian condition in Four-Mile Canyon, approximately 100 feet of gap fence will be installed to exclude livestock from the Canyon. The fence will be within a WSA and a VRM Class II area so it will be designed in close cooperation with the area's Recreation Specialist.

To facilitate the gathering, handling, and moving of cattle under the grazing system, the operator will build six branding traps and four gathering/holding corrals under Section 4 permits. Traditionally, portable pens have been used for branding. By construction of permanent traps, the number of areas impacted will be cut down and no new areas will be disturbed during branding activities. BLM will provide the necessary clearances for these projects during FY88.

The RMP identified 12,526 acres of vegetation treatment for the Owyhee Allotment. The need for this improvement will be reevaluated based on monitoring data and economics after the grazing system is fully implemented.

A. Interim Grazing Practice

Until the identified improvements are completed the grazing plan cannot be fully followed. As improvements are completed, the plan will be followed as closely as is feasible. The operator will run approximately 2,600 head until economics improve. When a larger herd becomes economical, use will be increased under the system until the desired use level (50%) in each pasture is attained or until the active preference (30,225 AUMs) is reached, whichever occurs first.

B. Billing Procedures

The Winters Creek Seeding will continue to be billed before it is used each year from an annual application for use.

Accurate actual use information on numbers of livestock and periods of use by pasture will be maintained by the operator on forms provided by the BLM. The forms must be returned to the Elko District Office within 15 days after the cattle have come off the allotment in October. Additional actual use will be turned in within 15 days after the cattle have come off the allotment for the after weaning grazing period in November, December, and January.

Following receipt of the actual use figures, the BLM will issue billing notices to the operator reflecting the actual grazing use made (other than for the Winters Creek Seeding). The bill is payable within 60 days of the date of issuance.

This Allotment Management Plan is the grazing authorization for the public lands in the Owyhee Allotment. Any use other than that defined in this Allotment Management Plan and flexibility provision is unauthorized.

C. Flexibility

Cattle numbers may be increased to fully use the operator's active preference of 30,225 federal AUMs if desired utilization levels on key forage species are not exceeded.

Pasture moves may be adjusted by 10 days either way based on availability of feed and water. The March 1 initial turn in date will only be adjusted after consultation between the permittee and the BLM authorized officer.

Due to the large areas involved, it is not feasible to expect complete clean-out of cattle when moving from one pasture to the next. The operator will reride pastures within 15 days of a move to clean-out as many remaining cattle as possible. After this time, no more than 1% of the herd will be viewed as acceptable in the cleaned out pasture. To aid in this, BLM will authorize the operator to build four additional gathering/holding corrals under Section 4 permits.

VII. STUDIES AND EVALUATION

The monitoring studies described below are designed to determine if management objectives are being met. They will provide a basis for assessing the implemented grazing system and correlating vegetative changes with grazing use. Monitoring studies will be the basis for any changes in licensed use.

The selection of studies methodology and study sites (key areas) was accomplished in accordance with procedures established by the 1984 Nevada Rangeland Monitoring Task Force Guidelines (NRMTFG).

Use Maps - In use mapping, general zones of use (slight, light, moderate, heavy, severe) are delineated for the entire allotment. Mapping is done by the range conservationist and is used as a tool to identify distribution problems and to locate range improvements.

A second map will be prepared each year by the range conservationist or the wild horse expert in consultation with the permittee. This will show areas of the allotment primarily used by the wild horses that year.

Key Forage Plant Utilization - Utilization of key forage plants at key areas will be determined within 10 days following removal of cattle from a pasture. Utilization will be determined using techniques described in the Nevada Rangeland Monitoring Handbook. These utilization studies are used to supplement use maps and to help interpret changes in plant frequency, ground cover or ecological status.

Actual Use - Actual use data will be submitted annually by the operator within 15 days following the removal of livestock from the public lands. This information will be summarized by pasture, livestock numbers, and period-of-use.

Trend - Trend, the change in range condition over time, will be measured using the quadrat frequency method as described on page 27 of The Nevada Rangeland Monitoring Handbook. When frequency transect data indicate a statistically significant change in the frequency of a key species (trend), the change is evaluated to see if the general and key area objectives are being met.

Ecological Status - The ecological status of a site is the relative degree to which the composition and production of plants in the present plant community resemble the composition and production of the potential natural plant community. Determination of ecological status will serve as a basis for comparison of changes in the plant community as a result of management actions of this allotment management plan. Ecological status will be determined by techniques outlined in the Nevada Rangeland Monitoring Handbook.

Use maps, key forage plant utilization, trend, actual use, and ecological status will be read at all key areas.

Use maps, key forage plant utilization, and actual use data will be collected annually on grazed pastures.

Trend and ecological status studies will be reread in 1992. The next reading of these studies will be 5 years after the grazing system is fully implemented (also see Section VIII) to evaluate the need for vegetation treatments and/or adjustments in the system.

Thereafter, studies should be read every fourth year as cycles are completed.

Climate - Climatological information will be used to adjust production and use for the effects of environment. In consultation with the district's hydrologist, one or more rain cans will be placed on the allotment for this purpose.

Evaluation

A. Range Objectives

Utilization, actual use, and climatic studies will be the primary means of establishing grazing capacity. When analyzing utilization data, the weighted use by production method (NRMTG) will be used for identifying utilization levels within and between pastures. Actual use and climatic studies will be used to adjust weighted utilizations for comparison to objective levels.

Trend, condition data and maps of wild horse use areas will be used to support adjustments based on analysis of utilization and actual use data. Trend data will be analyzed for statistical significance by Analysis of Variance and Duncan's Multiple Range Test.

B. Permittee Objectives

Records kept by the operator on conception rates and length of calving season will be used to evaluate success of the system in meeting these objectives.

C. Wildlife Objectives

Evaluation of these objectives for antelope and mule deer will be done by the Elko Resource Area's Wildlife Biologist using information from wildlife monitoring plots ^{1/} and Nevada Department of Wildlife population surveys.

D. Wild Horse Objectives

Evaluation of these objectives will be done by the Elko District's Wild Horse and Burro Specialist using periodic census of the wild horse population on the allotment.

E. Recreation Objectives

Evaluation of these objectives will be done by the Elko Resource Area's Recreation Specialist using post-use survey forms filled out by white-water rafters.

F. Watershed Objective

No objective has been identified for this resource.

However, a need for an evaluation of watershed condition on the allotment has been identified. This evaluation will be done by the Elko Resource Area's Watershed Specialist by September 30, 1988. If problems are identified, a watershed plan will be written or this plan will be amended to correct them.

G. Riparian Objectives

Evaluation of the first objective will be through the establishment and sampling of a minimum of two "Riparian Monitoring Plots" on Four-Mile Creek as described in the Elko District's Riparian Monitoring Handbook (Draft).

Evaluation of the second objective will be through periodic inspections of Four-Mile Canyon for any livestock use after the gap fence has been constructed.

VIII. FACTORS LIMITING THIS AGREEMENT

The AMP will be evaluated 5 years after full implementation of the system when the trend and ecological status studies have been reread. If substantial progress has not been made towards the AMP objectives identified in Section IV, adjustments will be made in season-of-use (i.e. later turn out), livestock numbers and/or the grazing system (i.e. deferred rotation in place of rest rotation). Substantial progress will mean 10% or more of identified changes will have been obtained.

^{1/} The Elko Resource Area's Wildlife Biologist will establish Big Game Studies to evaluate mule deer habitat by September 30, 1987.

APPENDIX A

Existing Projects

<u>Job Name</u>	<u>Job No.</u>	<u>Units</u>	<u>Location</u>
Silver Lake Reservoir	0165	1 each	T.44N., R.47E., Sec. 35 NE $\frac{1}{2}$ NE $\frac{1}{2}$
Dry Lake Reservoir	0166	1 each	T.45N., R.48E., Sec. 20 SE $\frac{1}{2}$
Corral Lake Reservoir	0168	1 each	T.44N., R.46E., Sec. 14 NE $\frac{1}{2}$
Winter Ranch Reservoir	0187	1 each	T.42N., R.48E., Sec. 18 NW $\frac{1}{2}$ NE $\frac{1}{2}$
Winter Reservoir No. 2	0205	1 each	T.43N., R.48E., Sec. 27 SW $\frac{1}{2}$ SW $\frac{1}{2}$
Middle Draw Reservoir	0208	1 each	T.42N., R.48E., Sec. 22 SW $\frac{1}{2}$ NW $\frac{1}{2}$
Owyhee Division Fence	0267	15 miles	T.44&45N., R.49E.
Allied-McCleary Drift Fence	0688	24 miles	T.45, 46 & 47N., R.45,46,47 & 48E.
Dry Creek Fence	0976	28 miles	T.41, 42, 43, 44, 45 & 46N., R.46E.
Allied, N-1, I-1 Fence	0978	12.25 miles	T.47N., R.45, 46, 47E.
Winter's Creek Seeding	1255	4,629 acres	T.42 & 43N., R.48E.
Burner Hill Fence	4083	18 miles	T.41 & 42N., R. 46, 47, 48 & 49E.
Garvey-Allied Fence	4086	1.5 miles	T.41N., R.46E.
Winters Seeding Well	4180	1 each	T.42N., R.48E., Sec. 11
Winters Pipeline	5067	3 miles	T.42N., R.48E.
Winters Drift Fence	5077	3.5 miles	T.42 & 43N., R. 48E.
Milligan Cattleguard	5134	1 each	T.42N., R.46E., Sec. 22
Three Mile Pit No. 1	5163	1 each	T.41N., R.48E., Sec. 4 NW $\frac{1}{2}$ NE $\frac{1}{2}$
Owyhee Pit No. 1	5164	1 each	T.43N., R.47E., Sec. 35 SE $\frac{1}{2}$ SW $\frac{1}{2}$
Owyhee Pit No. 2	5165	1 each	T.43N., R.47E., Sec. 26 NW $\frac{1}{2}$ SE $\frac{1}{2}$
Owyhee Pit No. 3	5166	1 each	T.44N., R.48E., Sec. 31 SW $\frac{1}{2}$ SE $\frac{1}{2}$
Pronghorn Guzzler	5174	1 each	T.44N., R.46E., Sec. 25 NE $\frac{1}{2}$
Winters Cattleguard No. 2	5182	1 each	T.41N., R.48E., Sec. 1 NE $\frac{1}{2}$
Four Mile Cattleguard	5184	1 each	T.44N., R.48E., Sec. 24 SE $\frac{1}{2}$ NE $\frac{1}{2}$
Winters Cattleguard No. 1	5216	1 each	T.41N., R.48E., Sec. 1 NW $\frac{1}{2}$
Chimney Cattleguard	5323	1 each	T.44N., R.48E., Sec. 14 NE $\frac{1}{2}$ SE $\frac{1}{2}$
Devil's Corral Branding Trap	5510	.5 acres	T.47N., R.47E., Sec. 21 NW $\frac{1}{2}$ NW $\frac{1}{2}$
Ten Mile Basin Corral	5513	16.5 acres	T.43N., R.47E., Sec. 35 SE $\frac{1}{2}$ SW $\frac{1}{2}$
Milligan Creek Corral	5514	8 acres	T.43N., R.46E., Sec. 27 NW $\frac{1}{2}$ SE $\frac{1}{2}$

