



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Winnemucca District Office
705 East 4th Street
Winnemucca, Nevada 89445

m 12/18/92
TAKE
PRIDE IN
AMERICA

IN REPLY REFER TO:

4100
(NV-241.3)

DEC 18 1992

Dear Interested Party:

Please find enclosed a draft copy of an allotment evaluation prepared for the Bullhead Allotment.

I ask that you review the evaluation and provide me with your comments by January 25, 1993. After the comments are received and reviewed, I'll decide whether or not a meeting with interested parties is warranted.

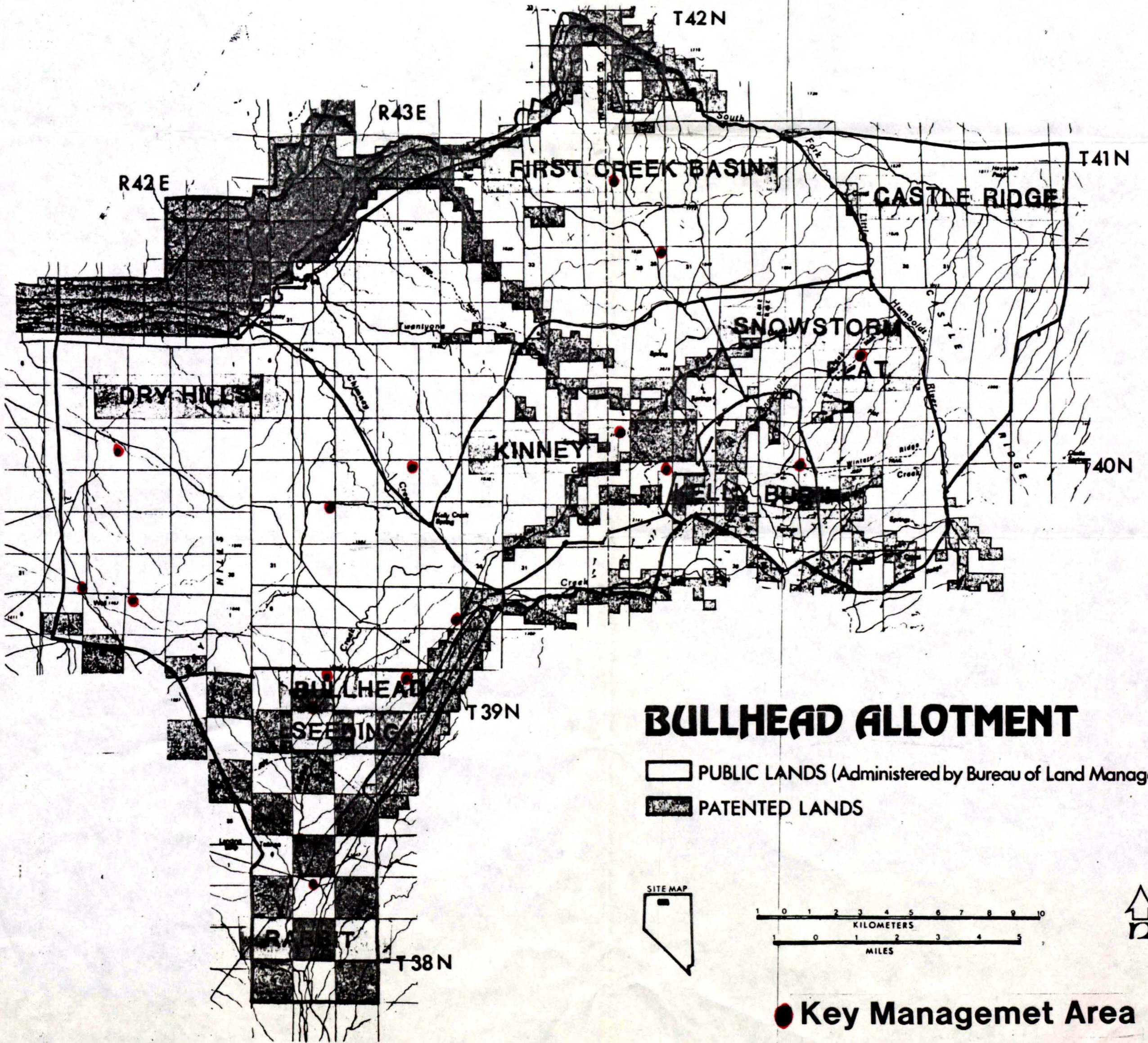
If you have any questions, please refer them to Bob Hopper at (702) 623-1500.

Sincerely yours,

Area Manager ACTING
Paradise-Denio Resource Area

Enclosures

Allotment Evaluation
Use Pattern Maps
Allotment Maps
Stream Survey Maps

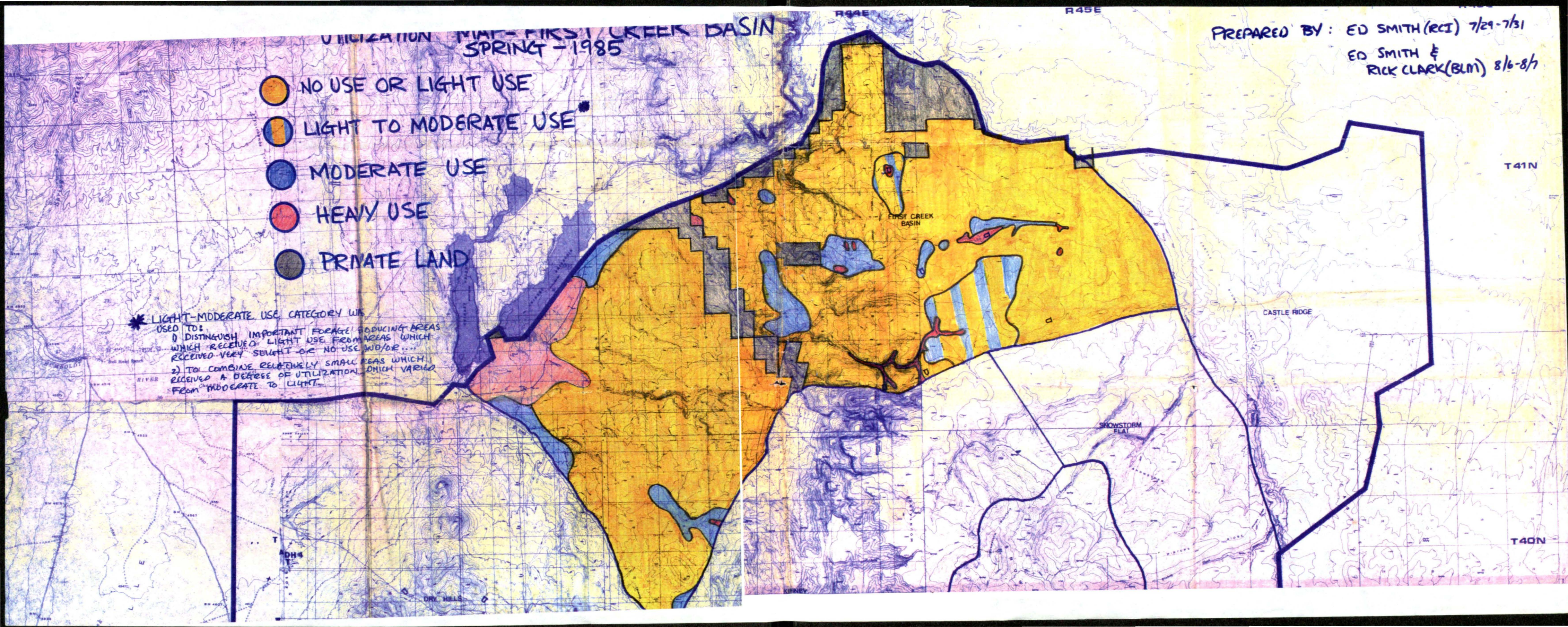


UTILIZATION MAP - FIRST CREEK BASIN
 SPRING - 1985

PREPARED BY: ED SMITH (RCI) 7/29-7/31
 ED SMITH &
 RICK CLARK (BLM) 8/6-8/7

- NO USE OR LIGHT USE
- LIGHT TO MODERATE USE
- MODERATE USE
- HEAVY USE
- PRIVATE LAND

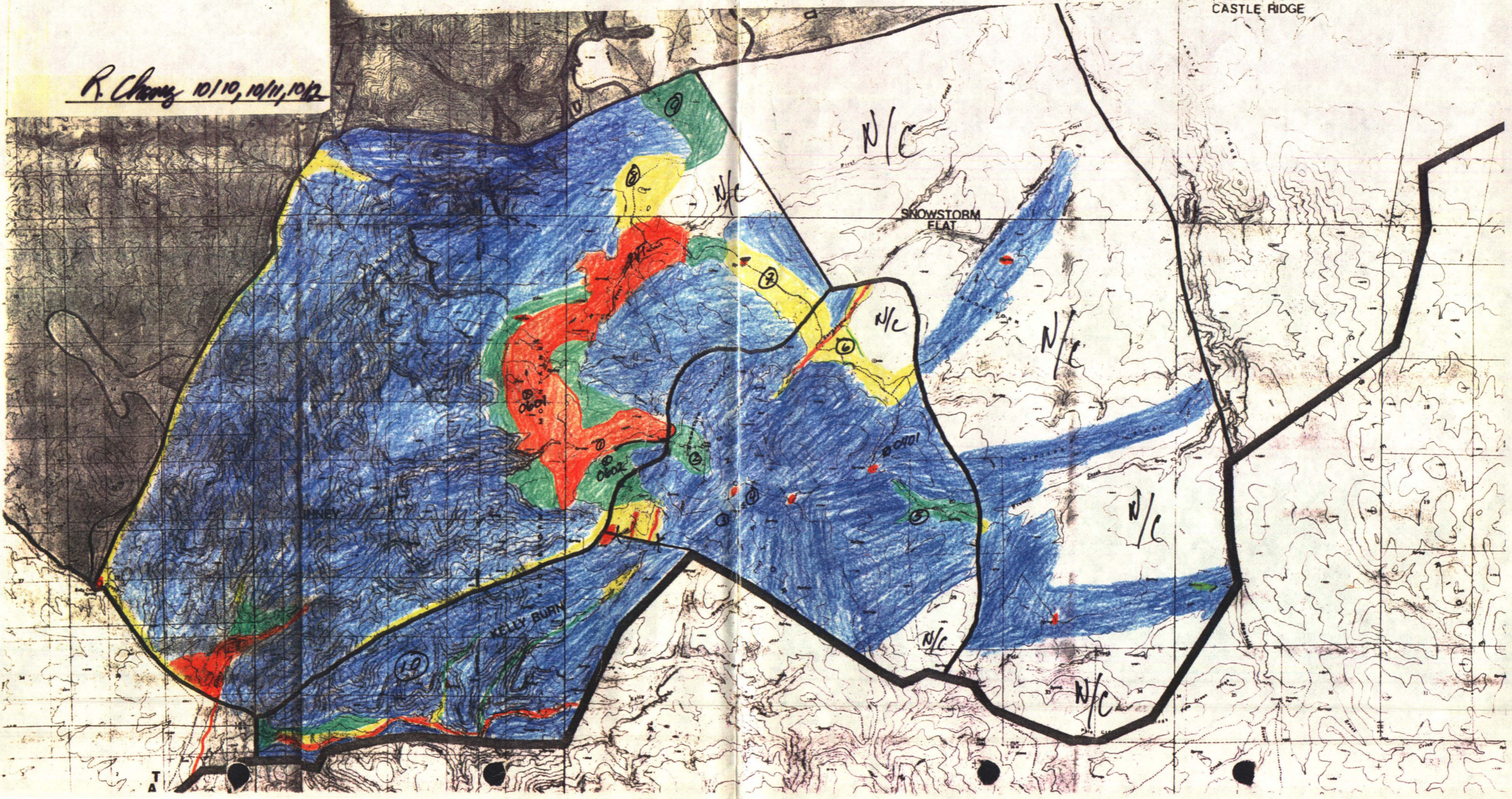
* LIGHT-MODERATE USE CATEGORY WAS USED TO:
 1) DISTINGUISH IMPORTANT FORAGE PRODUCING AREAS WHICH RECEIVED LIGHT USE FROM AREAS WHICH RECEIVED VERY SLIGHT OR NO USE AND/OR...
 2) TO COMBINE RELATIVELY SMALL AREAS WHICH RECEIVED A DEGREE OF UTILIZATION WHICH VARIED FROM MODERATE TO LIGHT.



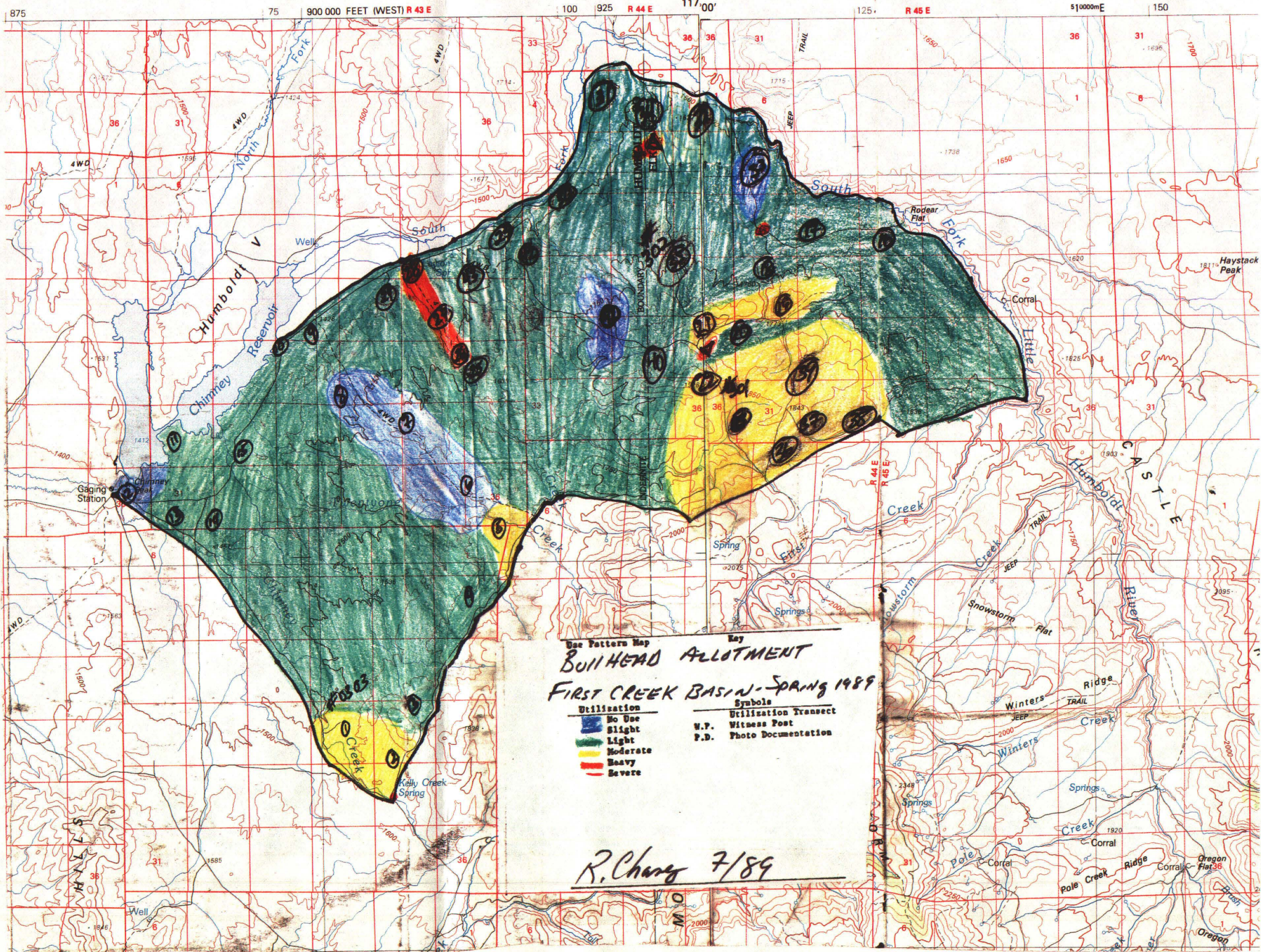
Use Pattern Map Key
Bullhead Allotment
Summer 1989

Utilization	Symbols
No Use	Utilization Transect
Slight	W.P. Witness Post
Light	P.D. Photo Documentation
Moderate	
Heavy	
Severe	

R. Cherry 10/10, 10/11, 10/12



30X60 MINUTE SERIES (TOPOGRAPHIC) TUSCARORA, NEVADA



Use Pattern Map

Key

Bullhead Seeding

10-31-89

Utilization

- No Use
- Slight
- Light
- Moderate
- Heavy
- Severe

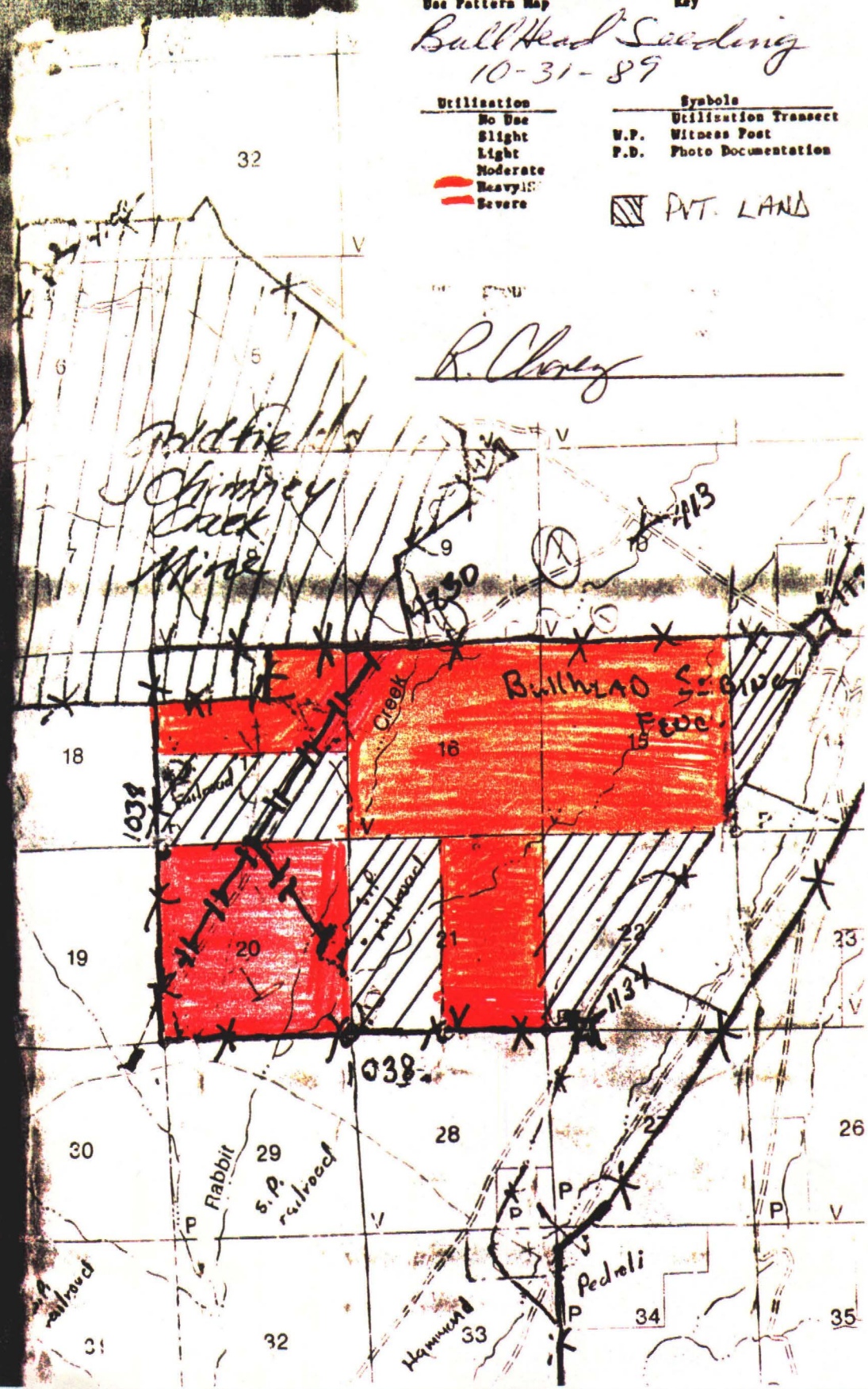
Symbols

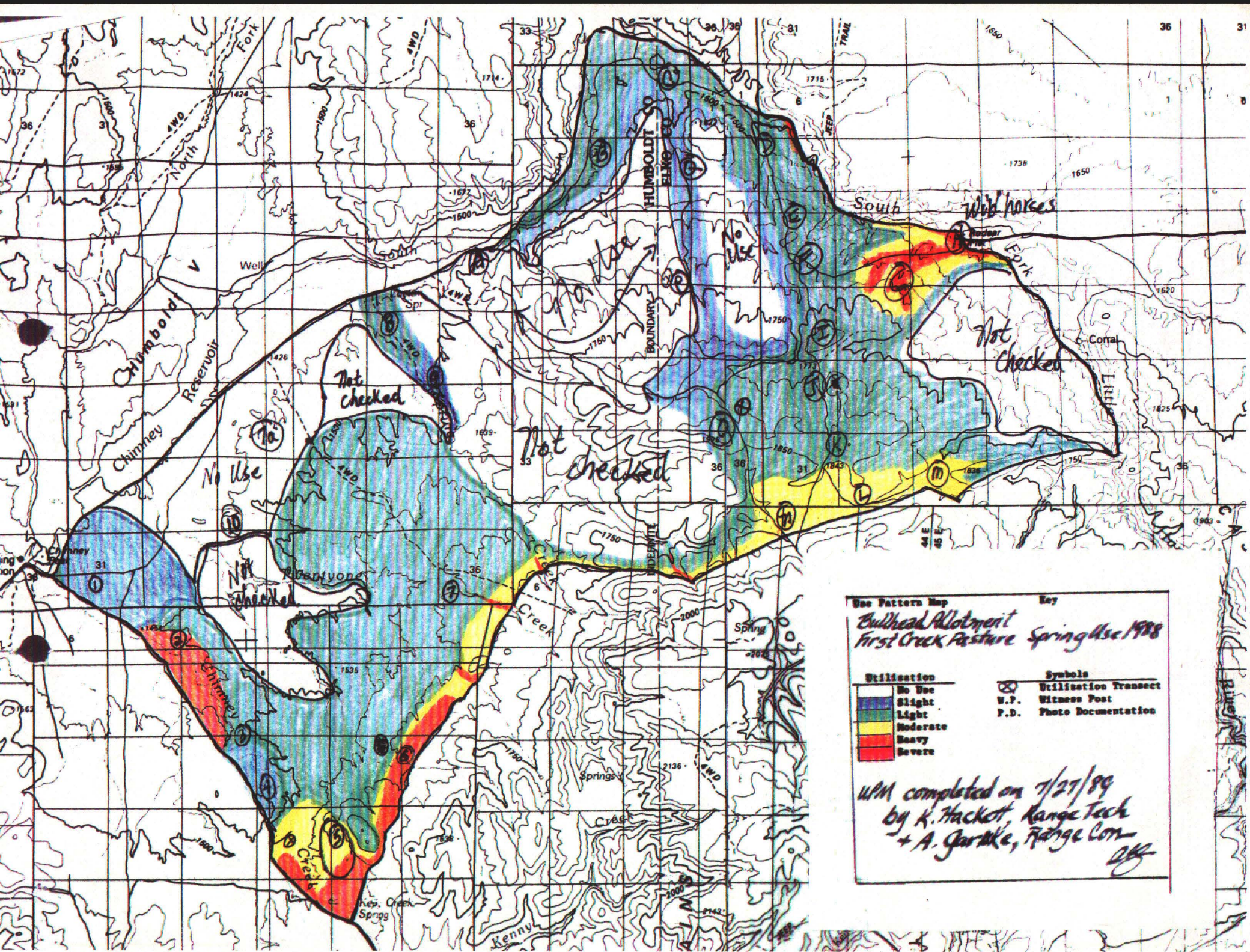
- Utilization Transect
- W.P. Witness Post
- P.D. Photo Documentation

 PVT. LAND

32

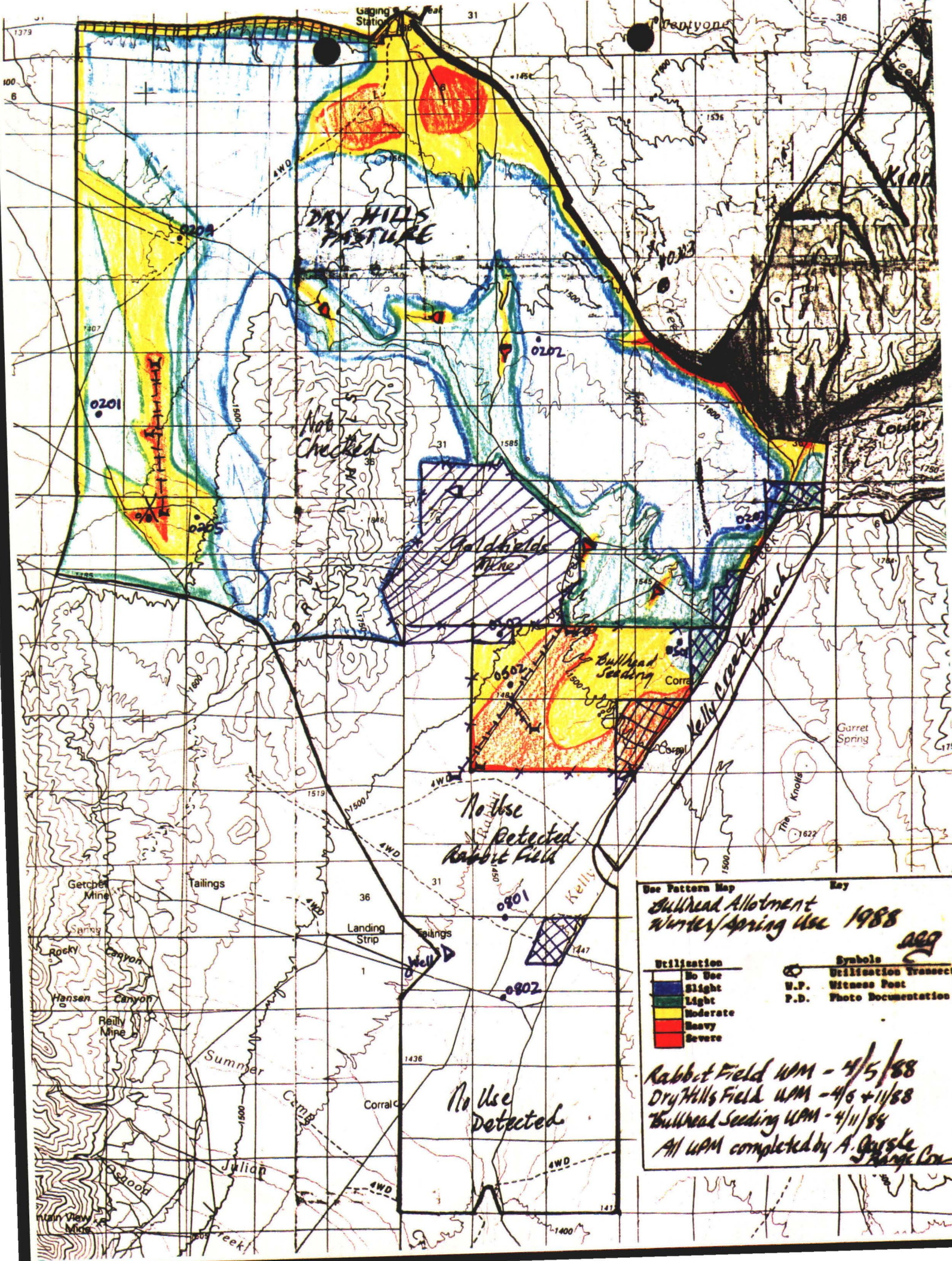
R. Chrey





Use Pattern Map
Bullhead Allotment
First Creek Pasture Spring Use 1988

WPM completed on 7/27/89
 by K. Hackett, Range Tech
 + A. Garcke, Range Com



Use Pattern Map

Bullhead Allotment
Winter/Spring Use 1988

Utilization

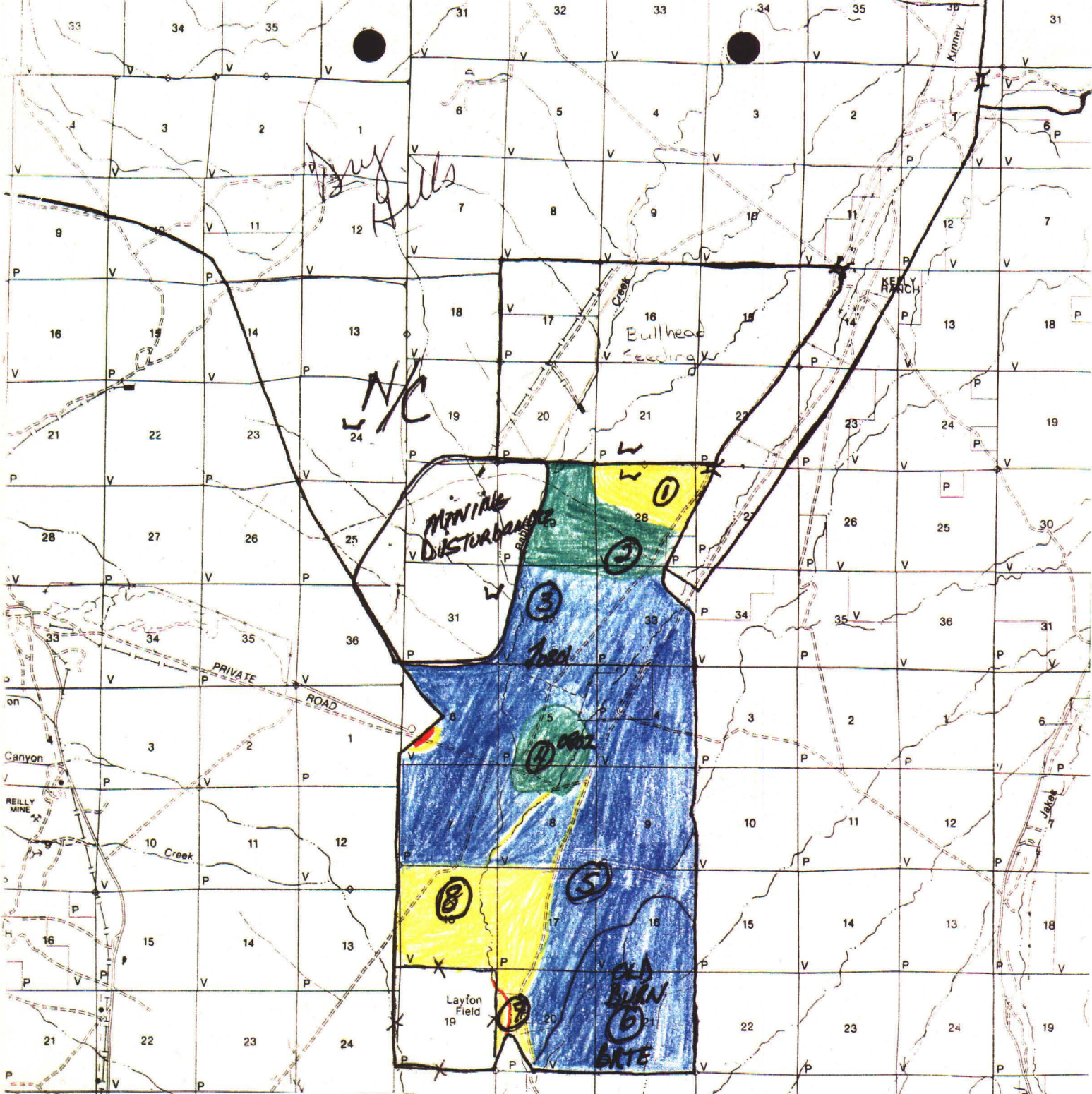
Blue	No Use
Light Blue	Slight
Yellow	Moderate
Red	Heavy
Dark Red	Severe

Symbols

Circle with cross	Utilization Transsect
Circle with dot	W.P. Witness Post
Circle with 'x'	P.D. Photo Documentation

Handwritten notes:

- Rabbit Field WAM - 4/5/88
- Dry Hills Field WAM - 4/5 + 11/88
- Bullhead Seeding WAM - 4/11/88
- All WAM completed by A. Garske



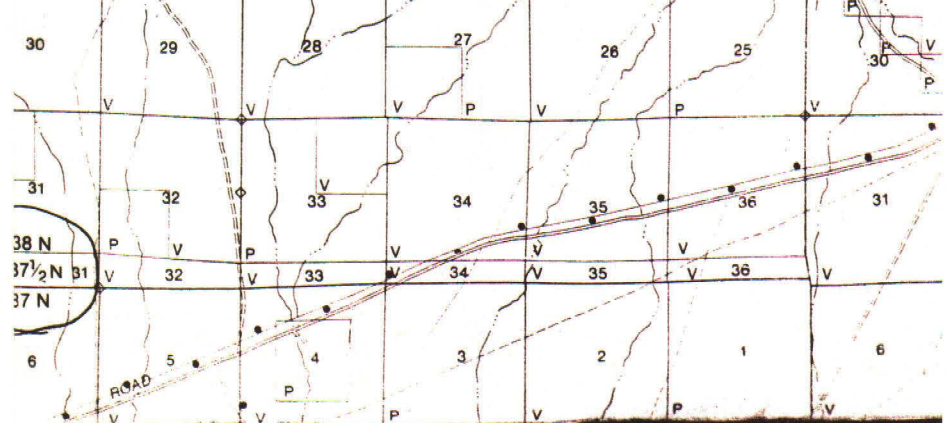
Use Pattern Map

Key

*Bullhead Allotment
Winter Use 1-30-90*

- Utilization**
- No Use
 - Slight
 - Light
 - Moderate
 - Heavy
 - Severe

- Symbols**
- W.P. Witness Post
 - P.D. Photo Documentation



R. Cherry Rabbit Field

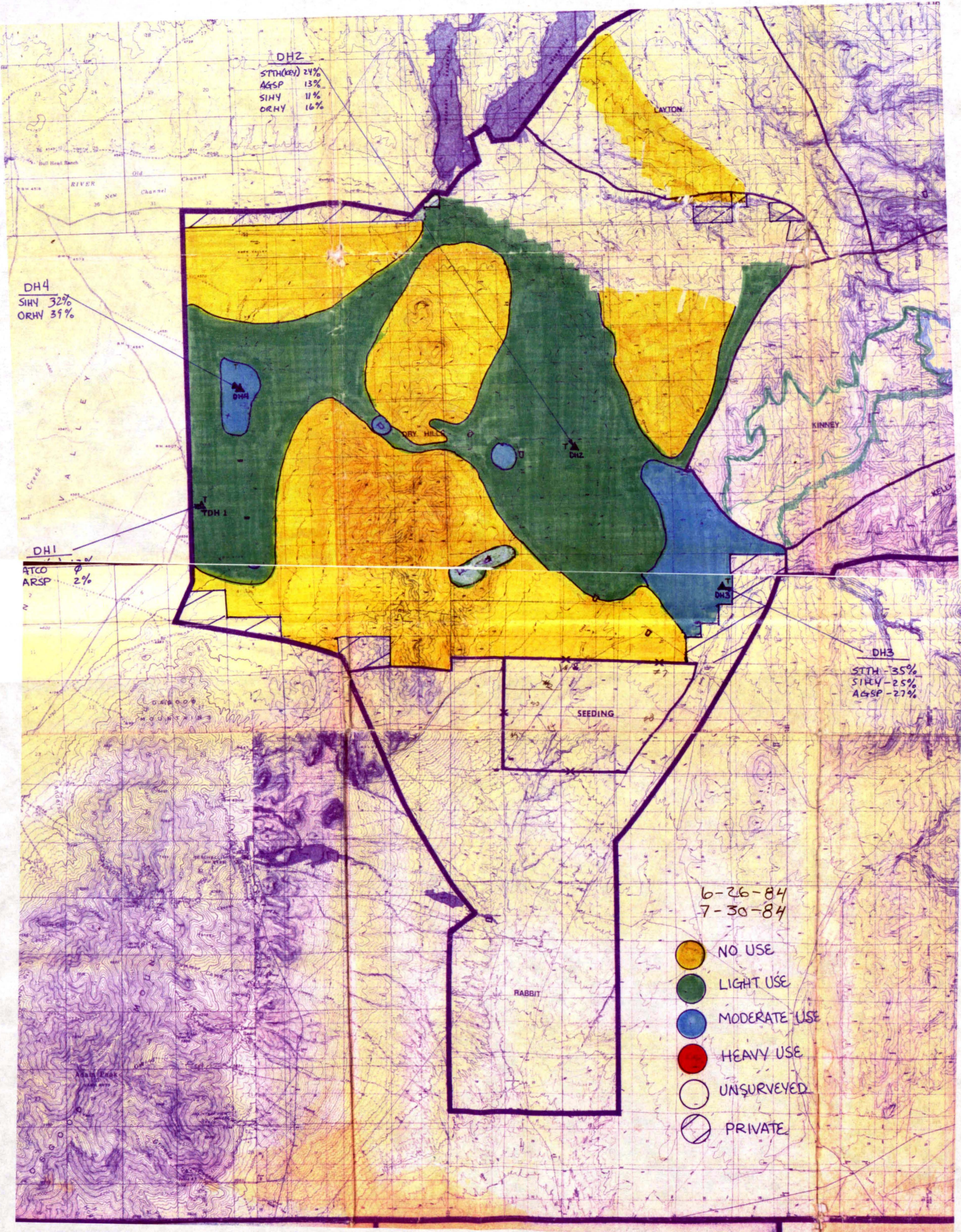
DH2
 STH(REV) 24%
 AGSP 13%
 SIHY 11%
 ORHY 16%

DH4
 SIHY 32%
 ORHY 39%

DH1
 ATCO
 ARSP 2%

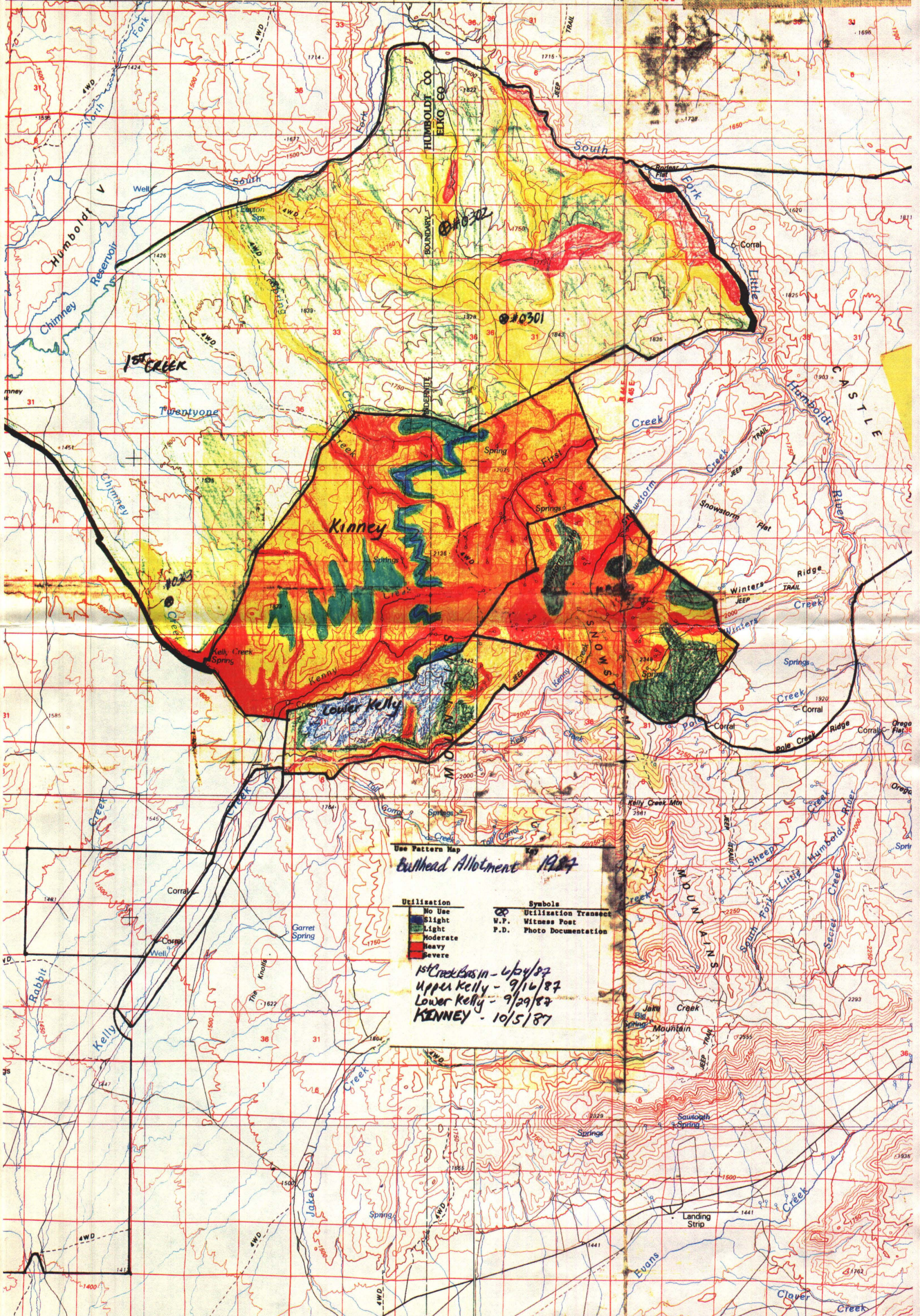
DH3
 STH - 35%
 SIHY - 25%
 AGSP - 27%

- 6-26-84
 7-30-84
- NO USE
 - LIGHT USE
 - MODERATE USE
 - HEAVY USE
 - UNSURVEYED
 - PRIVATE



30X60 MINUTE SERIES (TOPOGRAPHIC) TUSCARORA, NEVADA

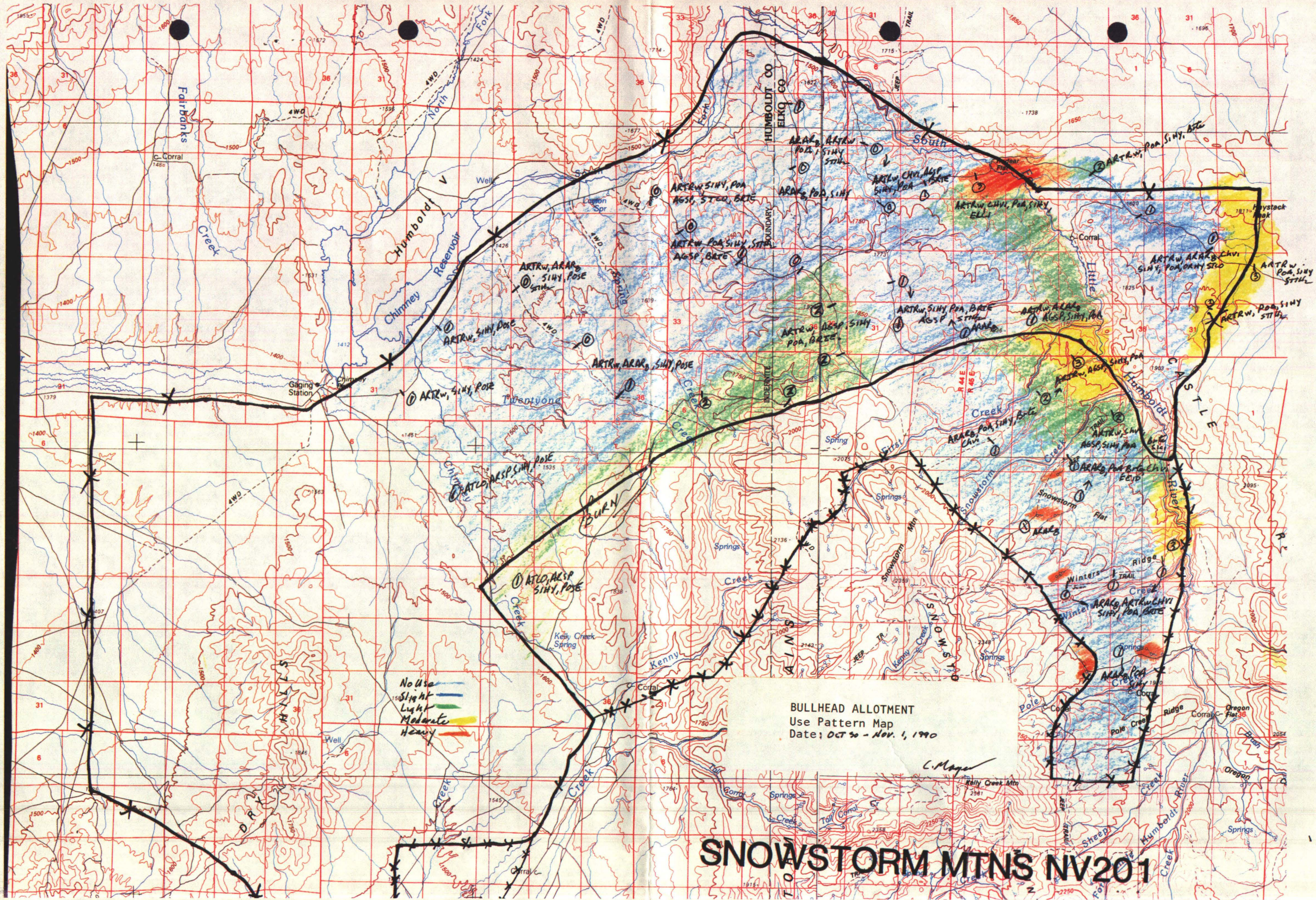
900 000 FEET (WEST) R 43 E 100 925 R 44 E 117 00' 12 R 45 E



Use Pattern Map
Bullhead Allotment 1987

Utilization	Symbols
No Use	Utilization Transect
Slight	W.P. Witness Post
Light	P.D. Photo Documentation
Moderate	
Heavy	
Severe	

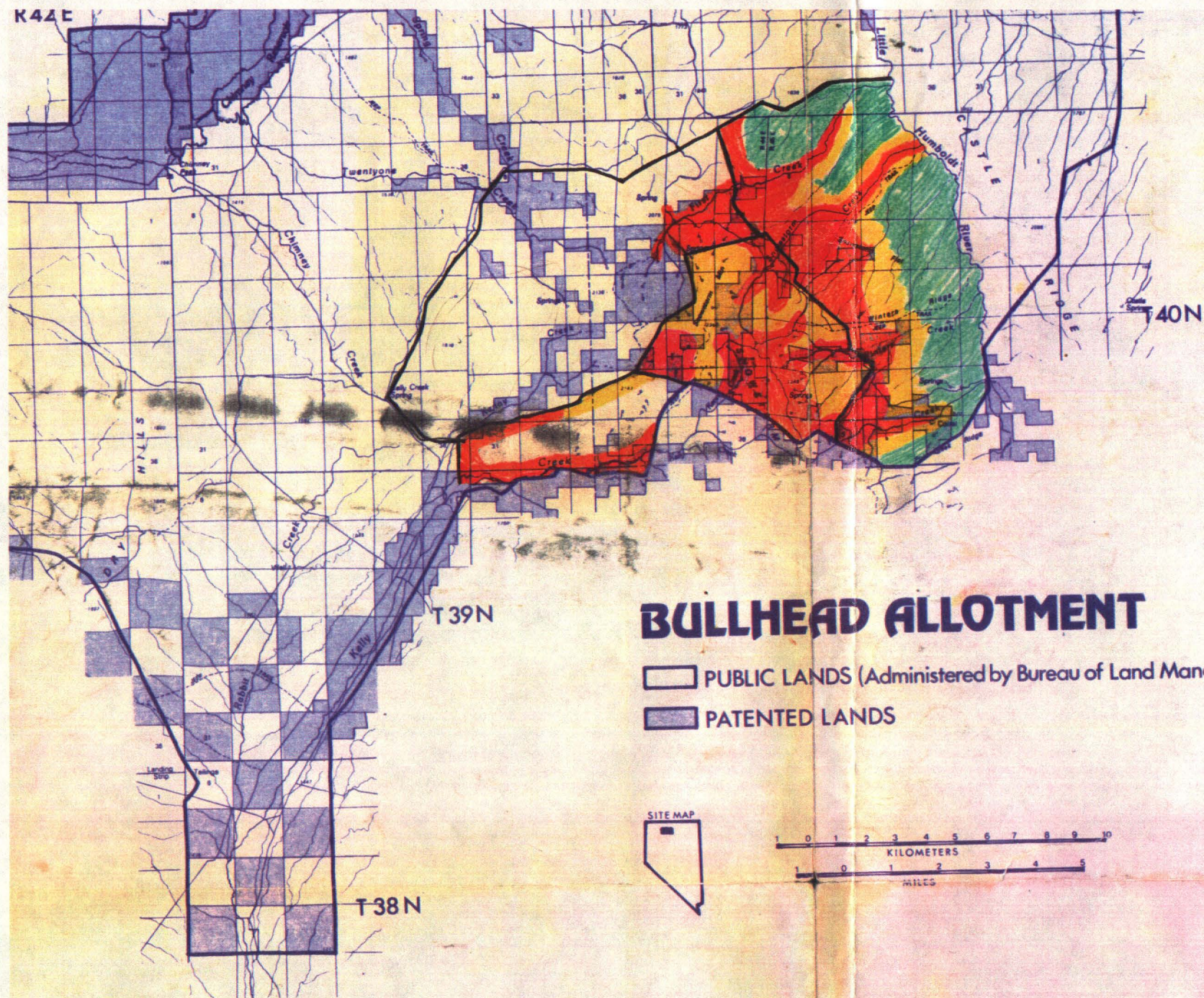
1st Creek Basin - 6/24/87
 Upper Kelly - 9/16/87
 Lower Kelly - 9/29/87
KENNEY - 10/5/87



No Use
 Slight
 Light
 Moderate
 Heavy

BULLHEAD ALLOTMENT
 Use Pattern Map
 Date: OCT 30 - NOV. 1, 1990

SNOWSTORM MTNS NV201



BULLHEAD ALLOTMENT

- PUBLIC LANDS (Administered by Bureau of Land Management)
- PATENTED LANDS

1986

- Heavy
- Moderate
- Light
- Slight
- not inspected

Snowstorm Pasture -
 Horse use primarily on E side
 Creeks utilization not contiguous

Rob Smith

December 9, 1992

Bullhead Allotment
Final Allotment Evaluation Summary

I. Introduction

- A. Bullhead Allotment (00033)
- B. Permittee - Circle A Ranches
- C. Evaluation Period - 1983 - 1991
- D. Selective Management Category I

II. Initial Stocking Level

A. Livestock Use

1. Grazing Preference (AUMS)

a. Total preference	19,283 AUMS
b. Suspended preference	7,233 AUMS
c. Active preference	12,050 AUMS
d. Initial stocking use	*8,350 AUMS
e. Non Use	3,700 AUMS
f. Exchange of use	1,051 AUMS

* As per CRMP recommendation and land use plan decision.

2. Seasons of Use

Spring/Summer 4-1 to 9-30
Fall/Winter 11-1 to 3-31

3. Kind and Class of Livestock

Cattle (cow/calf)

4. Percent Federal Range

Allotment licensed at 91% federal range

105
12

5898
-1260

5. Grazing System

The current grazing system consists of spring, summer and winter use pastures. Two of the pastures are grazed in either fall/winter or spring. One field is not grazed by livestock due to lack of adequate stock water. Consistent patterns of rest-rotation and periods of use have not been applied to the Bullhead Allotment throughout the evaluation period. Use is displayed on Table 2, Bullhead Allotment Actual Use by Livestock Summary.

The summer fields, Kinney, Snowstorm Flat, and Upper and Lower Kelly Burn Pastures, have been utilized from June 1 through September 30 in a three pasture rest-rotation. While Kinney and Snowstorm Flat Pastures have consistently been rested every third year, at a minimum, Kelly Burn Pasture has been grazed every year except one during the evaluation period.

Spring grazing has been provided by either First Creek Pasture, Dry Hills Pasture or Bullhead Seeding. First Creek has also been grazed in the summer and early fall. Dry Hills has been grazed in the spring, as stated above, and in the winter. Bullhead Seeding has been grazed during all seasons.

Rabbit Pasture has been used consistently in the winter only. As stated above, Dry Hills and Bullhead Seeding have also been used for winter grazing.

Castle Ridge Pasture has not been grazed by livestock due to lack of adequate stock water.

B. Wild Horse Use

The Bullhead Coordinated Resource Management Plan (CRMP) recommended a wild horse herd of 50 adult wild horses.

The Snowstorm Mountain Herd Management Area (HMA) is situated entirely within the Bullhead Allotment and is contained within the Castle Ridge, First Creek, Snowstorm Flat, Kinney, Kelly Burn, and a portion of the Dry Hills pastures. The HMA consists of 145,538 acres. There are 133,138 acres of public land and the remaining 12,400 acres are on private land.

Wild horses are being managed under the Little Owyhee Desert-Snowstorm Mountains Wild Horse Herd Management Area Plan which was approved August 6, 1987. The HMP is to be revised in 1993.

C. Wildlife Use

1. Wildlife Species

a. Reasonable Numbers (AUMs)

	Winnemucca ¹	Elko ²	Total
Mule Deer	1,029	513	1,542
Antelope	101	57	158
Bighorn Sheep ³	0	305	305

¹ Bullhead CRMP² Elko RMP³ South Fork of the Little Humboldt River
Bighorn Sheep Reestablishment Release Plan

b. Wildlife Use Areas

Deer

Snowstorms DY-23	25,268 acres
Snowstorms DY-23 (Elko Co.)	35,359 acres
Snowstorms DY-23 (Crucial, Elko Co.)	8,256 acres
Snowstorms DS-2	1,130 acres
Snowstorms DS-2 (Elko Co.)	6,522 acres

Pronghorn

Snowstorms PY-10 (Elko Co.)	50,137 acres
Hot Springs PY-11	24,242 acres
Snowstorms PY-10	18,171 acres

Bighorn Sheep

Snowstorms BY-11	12,023 acres
Snowstorms BY-11 (Elko Co.)	48,403 acres

Sage grouse - There is one sage grouse strutting ground identified on the allotment, however the majority of the allotment is identified as general distribution for sage grouse.

III. Allotment Profile

A. Description

The Bullhead allotment has a total of 170,456 acres, of which 85% is public, and 15% is private lands. The eastern third of the allotment lies within the Elko BLM District. Major topographic features include the Dry Hills, Snowstorm Flat, Winter Ridge,

Snowstorm Mountains, and the Castle Ridge area. The area has a wide variety of vegetative communities, soils and elevational (4,500' to 7,500') differences. Generally, the vegetation in the low elevations is characteristic of the shadscale, budsage, greasewood and big sagebrush communities. The higher elevations are typified by big sagebrush communities.

B. Acreage

1. Allotment

a.	Total acres	170,456
b.	Public acres	145,016
c.	Private acres	25,440

2. Pastures

The allotment is divided into three use areas. The spring use area is comprised of the lower elevational pastures (Dry Hills, First Creek, and Castle Ridge Pasture), the summer use area (Kinney, Snowstorm Flat, and Kelly Burn Pasture) is comprised of the higher elevational pastures and the winter use area is comprised of Rabbit Field and the Bullhead Seeding.

The acreage by pasture is as follows:

First Creek	-	44,543
Dry Hills	-	41,890
Castle Ridge	-	19,759
Rabbit	-	18,818
Kinney	-	17,770
Snowstorm	-	16,328
Upper Kelly	-	7,536
Lower Kelly	-	3,812

C. Other Information

1. Coordinated Resource Management Plan (CRMP)

On July 23, 1982, a Coordinated Resource Management Plan (CRMP) was adopted which listed the major problems/issues for the Bullhead Allotment. It also developed objectives to manage and resolve these problems. The CRMP was accepted and adopted.

As a part of this plan a voluntary reduction from 12,050 AUMs to 8,350 AUMs was taken by the permittee.

Another objective of the CRMP was to establish monitoring for all objectives. An allotment monitoring plan was completed in 1986. This plan lists key area objectives and established a schedule for monitoring.

2. Allotment Management Plan

The Bullhead Allotment Management Plan (AMP) signed March 4, 1985, outlines spring (04/01 to 06/30) and summer (07/01 to 09/30) rest-rotation grazing systems. Each system has three pastures, one of which was to have been rested each year. Winter use pastures (10/01 to 12/15) were also included in the plan.

The spring system was to have been composed of the Dry Hills, First Creek and Castle Ridge Pastures. This system was never implemented primarily because Castle Ridge Pasture lacks adequate stockwater. Stockwater has not been developed because the pasture is within the boundaries of a wilderness study area. The AMP outlines an interim grazing system to be followed until Castle Ridge Pasture could be included in the system. Under that system First Creek and Dry Hills Pastures were to be alternately grazed and rested. To balance the available forage, Bullhead Seeding was to receive spring use in the years Dry Hills Pasture was grazed.

The summer system is composed of Kinney, Snowstorm Flat and Kelly Burn Pastures.

3. Technical Review Team (TRT)

A Technical Review Team was created in 1990 to review, discuss and develop methods and practices that relate to achieving the Bullhead CRMP planning objectives. In 1990, the TRT recommended the following:

- a. The Bullhead Seeding will be used as a holding field to facilitate the overall livestock operation.
- b. Winter use in the Rabbit Field will be confined to the southern portion of the pasture south of section six.
- c. Locate and develop suitable sites for a seeding in the Dry Hills pasture to compensate for the loss of forage in the Rabbit Field and Bullhead Seeding due to mineral exploration.

- d. Divide the Dry Hills Pasture with the west side being winter use and the east side spring use.

4. Permit History

- 1983-1988 Seco Inc., leased the base property for the Bullhead allotment grazing privileges (Bullhead Ranch and Kelly Ranch) from owner, Nevada First Corporation.
- 1986-1988 Seco Inc., managed cattle belonging to Gene and Jody Christison on Bullhead allotment. This use was initiated to allow rest on the Osgood allotment (where the Christisons are permittees) following the Pettit Fire in 1985.
- 1987 Nevada First Corporation entered into a limited partnership with other partners to form Circle A Ranches LP. Thus, Nevada First Corporation properties are deeded to Circle A Ranches LP. This does not affect existing leases.
- 1989 Grazing preference was transferred from the Bullhead and Kelly Ranches to the Kelly Ranch only.
- 1989-1990 Gene and Jody Christison leased the base property (Kelly Ranch) for the Bullhead allotment grazing privileges.
- 1991 Control of base property was transferred to Circle A Ranches LP upon expiration of lease with the Christisons.

D. Objectives

1. Land Use Plan Objectives

a. Objective RM-1

To provide forage on a sustained yield basis through natural regeneration. Reverse the downward deterioration of public grazing lands by improving 1,000,000 acres in poor condition, and 400,000 acres in fair condition to good condition within 30 years.

b. Objective WHB-1

Maintain wild horse and burros on public lands, where there was wild horse or burro use as of December 15, 1971, and maintain a natural ecological balance on the public lands.

c. Objective WLA-1

Improve and maintain the condition of all the aquatic habitat of each stream, lake or reservoir having the potential to support a sport fishery at a level conducive to the establishment and maintenance of a healthy fish community.

d. Objective WL-1

Improvement and maintenance of a sufficient quantity, quality and diversity of habitats for all species of wildlife in the planning area.

e. Objective W-1

Preservation and improvement of quality water necessary to support current and future use.

f. Objective W-2

Provision of adequate water to support public land uses.

g. Objective W-3

Reduction of soil loss and associated flood and sediment damage from public lands caused by accelerated erosion (man-induced) from wind and water.

h. Objective W-4

Preservation of threatened, endangered or ecologically unique plant specie and/or improvement of their habitats.

2. CRMP Objectives

a. Establish proper long range stocking rates for livestock, wild horses and wildlife.

b. Establish proper initial stocking rates, season of use, and pasture sequence of livestock use.

- c. Establish winter range area.
- d. Establish rest-rotation system for spring and summer pastures.
- e. Establish a wild horse management plan.
 - 1) Perpetuate a viable herd which is manageable and compatible with livestock operations, wildlife and resources available.
 - 2) Preserve unique types and primitive mustang markings.
 - 3) Reduce internal barriers to herd migration within wild horse herd area.
- f. Improve condition of riparian habitats, fisheries, and aspen stands.
- g. Preserve wilderness characteristics of Wilderness Study Areas within allotment until final wilderness designations are made.
- h. Develop range improvement programs to:
 - 1) Repair and up-grade current improvements.
 - 2) Return range capacities to goals of objective #1.
 - 3) Control pests and noxious weeds.
 - 4) Control watershed problems.
 - 5) Enhance wildlife areas.
 - 6) Enhance riparian, fisheries and aspen stands.
- i. Continue public access through allotment areas.
- j. Establish reasonable AUM demand for wildlife.
- k. Protect sage grouse strutting grounds.
- l. Develop potential waterfowl habitats.
- m. Provide for mining activities compatible with other objectives of this plan.

- n. Coordinate planning process between Winnemucca and Elko BLM Districts.
- o. Align and develop base properties to compliment this plan.
- p. Assign grazing system to protect and enhance areas critical to wildlife populations.
- q. Establish monitoring systems for all objectives.

3. AMP Objectives

- a. Implement a three-pasture rest-rotation grazing system for both the spring/summer country. This will provide for better livestock distribution and increased plant vigor.

By 1992, forage availability will be 12,050 AUMs through use of the rest-rotation grazing system for livestock and wild horses.

Increase forage availability by range improvement projects as funding becomes available from 12,050 AUMs to 21,013 AUMs. This would include all multiple resource uses, livestock active and suspended AUMs, wild horse use, and current wildlife demand.

- b. Establish proper seasons-of-use and initial stocking rate. The CRMP Plan recommended a season-of-use of April 1 to December 15 and an initial stocking rate of 5,700 livestock AUMs. Refer to Objective #2 of the CRMP Plan for additional information.
- c. The goal of this plan is to make grazing by wild horses compatible with livestock and wildlife grazing. To this end, wild horse use will be reduced from 3,064 AUMs to approximately 600 AUMs. This will meet the recommended management levels of 50 head. Refer to page 4 of the CRMP Plan for additional information.
- d. Improve the stream habitat in the Bullhead allotment from poor condition to good (BLM Stream Survey Manual 6740).

Action: Apply a rest-rotation grazing system to the Bullhead Grazing allotment (Objective a). This action may not be enough to improve the streams in the Bullhead Allotment from poor to good or above, but it will contribute to the overall achievement of the CRMP objective.

- e. Improve public access on private and public lands through construction of range improvement facilities. Refer to Objective #8 of the CRMP Plan.
- f. Maintain and improve wildlife and fisheries habitat (as identified in the planning system and recommended in CRMP) to a good condition.
- g. Develop a coordinated monitoring plan by September 30, 1985. Reliable data on vegetation condition does not exist, therefore, the objectives developed for the monitoring plan will become the vegetation objectives for this plan.

4. Rangeland Program Summary Objectives

- a. Increase available forage for livestock to sustain an active preference of 12,050 AUMs.
- b. Improve range condition on the two seasonal use areas (spring and summer) by operating a three-pasture rest-rotation grazing system. A deferred rest system will be used for the seeding and proposed seedings.
- c. Implement a three-pasture rest-rotation grazing system for both the spring/summer country.
- d. By 1992, forage availability will be 12,050 AUMs through use of the rest-rotation grazing system for livestock and wild horses.
- e. Increase forage availability by range improvement projects as funding becomes available from 12,050 AUMs to 21,013 AUMs.
- f. Establish proper seasons-of-use and initial stocking rate. The CRMP Plan recommended a season-of-use April 1 to December 15 and an initial stocking rate of 5,700 livestock AUMs.
- g. Develop CRMP.
- h. Develop AMP.

- i. Decision to monitor objectives or ecological condition identified in allotment monitoring plan.
 - j. Manage range condition to allow big game to reach reasonable numbers. Estimated forage use required to achieve this is:

Deer	1,029 AUMs
Antelope	101 AUMs
Bighorn Sheep	370 AUMs
 - k. Improve condition of riparian areas.
 - l. Protect sage grouse strutting areas and associated brooding complexes.
 - m. Develop potential waterfowl habitat.
 - n. Aspen, mountain browse, riparian and meadows are critical species or vegetative types. Specific management objectives will be designed and used for these species/types.
 - o. Improve habitat for the Lahontan cutthroat trout, a threatened species, by increasing overall aquatic/riparian habitat condition to good or better.
 - p. Develop HMP.
5. Herd Management Area Plan (HMAP)
- a. Wild Horse Habitat Objectives
 - 1) Maintain the forage use levels for all herbivores within the HMA at a level which does not exceed proper use of key forage plant species as identified by the Little Owyhee and Bullhead Monitoring Plan. By 1988, provide 900 AUMs for wild horses in the Snowstorm Mountains HMA.
 - 2) Provide for additional year-round water in the HMA.
 - 3) Improve the free-roam nature of the horses within the HMA by the installation of let down panels, and leaving gates open at critical times during migration.

- 4) Acquire data on the home ranges and distribution/movement patterns of the animals in the HMA to facilitate evaluation of effects of range improvement.
- 5) Determine to what extent, if any, horses move back and forth between the HMAs located in the Elko District.

b. Animal Objectives

- 1) Within the AML of 50 adult wild horses in the Snowstorm Mountains HMA allow the population to increase by +35 percent in the HMA before another removal is considered. The +35 percent variance factor would allow the population to increase to 68 adult wild horses in the Snowstorm Mountain HMA before an additional reduction is considered.
- 2) Acquire data on the demographic characteristics of the wild horse population in the HMA to include information on sex ratios, age structures and young/adult ratios. These parameters will be analyzed to determine natality, mortality and rate of increase.
- 3) Genetically enhance the color patterns in the HMA.

6. Allotment Specific Objectives

The allotment specific objectives tie the CRMP, AMP, Land Use Plans, RPS, HMAP and Allotment Monitoring Plan objectives into quantified objectives for this allotment.

a. Short Term Objectives

- 1) Utilization of key plant species on wetland riparian habitats shall not exceed 50%.
- 2) Utilization of key streambank riparian plant species in riparian habitats shall not exceed 30% on South Fork Little Humboldt River, Pole, First, Snowstorm and Winters Creeks, and shall not exceed 50% on Kelly Creek.

- 3) Utilization of key upland plant species shall not exceed the allowable use levels set forth in the Bullhead Monitoring Plan. (See table 1)

b. Long Term

- 1) Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with an initial stocking level of 8,350 AUMs. (RM 1.11, CRMP obj. #1, CRMP obj. #2, AMP obj. #1, AMP obj. #2)
- 2) Improve to and maintain the seeded pasture in good condition (5-10 acres per AUM). (RM 1.11)
- 3) Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 1,542 AUMs for mule deer, 158 AUMs for pronghorn, 305 AUMs for bighorn sheep. (WL 1.2, WL 1.4, AMP obj. #6, CRMP obj. #16)
 - a) Improve to and maintain 25,268 acres in Snowstorms DY-23, 35,359 acres in Snowstorms DY-23 (Elko Co.), 8,256 acres in DY-23 (Crucial, Elko Co.), 1,130 acres in Snowstorms DS-2 and 6,522 acres in Snowstorms DS-2 (Elko Co.) in good to excellent mule deer habitat condition.
 - b) Improve to and maintain 50,137 acres in Snowstorms PY-10 (Elko Co.), 24,242 acres in Hot Springs PY-11 and 18,171 in Snowstorms PY-10 acres in fair or good pronghorn habitat condition.
 - c) Improve to and maintain 12,023 acres in Snowstorms BY-11 and 48,403 acres in Snowstorms BY-11 (Elko Co.) in good to excellent bighorn sheep habitat condition.
- 4) Protect sage grouse strutting grounds and brooding areas. Maintain a minimum of 30% canopy cover of sagebrush for nesting and winter use. (WL 1.28, CRMP obj. #11)
- 5) Maintain and improve the free roaming behavior of wild horses by protecting and enhancing their home ranges. (WHB 1.1, WHB 1.5)

- a) Manage, maintain and improve public rangeland conditions to provide an initial level of 600 AUMs of forage on a sustained yield basis for 50 wild horses. (AMP obj. #3)
 - b) Maintain and improve wild horse habitat by assuring free access to water.
- 6) Improve to and maintain 245 acres of aspen habitat types in good condition. (WL 1.3, F 1.3, CRMP obj. #6)
- 7) Improve to and maintain 544 acres of riparian and meadow habitat types in good condition. (WL 1.5, AMP obj. #6, CRMP obj. #6)
- 8) Improve to or maintain the following stream habitat conditions on South Fork Little Humboldt River, Pole, First, Snowstorm, Winters Kelly, and Kinney Creeks from 42% on South Fork Little Humboldt, 29% on Pole Creek, 46% on First Creek, unknown % on Snowstorm, unknown % on Winters Creek, unknown % on Kelly Creek and unknown % on Kinney Creek to an overall optimum of 60% or above (WLA 1.1, WLA 1.2, CRMP obj. #6, CRMP obj. # 16, AMP obj. #4)
- a) Streambank cover 60% or above.
 - b) Streambank stability 60% or above.
 - c) Maximum summer water temperatures below 70°F.
 - d) Sedimentation below 10%.
- 9) Improve to or maintain the water quality of the South Fork of the Little Humboldt River to Class A Water Quality Standards and the following beneficial uses: livestock drinking water, cold water aquatic life, wading (water contact recreation) and wildlife propagation. (W 1.1, CRMP obj. #16)

Improve to and maintain the water quality of Pole, First, Snowstorm, Winters, and Kelly Creeks to the state criteria set for the following beneficial uses: Livestock drinking water, cold water aquatic life, wading (water contact recreation) and wildlife propagation. Kinney Creek's water quality should meet state

criteria for livestock drinking water and
wildlife propagation. (W 1.1)

E. Key Species Monitored

Key upland plant species are listed on the following table:
Tables are from Bullhead Monitoring Plan - July 1986

Table 1. Key Management Area Objectives

KEY AREA NUMBER	KEY SPECIES 1	ALLOWABLE USE LEVELS 2	DESIRED ECOLOGICAL STATUS 3	INTERIM (5 YEARS)		SHORT TERM (10 YEARS)	LONG TERM (35 YEARS)	
				FREQUENCY TREND 4	FREQUENCY TREND	ECOLOGICAL STATUS OBJECTIVES 4	FREQUENCY TREND	ECOLOGICAL STATUS OBJECTIVES
0201	SIHY ARSP5	40 30	Late Seral	Static (if ORHY appears in study, reevaluate objectives.)	Static	Maintain shrub and grass composition.	Static	Same as short term
0202	STTH2 SIHY	40 40	Late Seral	Static (If AGSP appears in study, reevaluate objectives.)	Upward	Increase AGSP to 5% and STTH2 to 7%.	Upward	Increase AGSP to 10% and STTH2 to 12%. Maintain forb composition.
0203	STTH2 STTH2 STTH2	40 40 40	Late Seral	Static	Upward	Increase AGSP to 5% and STTH2 to 15%.	Upward	Increase AGSP to 10% and STTH2 to 20% composition.
0204	ORHY SIHY	50 40	Late Seral	Static	Upward	Increase ORHY TO 5%.	Upward (Reevaluate if STTH2 appears.)	Increase ORHY to 8%.
0205	SIHY	40	<u>Utilization Study Only</u>					

1 Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).

2 Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).

3 This is the Seral stage that would have the greatest value for all resources (livestock, wild horses and wildlife.)

4 Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Bullhead Allotment

December 9, 1992

Table 1. Key Management Area Objectives (Continued)

KEY AREA NUMBER	KEY SPECIES 1	ALLOWABLE USE LEVELS 2	INTERIM (5 YEARS)		SHORT TERM (10 YEARS)		LONG TERM (35 YEARS)		ECOLOGICAL STATUS OBJECTIVES
			DESIRED ECOLOGICAL STATUS 3	FREQUENCY TREND 4	FREQUENCY TREND	ECOLOGICAL STATUS OBJECTIVES 4	FREQUENCY TREND		
0301	AGSP ELCI CREPIS	50 50 50	Late Seral	Static	Upward	Increase AGSP To 15% and ELCI to 8%. Maintain forb composition.	Static	Maintain grass and forb composition.	
0302	AGSP CREPIS	50 50	Late Seral	Static	Static	Maintain species Composition and diversity (grasses and forbs).	Static	Maintain species composition and diversity (grasses and forbs).	
0303	AGSP ORHY SIHY	50 50 40	<u>Utilization Study Only</u>						
0401	SIHY FEID SYOR	40 40 40	Late Seral	Static (If AGSP appears reevaluate objectives).	Upward	Increase FEID to 7% and ELCI to 8%. Maintain for composition.	Static	Maintain grass, forb and shrub diversity and composition.	
0402	POTR5	40	Late Seral	Static	Upward	Late Seral	Static	Late Seral	
0403	TRIFOL	50	Mid Seral	Static	Upward	Mid Seral	Static	Mid Seral	

1 Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).

2 Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).

3 This is the Seral stage that would have the greatest value for all resources (livestock, wild horses and wildlife.)

4 Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Bullhead Allotment

December 9, 1992

Table 1. Key Management Area Objectives (Continued)

KEY AREA NUMBER	KEY SPECIES 1	ALLOWABLE USE LEVELS 2	INTERIM (5 YEARS)		SHORT TERM (10 YEARS)	LONG TERM (35 YEARS)		ECOLOGICAL STATUS OBJECTIVES
			DESIRED ECOLOGICAL STATUS 3	FREQUENCY TREND 4	FREQUENCY TREND	ECOLOGICAL STATUS OBJECTIVES 4	FREQUENCY TREND	
0501	AGCR	50	<u>Utilization Study Only</u>					
0502	SIHY	40	<u>Utilization Study Only</u>					
0503	AGCR	50	Seeding	Static (maintain AGCR in good	Same as interim.	Maintain in good condition	Same as interim.	Maintain in good condition.
0601	SIHY FEID SENEC	40 40 50	Late Seral	Static	Upward	Maintain ELCI and perennial Forbs. Increase FEID to 5%.	Upward	Maintain ELCI and perennial forbs. Increase FEID to 15%.
0602	POTR5	40	Late Seral	Static	Upward	Late Seral	Static	Late Seral
0603	CAREX PONE3	50 50	Mid Seral	Static	Upward	Mid Seral	Static	Mid Seral

1 Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).

2 Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).

3 This is the Seral stage that would have the greatest value for all resources (livestock, wild horses and wildlife.)

4 Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Bullhead Allotment

December 9, 1992

Table 1. Key Management Area Objectives (Continued)

KEY AREA NUMBER	KEY SPECIES 1	ALLOWABLE USE LEVELS 2	INTERIM (5 YEARS)		SHORT TERM (10 YEARS)	LONG TERM (35 YEARS)		ECOLOGICAL STATUS OBJECTIVES
			DESIRED ECOLOGICAL STATUS 3	FREQUENCY TREND 4	FREQUENCY TREND	ECOLOGICAL STATUS OBJECTIVES 4	FREQUENCY TREND	
0801	SIHY	40	Late Seral	Upward (Show increase in ORHY; if STTH2 appears. reevaluate.)	Same as interim.	Increase ORHY to 5% and increase perennial forbs.	Same as interim.	Increase ORHY to 10% and mountain forbs. (Mid Seral)
0802	ELCI	50	PNC	Upward (Show increase in ELCI; if AGSM appears, reevaluate objectives.)	Same as interim.	Increase ELCI to 40%.	Same as interim.	Increase ELCI to 45%.
0901	AGSP ELCI CREPIS	50 50 50	Late Seral	Upward (Show increase in AGSP).	Upward	Increase AGSP to 10%.	Upward	Increase AGSP to 15%.
0902	CAREX PONE3	50 50	Mid Seral	Static	Upward	Mid Seral	Static	Mid Seral

1 Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).

2 Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).

3 This is the Seral stage that would have the greatest value for all resources (livestock, wild horses and wildlife.)

4 Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Bullhead Allotment

December 9, 1992

BULLHEAD ALLOTMENT ACTUAL USE BY LIVESTOCK SUMMARY (Computed at 91% federal range)

Year	Dry Hills Pasture		First Creek Pasture		Castle Ridge Pasture		Kinney Pasture		Snowstorm Flat Pasture		Kelly Burn Pasture		Rabbit Pasture		Bullhead Seeding		Total	
	Use Period	AUMs	Use Period	AUMs	Use Period	AUMs	Use Period	AUMs	Use Period	AUMs	Use Period	AUMs	Use Period	AUMs	Use Period	AUMs	AUMs	
1983	04/15-06/30	1849	07/01-07/24	560	rest		rest		rest		07/25-09/30	1582	rest		10/01-10/18	419	4410	
1984	03/24-06/30	1473	rest		rest		07/01-08/15	1242	rest		08/16-09/30	1811	rest		03/25-06/17	932	5866	
															10/08-10/29	408		
1985	rest		04/06-07/02	3008	rest		07/02-09/15	450	rest		07/02-09/05	450	rest		01/17-02/28	200	4108	
1986*	11/01-02/28	1820	rest		rest		rest		06/01-07/31	910	Upper	08/01-09/30	1820		03/16-04/30	1138		
											Lower	05/01-05/31	910	03/01-03/15	68	11/01-02/28	728	7394
1987	03/01-03/31	470	04/01-06/30	2730	rest		07/01-09/15	1138	rest		Upper	07/01-09/15	1138		03/01-03/31	182		
	11/01-02/18	1019									Lower	09/16-09/30	455	11/06-02/28	72	11/06-02/28	113	7317
1988	03/03-03/31	455	07/01-07/15	197							Upper	07/01-09/30	578					
	11/01-12/31	292	09/15-09/30	74	rest		07/01-09/30	628	07/01-09/30	479	Lower	09/16-09/30	196	rest		03/10-03/31	66	2965
1989	rest		04/15-06/30	1482	rest		06/22-10/05	1680	rest		07/01-10/05	945	11/01-01/09	1047	04/15-05/03	684	5838	
1990*	**		**	**	rest		rest		07/01-08/15	1376		08/16-09/30	1376	11/01-02/28	1845	10/01-02/28	278	**
1991	rest		04/10-06/25	1714	rest		06/26-08/11	1100	08/12-10/03	960		rest		rest		rest		3774

* Licensed use, not actual use

** Data in spring use is not available for 1990.

IV. Management Evaluation

A. Purpose

The purpose of the management evaluation is to assess if current management practices are meeting the allotment specific and Land Use Plan objectives and to identify management changes needed to meet objectives.

B. Summary of Studies Data

1. Actual Use

a. Livestock

Actual use by livestock is displayed on Table 2 .

b. Wildlife (Existing Numbers)

The following data is based upon NDOW estimates of wildlife populations in Hunt Unit 066 and observations of wildlife distribution. Bighorn sheep were reintroduced in 1985 and have been augmented since.

	Mule Deer	Pronghorn Antelope	Bighorn Sheep	Mule Deer AUM's	Pronghorn Antelope AUM's	Bighorn Sheep AUM's	Total Wildlife AUM's
1983	77	45	0	232	108	0	340
1984	110	45	0	330	108	0	438
1985	103	46	9	309	110	22	441
1986	153	46	15	458	110	36	604
1987	246	46	20	738	110	48	896
1988	367	46	25	1,100	110	60	1,270
1989	336	46	30	1,007	110	72	1,189
1990	260	47	35	779	113	84	976
1991	211	47	40	632	113	96	841

c. Wild Horses

Three wild horse gathers have been conducted on the Snowstorm Mountain HMA since 1983. The numbers of wild horses removed during each gather, and census data, is as follows:

<u>Removal Data</u>		
<u>1983</u>	<u>1984</u>	<u>1985</u>
293 adults	155 adults	214 adults
<u>133 foals</u>	<u>44 foals</u>	<u>44 foals</u>
Total 426	199	258

Handwritten calculation:
 426
 199

 227
 258

 883

Bullhead Allotment

December 9, 1992

TABLE 3. BULLHEAD ALLOTMENT WILD HORSE NUMBERS BY PASTURE, 1983-1992 (Adults)

Grazing Year	Dry Hills	First Creek	Castle Ridge	Kinney	Snowstorm Flat	Upper Kelly Burn	Lower Kelly Burn	Rabbit	Bullhead Seeding	Total
1983	20	121	66	106	207	0	0	0	0	520 BEFORE 07/26/83
1983	9	53	29	46	90	0	0	0	0	227 AFTER 07/26/83
1984	13	79	43	70	136	0	0	0	0	341 BEFORE 07/84
1984	7	43	24	38	74	0	0	0	0	186 AFTER 07/84
1985	12	71	38	62	121	0	0	0	0	304 BEFORE 08/12/85
1985	3	21	11	18	36	0	0	0	0	90 AFTER 08/12/85
1986	4	24	13	21	41	0	0	0	0	103
1987	1	2	96	0	0	0	0	0	0	99
1988	1	2	91	0	0	0	0	0	0	94
1989	1	2	87	0	0	0	0	0	0	90
1990	0	59	23	4	0	0	0	0	0	86
1991	0	114	3	0	6	0	0	0	0	123
1992	36	79	8	35	3	0	0	0	0	161

- NOTES - 1) NUMBERS REFLECT HORSE GATHERS 7/26/83, 7/84 & 8/12/85
 2) TOTAL NUMBERS & NUMBERS BY PASTURE FOR 1986, 1989-1992, & TOTAL NUMBERS FOR 1984 ARE CENSUS DATA. REMAINING NUMBERS EXTRAPOLATED FROM CENSUS DATA.
 3) GRAZING YEAR IS MARCH 1 THROUGH FEBRUARY 28 OR 29.

2. Climate

Precipitation
For
Paradise Valley (NOAA Station 1983-91)
Precipitation in Inches

<u>Year</u>	<u>Departure From 30 Year Normal</u>	<u>*Growing Season</u>	<u>Yearly</u>
1983	11.43	6.27	20.59
1984	3.53	4.97	12.69
1985	-.40	2.04	8.76
1986	.79	2.84	9.95
1987	1.79	5.20	10.86
1988	.92	3.29	10.08
1989	-.04	4.18	9.12
1990	--	4.47	7.03
1991	-.01	4.26	8.39

*Growing season is defined as March through August.

3. Summary of Use Pattern Mapping and Utilization at Key Areas
by Pasture

Utilization was collected using the following utilization
classes:

<u>Utilization Class</u>	<u>Percent Utilization</u>
No Use	0%
Slight	1-20%
Light	21-40%
Moderate	41-60%
Heavy	61-80%
Severe	81-100%

a. Dry Hills Pasture

Key management area utilization was collected in 1983, 1984, 1987, 1989 and 1990, for Dry Hills Pasture. The data is summarized on the following table:

Key Area	Species	Allowable Use Levels	Utilization				
			1983	1984	1987	1988	1990
DH 0201	SIHY	40		9	34	64	10
	ARSP5	30				12	
DH 0202	STTH2	40	10	28	10	42	40
	SIHY	40	10	11	7	17	32
DH 0203	STTH2	40		38	16	22	36
	SIHY	40		54		9	20
DH 0204	ORHY	50		58	51		
	SIHY	40		43	36	70	
DH 0205	SIHY	40	27	52	56		

- 1983 data was collected on 09/08/83
- ~ 1984 data was collected on 07/31/84 and 08/01/84
- 1987 data was collected on 04/04/88 and 04/11/88
- ~ 1988 data was collected on 03/14/89
- 1990 data was collected on 07/26/90

Use Pattern Mapping was conducted on Dry Hills Pasture in 1984 and 1988, and is summarized below:

1984:

In 1984, utilization on the Dry Hills pasture and higher elevations was slight. The area west of the Dry Hills and the area from Chimney Reservoir to Kelly Creek Spring were used lightly. The range adjacent to Kelly Creek Ranch and around all watering sources was used moderately. Utilization for the pasture was slight. Improper distribution was a problem in the Dry Hills, primarily due to lack of available water. Slope unsuitability was a minor factor.

Use pattern mapping was conducted on 6/26.

1988:

In 1988 the pasture received slight use overall with isolated areas of light, moderate and heavy use associated with water sources. The only exception to this was an area of heavy use in the northeast corner of the pasture where a large community of shadscale/budsage occurs. Improper distribution was a

problem in this pasture, primarily due to lack of available water.
Use pattern mapping was conducted on 4/5 and 4/11.

b. First Creek Pasture

Key management area utilization was collected in 1987, 1988, 1989, 1990 and 1991, for First Creek Pasture. The data is summarized on the following table:

Key Area	Species	Allowable Use Levels	Utilization				
			1987	1988	1989	1990	1991
FC 0301	AGSP	50	53	27	56	31	44
	ELCI	50	44	42	50	38	37
	CREPIS	50	no data collected				
FC 0302	AGSP	50	47	0	28	11	25
	ELCI	50	30	0	0	-	20
FC 0303	AGSP	50			30	18	8
	ORHY	50			17	34	10
	SIHY	40	27	50	10	22	14

1987 data was collected on 06/24-25/87

1988 data was collected on 07/26/88

1989 data was collected on 07/12,14,26/89

1990 data was collected on 11/01/90

1991 data was collected on 08/14/91

Use Pattern Mapping was conducted on First Creek Pasture in 1985, 1987, 1988 and 1989, and is summarized below:

1985:

Use on water sources was heavy (eg. upland, riparian, reservoirs, meadows and stream drainages). The only other extensive heavy use area was near Chimney Reservoir. Several moderate use areas in the uplands were located proximate to heavy areas. The remaining upland range was mapped as slight/light use. Distribution problems were limited to areas immediately adjacent to water sources. Slope and water availability were minor suitability factors when applied to no use or light use areas.

Use pattern mapping was conducted on 8/6 and 8/7.

1987:

Severe use was noted along the South Fork of the Little Humboldt River between the Castle Place and the Little Humboldt Ranch. Severe use was also noted around Ernie Spring drainage. Layton Spring road was used moderately. The remaining upland areas were mapped as light use. Distribution was viewed as poor, primarily due to lack of available water.

Use pattern mapping was conducted on 6/24.

1988:

Heavy use was found in this pasture in the southwest portion bordering the Dry Hills pasture around Kelly Spring and to the northwest of Kelly Spring along the fenceline. Wild horse use was evident in Rodear Flat itself, but no obvious sign of horse use was found in the basin. Moderate use surrounded the heavy use for approximately one half mile. Another area of moderate use was found in the basin in the southeastern half of the pasture. The moderate use extends for approximately one half mile. Overall, utilization levels in the remaining areas of the pasture observed were considered to be light with some patches of slight use interspersed. Areas that were not checked are felt to have received either slight or light use as depicted in similar terrain.

Use pattern mapping was conducted on 7/27.

1989:

The majority of the pasture was mapped as light use. The portion of the pasture north of Kelly Creek Spring was mapped as moderate. The areas north of First Creek, and that portion of the pasture associated with Twenty One Creek as it flows in Kinney Field were also mapped as moderate use. The floodplain along Spring Creek was mapped at heavy use levels, this areas is private land. There were several areas in the pasture that are not readily associated to stock water, either due to distance or topography, that were mapped as slight.

Use pattern mapping was conducted on 7/12, 7/14, and 7/26.

1990:

The majority of this pasture received no use to slight use. Some light use occurred along the South Fork. Light use also occurred along the fence at the southern portion of this pasture. Heavy and severe use occurred in the Rodear Flat area.

Use pattern mapping was conducted on 10/30 and 11/01.

c. Castle Ridge Pasture

There has been no livestock use in the Castle Ridge pasture during the evaluation period due to the lack of available water. This pasture lies within a Wilderness Study Area which inhibits the construction of new water developments.

Use pattern mapping was conducted on Castle Ridge pasture in 1990.

1990:

This pasture showed moderate use primarily in the eastern portion and in the Haystack Peak area. Use in the remainder of the pasture was no use to slight use. The only water source in this pasture is the South Fork of the Little Humboldt River. Heavy trailing by wild horses near the river was obvious. The use on the vegetative resource was made by wild horses.

Use Pattern Mapping was conducted on 10/30 - 11/01

d. Snowstorm Flat Pasture

Key management area utilization was collected in 1986, 1988, 1990 and 1991 for Snowstorm Flat Pasture. The data is summarized on the following table:

Key Area	Species	Allowable Use Levels	Utilization			
			1986	1988	1990	1991
SF 0901	AGSP	50	62	38	19	0
	ELCI	50	49	37	29	0
SF 0902	CAREX	50	no data collected			
	PONE	50	no data collected			

1986 data was collected on 09/17/86

1988 data was collected on 10/13/88

1990 data was collected on 10/30/90
1991 data was collected on 08/14/91

Use Pattern Mapping was conducted on Snowstorm Flat Pasture in 1986, 1988, and 1990, and is summarized below:

1986:

Utilization on streambank riparian and the associated drainages of Snowstorm Creek, First Creek, Winter's Creek and Pole Creek was heavy. The entire western border of the pasture was used moderate/heavy. Utilization on the low sage type was slight/light.

The date of use pattern map was not recorded.

1988:

The heaviest use in the pasture was found along Pole and Snowstorm Creeks and associated springs. Heavy use was found along Snowstorm Creek except the last one half mile near the Little Humboldt River where moderate use was found. At this point, the creek had no running water. Snowstorm Flat Spring had severe use with adjacent areas having moderate use. Severe use was found along Pole Creek and its associated springs. The surrounding uplands received moderate to heavy use. Light use was found on the Pole Creek Road in Section 28, with salting areas every quarter mile having heavy use. The overall utilization in the pasture was considered to be light to moderate. On Snowstorm Creek road, the area surrounding the road from this pasture fences to Snowstorm Flat Spring was moderate while the remainder was light. On Winters Ridge road, use was light with the exception of an area that had moderate use, due to being a bedding area for cattle.

Distribution is as expected based on the location of water sources and variation in vegetation types. Unsuitability due to slope is a minor factor. Use pattern mapping was conducted on 10/13.

1990:

Light and moderate use was evident along the South Fork. Heavy use occurred on the springs and water sources in the pasture. The remainder of the pasture received no use to slight use.

Data was collected on 10/30 and 11/1.

e. Kinney Pasture

Key management area utilization was collected in 1987, 1988, 1989 and 1991 for Kinney Pasture. The data is summarized on the following table:

<u>Key Area</u>	<u>Species</u>	<u>Allowable Use Levels</u>	<u>Utilization</u>			
			<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1991</u>
KF 0601	SIHY	50	67	53	48	24
	FEID	40	75	68	70	42
	SENEC	50	19			
KF 0602	POTRT	40	50			
KF 0603	CAREX	50	no data collected			
	PONE3	50	no data collected			

1987 data was collected on 09/16/87

1988 data was collected on 10/04/88

1989 data was collected on 10/10/89

1991 data was collected on 08/14/91

Use Pattern Mapping was conducted on Kinney Pasture in 1985, 1987, and 1989, and is summarized below:

1985:

Private lands comprise a significant land area in each pasture, primarily along stream drainages, spring sources, meadows, basins and riparian areas. Portions of these areas would have been mapped in the moderate/heavy category due to proximity to water. Drainages, basins, saddles and spring sources were used moderate/heavy. Heavy use was apparent around Kelly Creek Spring and along the Kelly Creek stream riparian zone. Several small areas were unused due to slope unsuitability. The remaining upland areas were used lightly in a uniform manner.

The date of use pattern mapping was not recorded.

1987:

All lands, public and private were considered in developing the use map. The following areas were used severely: Twenty-one Creek, Spring Creek, Kinney Creek, First Creek, Kelly Creek Spring, all upland meadows, springs and associated riparian. The area between Kelly Creek Spring and Kinney Creek and the areas bordering the aforementioned were all used

heavily. The balance of the pasture was grazed moderately with the exception of several areas in the western half which were used lightly. No use or slight use due to unsuitability was a very minor factor.

Use pattern mapping was conducted on 10/5.

1988:

The heaviest use in the pasture was at water sources. Severe use was found at Kelly Creek and First Creek road spring with outlying areas receiving moderate and heavy use. The corral area near Kinney Creek in the southwest portion of the pasture also received severe use with heavy and moderate use found along Kinney Creek. Moderate use was found along Spring Creek and heavy use near undeveloped springs the Crow Nest area along First Creek road. The remainder of the allotment in areas observed was considered to be moderate.

Use pattern mapping was conducted on 10/4 and 10/5.

1989:

The majority of the pasture (75%) was mapped at slight utilization level. Light use was detected in the SW portions of the pasture on the uplands adjacent to Kinney Creek. The NE corner of the pasture and the uplands in the Crows Nest area also received light use. The light use areas are either associated with a water source or livestock concentration area in the more accessible portions of the pasture. Moderate use levels were revealed along the western boundary with First Creek Basin just inside the fence line. This area is commonly used by livestock as a trailing route to water sources like Kelly Springs Reservoir. Moderate use was also detected in the uplands north of First Creek, and north of Snowstorm Creek along the more accessible uplands which are associated with various private meadows and developed spring. Heavy use was mapped along First Creek and adjacent uplands as well as the Crows Nest plateau above the First Creek drainage area. This area is readily accessible to livestock and in fairly close vicinity to water and meadows.

Use pattern mapping was conducted on 10/10.

f. Kelly Burn Pasture

Kelly Burn Pasture has generally been managed as one pasture, but is separated by fence into the upper and lower portion.

Key management area utilization was collected in 1986, 1987, 1988, 1989 and 1990 for the upper portion of Kelly Burn Pasture. The data is summarized on the following table:

Key Area	Species	Allowable Use Levels	Utilization				
			1986	1987	1988	1989	1990
KB 0401	SIHY	40	55	57	41	12	0
	FEID	40	65	67	68	30	15
	SYOR	40				14	
KB 0402	POTRT	40	no data collected				
KB 0403	TRIFOI	50	no data collected				

1986 data was collected on 09/18/86
 1987 data was collected on 09/15/87
 1988 data was collected on 10/12/88
 1989 data was collected on 10/10/89
 1990 data was collected on 10/24/90

Use Pattern Mapping was conducted on Kelly Burn Pastures in 1986, 1987, 1988 and 1989, and is summarized below:

1986:

Utilization on the streambank riparian areas of Kinney Creek, Kelly Creek, Winter's Creek and Pole Creek was heavy. Meadows, springs and associated riparian were also heavily used. The Snowstorm basin and Snowstorm Creek were used moderately. The balance of upland areas were lightly used or not checked.

The date of use pattern mapping was not recorded.

1987:

The Upper Kelly, Snowstorm Creek, Winter's Creek and Pole Creek drainages were used heavy. Other springs, meadows and riparian areas were also used heavily. Snowstorm mountain and the southeast corner of the pasture were used lightly. The balance of Upper Kelly was used moderately.

In Lower Kelly, the riparian area along Kelly Creek was grazed severely. The upper (eastern) end of the

field was used moderately. Most of the springs and associated riparian/meadows were grazed heavy. The balance of the upland range areas in the central and western portions of the pasture were used slight/light.

Use pattern mapping was conducted on 9/16 and 9/29.

1988:

Lower Kelly

The primary source of water in the pasture was Kelly Creek. Use along the creek was moderate and heavy on the floodplain. The uplands above the floodplain had light to moderate use. Following a fenceline road which parallel the Kinney Field, use was revealed to be slight to light. Moderate to heavy use was found at a salting area at the gate separating the Upper and Lower Kelly Burn pastures.

Upper Kelly

Severe use was found along Snowstorm Creek, the springs in the Snowstorm Mountain drainage basin and along Kinney Creek and associated springs. Heavy use was found along Winters Creek with an "undeveloped" spring at the junction of Winters Creek and First Creek roads receiving severe use. The majority of the use in the pasture was moderate to heavy in the Snowstorm Mountain drainage basin. Mid-slopes received moderate use while heavy use occurred in the valleys and drainage. Moderate to heavy use was also found in the Snowstorm Creek and Winter Ridge roads area. Slight to light use occurred in the uplands above Kinney and Winters Creek.

Use pattern mapping was conducted on 10/5-6 and 10/11-12.

1989:

Upper Kelly

The majority of the pasture was mapped at slight utilization levels. Light use levels were mapped in the SW portion of the pasture which are uplands associated adjacent to water sources or accessible uplands or both. Light use levels were also detected along Winters Creek and the adjacent uplands.

Moderate use levels were mapped in the SW corner of the pasture associated with two developed private springs and the uplands adjacent to Snowstorm Creek. Heavy use was detected along Snowstorm Creek and three small areas which are salting areas or near troughs. The two springs in the SW corner of the pasture also displayed heavy use.

Lower Kelly

The vast majority of the pasture (95%) was mapped at slight utilization levels. Light use levels were mapped along two major drainages and on the uplands above Kelly Creek. Moderate use was detected at the mouth of these drainages which are very accessible to livestock and on the uplands above Kelly Creek. Heavy use was mapped on the floodplain adjacent to Kelly Creek. Kelly Creek itself was mapped at slight utilization levels, substantial regrowth was evident.

Use pattern mapping was conducted on 10/10-12.

g. Rabbit Pasture

Key management area utilization was collected in 1987, 1988, 1989 and 1990 for Rabbit Pasture. The data is summarized on the following table:

Key Area	Species	Allowable Use Levels	Utilization			
			1987	1988	1989	1990
RF 0801	SIHY	40	10	1	14	12
RF 0802	ELCI	50	14	2		

1986 data was collected on 03/04/87

1987 data was collected on 04/05/88

1988 data was collected on 03/14/89

1989 data was collected on 01/30/90

Use Pattern Mapping was conducted on Rabbit Pasture was collected in 1988 and 1990, and is summarized below:

1988:

No obvious sign of livestock use was found in this field.

Use pattern mapping was conducted 4/88.

1990:

The majority of the pasture was mapped at slight utilization levels. Light use was mapped adjacent to the Bullhead Seeding in the northern portion of the pasture and at Key Area #0802. Moderate use was mapped on the remaining pasture. The moderate use was detected in the NE and SW portions of the pasture. Heavy use was observed to have occurred along Kelly Creek (Primarily on ELCI2) south of where Rabbit and Kelly Creeks verge. This area is very accessible to livestock.

The SE portion of the pasture has been burned in the past and is dominated by annual vegetation. There was indication of some livestock use in this area, however it is extremely difficult to determine utilization on the present annual forage base. The surrounding unburned native vegetation exhibited very low production and low densities of perennial forage species (e.g. squirreltail).

The NW portion of the pasture was not mapped due to excessive snow cover. The area just south of there was heavily disturbed by mining activity and was not mapped.

Use pattern mapping was conducted 1/30.

h. Bullhead Seeding

Key management area utilization was collected in 1983, 1984 and 1986, for Rabbit Pasture. The data is summarized on the following table:

Key Area	Species	Allowable			
		Use Levels	1983	1984	1986
BS 0501	AGCR	50	17	30	49* 64**
BS 0502	SIHY	40	15	8	39
BS 0503	AGCR	50	22	40	42* 26**

1983 data was collected on 10/18/83

1984 data was collected on 06/06/84 and 08/02/84

1986 data was collected on 05/08/86* and 03/04/87**

Use Pattern Mapping on Bullhead Seeding was collected in 1989, and is summarized below:

1989:

The seeding itself is heavily encroached with big sagebrush. Only the public sections are seeded. The private sections, representing about 40% of the delineated area is native range. In the seeded area, crested wheatgrass is clumped in small pockets with large areas between clumps having little or no observed seeded plants. Even the areas with seeded plants have a low density. There is very little regrowth evident to the observers on this date, the plants exhibited poor vigor. Many of the plants were dead or dying. Utilization levels on the seeded plants were uniformly heavy to severe.

Due to the proximity of the seeding to the Kelly Creek Ranch it appears that the permittee uses the seeding as a holding field for spring and winter turnout.

Use pattern mapping was conducted on 10/31.

4. Trend

Trend Data
Quadrat Frequency

PASTURE	KEY AREA	KEY SPECIES	1984	1985	1986	1990
Dry Hill	201	SIHY	44	72	67.5	
		POSE	1	0	1	
		ATCO	33	37	37.5	
	202	SIHY	58	85	80	
		STTH2	27	36	40.5	
		POSE	88	98.5	98	
	203	SIHY	42	67.5	71	
		POSE	97	100	99.5	
		STTH2	8	13.5	12	
	204	ORHY	16.5	18		
		SIHY	64.5	64.5		
	First Creek	301	POSE			73.5
ELCI					15.5	1.5
AGSP					14.5	4
302		AGSP			42.5	37.5
		POSE			94.5	100
		ELCI			1.5	1
Kelly Burn	401	POSE		81	92.5	
		SIHY		69.5	69	
		FEID		10.5	14	
Kinney	601	POSE		24	76.5	
		FEID		28	31	
		SIHY		62	63	
Rabbit	801	SIHY		45	52	
	802	SIHY		10	30	
		ELCI		29.5	26	
Snowstorm	901	POSE			93	
		SIHY			61	
		AGSP			17	

5. Range Survey Data

- a) In 1978 a range survey was conducted to provide baseline data for analysis purposes in the Paradise-Denio EIS. The survey, along with suitability criteria, indicated that 918 AUMs were available in 1978 for livestock use for the Bullhead allotment in Humboldt County.
- b) The Elko Resource Area RMP/EIS indicated that 4,116 AUMs were available in 1984 for livestock use in the Bullhead allotment in Elko County.
- c) A Phase I Watershed Inventory was conducted on the allotment in Humboldt County in the early 70's. The results of that survey are as follows:

<u>[1] Good Condition</u>	<u>[2] Fair Condition</u>	<u>[3] Poor Condition</u>
0 acres	25,189 acres (28%)	64,568 acres (72%)

- [1] The range condition used in this inventory is livestock forage condition.

6. Ecological Site Inventory

In 1987 and 1988 an Ecological Site Inventory was conducted on the allotment. The following is a summary of the Ecological Status in the Bullhead allotment.

Bullhead Allotment (Humboldt County)

<u>PNC</u>	<u>Late Seral</u>	<u>Mid Seral</u>	<u>Early Seral</u>
0	19,901 acres (18.8%)	3,610 acres (79.2%)	2,118 acres (2.0%)

Bullhead Allotment (Elko County)

<u>PNC</u>	<u>Late Seral</u>	<u>Mid Seral</u>	<u>Early Seral</u>
0	8,277 acres (16%)	43,892 acres (83%)	510 acres (1%)

7. Wildlife Habitat Inventory

- a) Priority Species: Mule deer, sage grouse, trout, pronghorn, bighorn sheep, Lahonton cutthroat trout (threatened species).
- b) Other Game Species: Chukar, Hungarian partridge and California Quail.

c) Special habitat features

1) A special habitat features inventory was conducted in August and September, 1977. This inventory identified the location and acres of special habitats, listed observed plant and wildlife species, and documented ocular observations of the condition and utilization of these habitats. This information was analyzed in the Paradise-Denio EIS.

2) Riparian and meadow habitat - 688 acres total in the allotment. Since pastures have now been created, the breakdown by pasture is as follows: Kinney - 72 acres; Kelly Burn - 38 acres; First Creek - 63 acres, mostly along the S. Fork Little Humboldt River; Snowstorm Flat - 361 acres including 153 acres along the S. Fork; Castle Ridge - 1 acres.

Aspen - 245 acres total, with 35 acres in Kinney, 196 acres in Kelly Burn, and 14 acres in Snowstorm Flat.

Mountain browse - Snowberry, serviceberry, and currant are identified in the vegetative composition at the higher elevations.

3) The Special Habitat Inventory recorded the following in 1978:

Cattle use on springs and associated riparian habitat was generally moderate except for the Snowstorm Mountain area, where the average use was heavy. Most wet areas were trampled and punched to some degree by livestock. One meadow area was rated in poor to fair condition and was receiving heavy to severe cattle use. A fairly large portion of the summer use area had burned and subsequently rested from livestock use, resulting in profuse suckering of most aspen stands in this area. These aspen stands were considered to be in good condition. Other aspen stands, generally unburned and/or isolated ones, had received moderate to heavy use on reproduction and understory vegetation.

Use on the South Fork Little Humboldt River was moderate to heavy, and wild horses were considered to also be impacting the stream.

Cattle use on First Creek around and on the private lands was heavy. Kelly Creek was receiving moderate use by livestock and contained cutbanks 10-15 feet wide in places. Pole Creek had fair to good cover on the stream.

d. Habitat Evaluation

A habitat evaluation was conducted on the Snowstorm Mountains portion of this allotment. Nevada Manual Supplement 6630 procedures were used in the evaluation. Major use areas and corresponding habitat condition are as follows:

Snowstorms DY-23	Overall good mule deer habitat condition
Snowstorms DS-2	Overall good mule deer habitat condition
Snowstorms PY-10	Overall fair pronghorn habitat condition
Snowstorms BY-11	Overall excellent bighorn sheep habitat condition on 23,340 acres evaluated as part of the South Fork Reestablishment Plan.

8. Riparian/Fisheries Habitat

a. Description

The headwaters of the South Fork of the Little Humboldt River (SFLHR) originate on the north slope of the Snowstorm Mountains at about 7,000 feet. Several streams are tributary to the South Fork. Those within the Bullhead Allotment are First Creek, Snowstorm Creek, Winters Creek, and Pole Creek. Kelly and Kenny Creeks are tributary to the mainstem Humboldt River. There are many smaller ephemeral drainages that flow into the South Fork which have potential to support riparian habitat.

The South Fork flows northerly then westerly for about 21 miles (within the Bullhead Allotment) before entering Chimney Reservoir. 11.5 miles of the South Fork of the Little Humboldt River flow through public land and have been fenced for protection against livestock grazing and horse use. The fence was completed in 1985 and later modified in 1989.

The South Fork is slightly to moderately alkaline in nature with an average pH of 8.0 (BLM water quality inventory, 1979 and 1983; NDOW stream survey, 1988). Flows ranged from 0.48 cubic feet per second (CFS) (NDOW 1988 stream survey) to about 750 CFS during spring runoff periods.

Lahontan cutthroat trout (LCT) (Oncorhynchus clarki henshawi), federally listed as a threatened species, reside in the South Fork Little Humboldt River within the Bullhead Allotment. These are remnant populations, genetically pure and native to the Humboldt system. A 1988 NDOW stream survey report found that cutthroat trout were the only salmonid species found in the enclosed wilderness study area. The cutthroat averaged 113 fish per mile for an estimated population of 424 and were distributed between Snowstorm and Pole Creeks. No cutthroat were found below the confluence of Snowstorm Creek (NDOW 1988). The South Fork once produced large cutthroat from 12 - 17 inches prior to and through 1958 (NDOW). Potential LCT habitat within the allotment includes the 11.5 miles of BLM administered lands along the South Fork extending from Pole Creek to Rodear Flat, and on Pole Creek (1.5 miles). Other fish species reported to exist in this system are the Lahontan redband shiner, speckled dace, and the Lahontan mountain sucker.

There are no records to indicate that the SFLHR was ever planted with hatchery-reared trout. The stream was closed to fishing during 1961 and 1962 to protect the fishery resource.

Stream Surveys

First Creek begins its flow in the Snowstorm Mountains at about 6800 feet and flows northeasterly for about six miles. The headwaters and the upper three miles flow through privately owned lands. BLM stream surveys on private lands and visual observations in July, 1992 (Table 4) indicated poor to severe habitat conditions. The lower three miles are BLM administered public land and flow through a steep gorge. First Creek is ephemeral and is dry during moderately dry years. There are undocumented reports that Lahontan cutthroat trout use the lower parts of the stream for spawning during the spring.

Snowstorm Creek, similar in nature to First Creek, is approximately eight miles in length and begins its flow at the 7200 foot level. The headwaters and the upper one half of the stream flow through private land with only the gorge area transversing public land. There is no habitat condition survey on Snowstorm Creek, but personal observations in 1991 and 1992 by the District Fish Biologist indicate little difference in habitat condition and Lahontan cutthroat trout occurrence from First Creek.

Winters Creek, an ephemeral stream, originates at the 7000 foot level on the Snowstorm Mountains and flows easterly to the South Fork Little Humboldt River. Approximately 2.5 miles of this four mile long stream flow through private land. The public portion of the stream flows through a steep and spectacular gorge. The condition of the riparian habitat ranges from severe to excellent, depending on livestock accessibility. Poor to severe habitat conditions exist throughout most of the upper watershed (private). Much of this area has little riparian vegetation resulting in the encroachment of upland species to the streambanks. Better habitat conditions prevail where the canyon becomes steeper and narrower. This area (mostly public) consists of dense stands of aspen, willow, and rose making it impassable to livestock.

Previous undocumented reports and personal communications indicate that Pole Creek supports a population of Lahontan cutthroat trout. In July of 1992, LCT were observed in the lower reaches of Pole Creek by the P-D Fishery Biologist. This was later confirmed by an NDOW stream survey crew. This small perennial stream has midsummer flows less than one CFS. Pole Creek begins its flow at 7800 feet on the east side of the Snowstorms and flows approximately 5 miles to the South Fork of the Little Humboldt River. BLM stream surveys (Table 4) show poor stream conditions throughout the private and public portions of Pole Creek. Visual observations in July of 1992 by the P-D Fishery Biologist indicated that conditions on Pole Creek within the Bullhead Allotment were within acceptable limits. Lack of quality pools, bank cover and poor bank stability are the primary limiting factors leading to this poor condition. The stream almost entirely flows through private land, with the last mile being on BLM administered public land.

The Bureau's standard stream habitat survey documents broad scale habitat deterioration throughout most of First and Pole Creeks. Visual observations indicate similar conditions on Winters and Snowstorm Creeks as well. Subsequent monitoring has documented the condition trend to be static or downward on these South Fork tributaries. Poor riparian conditions appear to be mainly on private lands throughout the Winters, Snowstorm, and First Creek drainages. These conditions directly influence stream habitat downstream on BLM administered public lands. The primary cause appears to be concentrated livestock grazing and wild horses.

Kelly Creek originates on the west side of the Snowstorm mountains and flows in a westerly direction. Nearly all of Kelly Creek within the Bullhead Allotment lies in private lands with the exception of a one mile reach near the headwaters. A 1987 BLM stream survey showed fair conditions. Rainbow and brook trout appear to be the only salmonid species in this system.

Kenny Creek originates on the west side of the Snowstorm Mountains near Kelly Creek. No BLM stream surveys have been conducted as this stream lies nearly entirely on private lands. There apparently are no Lahontan cutthroat trout in this system.

The potential for recreational use of the Bullhead Allotment is very high. Improvement of fish and wildlife habitat will be translated to increased hunting and fishing opportunities and other outdoor recreation.

b. STREAM HABITAT CONDITIONS/SURVEYS

Stream survey data has been collected on the SFLHR since 1976 utilizing the methodology found in the BLM 6671 Stream Survey Manual. Stream habitat conditions on the South Fork have ranged from poor to good. Table 4 shows that the Habitat Condition Index (HCI) from 1976 and 1990 has ranged from a low of 38% (poor) to a high of 60% (good). The location of these stations (S-1, S-2, S-3, S-4) are shown in figures 1 through 3. Future monitoring will occur every other year and will employ stream survey methodologies, described in BLM manual handbook 6720-1 Aquatic Habitat Inventory and Monitoring and BLM manual 6671 Stream Surveys. 1991 field observations by the Paradise-Denio Fishery Biologist indicate that conditions have improved above 60% as evidenced by improved width to depth ratio and increased bank cover and bank stability. Continued annual maintenance of the South Fork fence enclosure and future wild horse gatherings should continue to improve riparian stream conditions.

A comparison of changes in percent habitat optimum between 1976 and 1990 show a gradual improvement in habitat conditions on the South Fork of the Little Humboldt River (SFLHR) over the past 10 years (Table 4). Initial habitat ratings of 63 and 52 found in 1976 and 1977 declined further to 38 percent by 1983. The declines in habitat condition in 1983 was most likely attributed to the 1983 high water event, livestock grazing, and wild horses. These conditions prompted construction of the South Fork Enclosure Fence in 1985. Riparian habitat conditions began to respond favorably

with 1990 showing a rating of 59% of optimum, an increase of 21% in seven years.

In 1990, a cooperative agreement was established with Cordex Exploration Company whereby Cordex agreed to accept annual fence maintenance responsibilities for the enclosure fence. Although stream surveys have not been conducted on the SFLHR since 1990, personal observations by the BLM Fishery Biologist in October of 1991 indicated continuing improvements being made with regard to stream habitat conditions. Although this area has been experiencing a sixth consecutive year of drought, establishment of woody riparian vegetation along with a significant narrowing of the stream channel and improved width to depth ratio are evidence of this improvement.

FIRST CREEK

As mentioned previously, stream habitat condition surveys conducted on First Creek from 1976 - 1988 were conducted on private land. The lower three miles of BLM administered lands were not surveyed probably due to dense stands of vegetation and poor access. This reach flows through a steep, narrow gorge which acts as a natural enclosure.

A comparison of changes in percent habitat optimum between 1976 and 1988 show declines in habitat conditions on First Creek on private land (Table 4). Stream habitat condition ratings of fair recorded in 1976 declined to poor by 1988 when the private land portion of the stream was considered. This area was briefly visited in 1991 and 1992 by the Paradise-Denio Fishery Biologist where stream habitat still appeared in poor condition due to heavy concentrations of livestock in riparian areas during the hot season combined with the sixth consecutive year of drought. Major limiting factors on the private land portion include poor pool-riffle ratio, an absence of quality pools and poor bank cover and stability. Heavy sedimentation of the stream bottom continues to be a limiting factor throughout the stream's length and is most likely washing downstream onto the public section.

OTHER CONSIDERATIONS

Because it is a high gradient stream, First Creek is especially prone to erosion problems in the absence of a healthy, vigorous riparian zone. Severe erosion in the form of downcutting, accelerated transport and deposition of gravel and fine sediments, and mass wasting of streambanks are occurring throughout the upper First Creek system.

Localized areas of cutting have greatly increased since 1976 as a result of a deteriorating riparian zone combined with the effects of record flooding in 1983 and 1984. A significant decline in woody riparian vegetation has also compounded erosion problems. Heavy livestock use on emergent willows is preventing regeneration which may eventually lead to a total loss of willow. Bank trampling and overuse of riparian forage by livestock are clearly the cause of poor habitat conditions.

SNOWSTORM CREEK

Snowstorm Creek, similar in nature to First Creek, has been surveyed only once in 1976. Results of the 1976 survey showed that the habitat condition rating was 57% of optimum. Personal observations by the Paradise-Denio Fishery Biologist in October of 1991 and 1992 showed degraded conditions along the privately owned reaches of Snowstorm Creek. The lower half of the stream (BLM) is in a deep gorge like area which offers natural protection from livestock grazing and wild horse use.

WINTERS CREEK

No stream surveys have been conducted on Winters Creek by the BLM or NDOW. Visual observations by the Paradise-Denio Fishery Biologist in October of 1991 and 1992 showed that the condition of the riparian habitat ranged from severe to good depending on livestock accessibility. Poor to severe riparian habitat conditions exist throughout most of the privately owned upper watershed. Better stream habitat conditions prevailed where the canyon became steeper and narrower and prevented livestock access.

POLE CREEK

Pole Creek was first surveyed by the BLM in 1976, then resurveyed in 1982, 1983, 1985, 1987, 1988, and 1990. Data on habitat parameters was collected during all surveys, while undocumented reports and personal communications indicate that Pole Creek may still support a population of Lahontan cutthroat trout. In July of 1992, observations of LCT in Pole Creek were confirmed by the P-D Fishery Biologist and an NDOW Stream Survey Crew.

Stream Habitat Conditions

Table 4 shows that habitat conditions on Pole Creek have remained poor since the 1976 survey. Although only one mile of Pole Creek is on BLM, both the BLM and privately owned

sections provide access to livestock. Major limiting factors on both private and public land portions include a poor pool-riffle ratio, absence of quality pools and poor bank cover and stability. Heavy sedimentation of the stream bottom continues to be limiting throughout the stream's length.

Because it is a high gradient stream, Pole Creek is especially prone to erosion problems in the absence of a healthy, vigorous riparian zone. Localized areas of cutting have greatly increased since 1976 as a result of a deteriorating riparian zone combined with the effects of record flooding in 1983 and 1984. Bank damage in the form of trampling and overuse of riparian forage by livestock are important causes of poor habitat conditions.

A 1992 stream survey by NDOW (unsummarized) and visual observations by the P-D Fishery Biologist indicated that habitat conditions along Pole Creek were within acceptable limits (HCI \geq 60).

A review of actual use records for First, Winters, Snowstorm, and Pole Creeks shows grazing has been typically summer long in these areas. Woody riparian vegetation, critical for stabilizing degrading streams, has been heavily browsed while regeneration is lacking. Actual use records show grazing has occurred during the hot season most years.

Table 4. South Fork, Little Humboldt River Stream Survey Data

South Fork, Little Humboldt River, Little Humboldt Allotment (Elko BLM)

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temperature (°F)
(Objective Levels)						
		>60	≤10	>60	>60	≤70

7/21/77 BLM

52

54

63

61

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South Fork, Little Humboldt River, Snowstorm Flat Pasture, Bullhead Allotment 5-3, 5-4

9/27/76	BLM	36	13	31	38	68
8/17/83	BLM	39	41	35	20	71
9/24/85	BLM	41	32	25	39	
9/10/86	BLM	49	38	31	28	
8/13/87	BLM	28	57	44	34	68
10/11/90	BLM	63	45	63	64	

South Fork, Little Humboldt River, Castle Ridge Pasture, Bullhead Allotment 5-1, 5-2

9/28/76	BLM	62	52	56	63	68
8/17/83	BLM	43	21	38	46	71
8/12/85	BLM	42	19	25	39	
9/10/86	BLM	45	41	27	35	
8/13/87	BLM	53	21	30	40	68
9/20/88	NDOW	60	42	72	67	52
10/11/90	BLM	41	31	30	71	

South Fork, Little Humboldt River, all stations

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temperature (°F)
(Objective Levels)						
		>60	≤10	>60	>60	≤70

9/28/76	BLM	63	45	48	54	68
7/21/77	BLM	52	54	63	61	
1982	BLM	47	36	34	25	
8/13/83	BLM	38	18	38	39	71
8/12/85	BLM	54	23	25	39	
9/10/86	BLM	45	40	27	34	
8/13/87	BLM	48	36	34	38	68
9/20/88	NDOW	60	42	72	67	52
10/11/90	BLM	59	33	43	68	

Bullhead Stream Survey Data

Pole Creek

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temperature (°F)
(Objective Levels)		>60	≤10	≥60	≥60	≤70
1976	BLM	43	17	58	73	64
1982	BLM	27	4	42	39	
1983	BLM	36	0	34	31	
1985	BLM	29	0	28	38	
1987	BLM	32	4	44	34	
1988	BLM	32	49	28	34	
1990	BLM	32	21	44	50	

All stations - Snowstorm Flat Pasture

Snowstorm Creek - Snowstorm Flat Pasture

9/29/76		57	--	77	73	47
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First Creek Stream Survey Data

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temperature (°F)
(Objective Levels)		>60	≤10	≥60	≥60	≤70

First Creek, Snowstorm Flat Field, Bullhead Allotment

8/29/76	BLM	57	24	77	73	--
8/16/83	BLM	48	7	37	61	--
8/12/85	BLM	49	44	28	40	--

Stream/Riparian Habitat condition classification (% of Habitat Optimum)

70 - 100%	-	Excellent
60 - 69%	-	Good
50 - 59%	-	Fair
0 - 49%	-	Poor

First Creek (all stations)

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temperature (°F)
(Objective Levels)		>60	≤10	>60	>60	≤70
8/29/76	BLM	57	24	77	73	--
1982	BLM	Dry	42	41		
8/16/83	BLM	48	7	37	61	--
8/12/85	BLM	49	44	28	40	--
8/14/87	BLM	35	53	27	50	--
*9/12/88	BLM	33	86	25	38	--

* 2 of 3 stations were dry.

All stations in Snowstorm Flat Field

* First Creek Stations - pvt.

9. Wild Horse and Burro Habitat

Utilization studies data indicates that the utilization objectives for wild horse habitat on the uplands have consistently been met throughout the HMA. Over the period UPM has been conducted and heavy use has been associated with waters.

Wild horses use the area yearlong; however, there is limited use of the summer pastures due to fences. Seasonal distribution data shows horses concentrated in First Creek and/or Castle Ridge pastures near the South Fork of the Little Humboldt River. There is usually a small herd in the Dry Hills.

A complete (4 seasons) seasonal distribution has not been completed.

There are numerous water sources within the HMA. However, perennial and intermittent springs and seeps are concentrated in the higher elevations, in the summer pastures. Eleven stock reservoirs and two wells intermittently produce water. Water gaps in the South Fork of the Little Humboldt River at Rodear Flat and Castle Place (private) provide dependable year-round water.

There is no detailed data at present regarding migration routes, or movement in response to climatic conditions such as the present drought. It is believed that historically horses have used the higher elevations as summer range. Division fences constructed in the allotment since the adoption of the CRMP agreement in 1982 have restricted horse movements.

10. Water Quality Sampling

a. South Fork of the Little Humboldt

Some water quality parameters were tested in 1976 as part of the stream survey. A more extensive water quality lab analysis was done in 1983 and at three locations in August, 1977. Additional lab analysis was done at two locations in May, July and September, 1979.

Stream temperatures were quite variable ranging from a low of 46°F in May, 1983 to a high of 79°F in July, 1979. The pH ranged from 6.89 to 9.3 and total dissolved solids from 45 to 570 mg/l. Phosphate ranged from 0.01 to 0.60 mg/l. Fecal coliform was

only above detectable levels once, when it was 90/100 ml. in September, 1979. Dissolved oxygen was only tested in 1976 when it was 10 mg/l.

b. Creeks

Pole Creek was sampled in May, July and September of 1979 and May, July and September of 1982 and the results analyzed by a water quality lab. Four of the parameters listed on Table 5 were also tested in 1976 during the stream survey.

Water quality samples were collected and analyzed at two locations on First Creek in May, July and September, 1982 and at one location during the same months of 1979. In addition, four of the parameters listed on Table 5 were also measured during the 1976 stream survey.

No water quality data was collected on Snowstorm, Winters, Kelly and Kinney Creeks.

Temperatures on Pole Creek ranged from 48 to 66°F and pH from 6.7 to 8.25. Turbidity was often high with a maximum reading of 30 TDS in May, 1982. TDS ranged from 62 to 150 mg/l and alkalinity from 31 to 73 mg/l. Phosphates and nitrates ranged from nondetectable to 0.14 mg/l and 0.73 mg/l, respectively. Fecal coliform was 10/100 ml or less for all but the September, 1982 sample which was 300/100ml. Dissolved oxygen was 9 mg/l the only time it was measured.

Most of the riparian area along Pole Creek is private land. The creek was sampled on public land and it is difficult to determine whether the water quality problems are coming from private or public lands without a second sampling site.

Temperatures on First Creek ranged from 52 to 73°F and pH from 7.0 to 8.5. Total dissolved solids were low ranging from 14 to 175 mg/l and turbidity was high in the spring when it got up to 17 TDS. Nitrates ranged up to 1.2 mg/l and phosphates up to 0.20 mg/l. Fecal coliform levels were less than 100/100 ml all nine times that they were tested. Alkalinity ranged from 37 to 72 mg/l except for one sample that was 271 mg/l. Dissolved oxygen was not tested.

Bullhead Allotment

December 9, 1992

Table 5

South Fork of the Little Humboldt River

Date	Dissolved Oxygen Mg/L	Total Alkalinity Mg/L	Hardness Mg/L	Turbidity JTV's	pH	Water Temp. °F	CO ₂ Mg/L	Conductivity	Sulfate	Total Coliform	Fecal Coliform
9-76 ¹	10	90	60	8	6.89	60	4				
5-79 ²	--	--	--	$\frac{20}{45}$	$\frac{8.55}{8.0}$	$\frac{63}{50}$	--	---	$\frac{13}{13}$	$\frac{18}{400}$	$\frac{0}{0}$
7-79 ²	--	--	--	$\frac{9}{2}$	$\frac{8.2}{7.9}$	$\frac{79}{63}$	--	---	$\frac{6}{10}$	$\frac{0}{0}$	$\frac{0}{0}$
1982 ²				10.9	7.4						
6-84 ³		48			7.6					5260	10
8-84 ³										4208	22
9-88 ⁴		77		Clear	8.	48		237	<50		
82 ² Snowstorm Creek				10.5	7.5	70					
82 ² First Creek					8.4	8.0	72				
82 ² Pole Creek				16.1	6.9	67					

1 BLM Stream Survey - 1976

2 Chinook Research Laboratories, Inc 1979

3 BLM 1984 Annual Water Quality Analysis Report for Nevada

4 NDOW 1988 Stream Survey Report

11. Minerals Development

- a. Exploration and development of the Goldfield's Chimney Creek mine in the Dry Hills pasture, has impacted the range resources and affected management of livestock in the Rabbit and Dry Hills pastures and the Bullhead Seeding.
 - 1) The fenced operating area with its associated roads, mining and milling facilities, pipelines, settling ponds and heap leaches has excluded approximately 6,000 acres of rangeland from grazing with the loss of the associated forage estimated at 250 AUMs.
 - 2) Goldfield's has cooperated in the development of improved and increased livestock water sources and facilities by providing water via pressurized line to an existing BLM pipeline and troughs as well as several new sources which will improve distribution.
- b. Santa Fe Mining Corporation is currently conducting an exploration program on private land within the Rabbit pasture.

Santa Fe Mining Corporation has canceled private grazing leases on sections 19,29,and 31 of T.39N., R.43E., which are unfenced private lands in the Rabbit pasture.
- c. Mineral exploration is occurring within the summer pastures in the Snowstorm Mountains. This exploration is primarily occurring on private lands leased to Battle Mountain Gold Company from Circle A Ranches. Other exploration is occurring to a lesser extent by other companies but again primarily on private land.

V. Conclusions

A. Desired Stocking Rate (DSR)

The desired stocking rate was determined in accordance with BLM Manual Rangeland Monitoring Analysis, Interpretation, and Evaluation, Technical Reference 4400-7.

Two desired stocking rates, DSR A and DSR B, were calculated for each of the following pastures: First Creek, Kinney, Snowstorm Flat and Upper Kelly. DSR A is the stocking rate at which both riparian and upland utilization objectives are expected to be met

under present management. DSR B is the stocking rate at which upland utilization objectives are expected to be met under present management. The two stocking rates are useful because maintaining present management dictates that the pasture be stocked at the lower level to allow riparian utilization objectives to be met. However, under intensified management, such as fencing riparian areas or grazing systems designed to minimize riparian impacts by improving livestock distribution, riparian utilization objectives may be met at the higher stocking rate. The following summarizes the desired stocking rates by pasture:

Desired Stocking Rates (AUMs)

<u>Pasture</u>	<u>DSR A</u>	<u>DSR B</u>
Dry Hills	1264	1264
First Creek	1242	1685
Castle Ridge	*285	*285
Kinney	539	746
Snowstorm Flat	434	791
Upper Kelly Burn	510	640
Lower Kelly Burn	197	197
Rabbit	1047	1047
Bullhead Seeding	<u>380</u>	<u>380</u>
Total	5,898	7,035

*185 AUMs horse use & 100 AUMs cattle use. Use is differentiated because use pattern mapping indicates horses tend to concentrate on the easternmost portion of Castle Ridge Pasture. Cattle use would be expected to concentrate on the westernmost portion.

Conclusions will be made on a pasture basis, based on whether or not the short term objectives are being met.

B. Short Term

1. Utilization of key plant species on wetland riparian habitats shall not exceed 50%.
2. Utilization of key streambank riparian plant species in riparian habitats shall not exceed 30% on the South Fork Little Humboldt River, Pole, First, Snowstorm and Winters Creeks, and shall not exceed 50% on Kelly Creek.
3. Utilization of key upland plant species shall not exceed the Allowable Use Level (AUL) set forth in the Bullhead Monitoring Plan.

First Creek Pasture:

1. This objective has not been met. Heavy and severe use by cattle and wild horses has been associated with wetland riparian habitats. Ernie Spring, Spring Creek, Rodear Flat, Chimney Creek, and Twenty One Creek have had excessive use.
2. This objective has not been met. Heavy and severe use by cattle and wild horses has occurred at Rodear Flat which is a water gap and along the South Fork of the Little Humboldt River.
3. This objective has been consistently met throughout the monitoring period.

Analysis of the data indicate that 1242 AUMs are available to cattle and horses under present management. Analysis indicates that short term riparian objectives would be met at this stocking rate. Under present management, the short term upland objective should be met with a stocking rate of 1685 AUMs. With intensive management, the short term riparian objective should be met with a stocking rate of 1685 AUMs.

Dry Hills Pasture:

1. There are no wetland riparian habitats in this pasture.
2. There are no streambank riparian habitats in this pasture.
3. The upland vegetative objectives have not been met in three of the five years that data was collected. In the years that the objectives were not met, high stocking rates had occurred.

Analysis of the data indicate that 1264 AUMs are available to cattle and horses in this pasture. The short term upland objective would be met under present and intensive management at this stocking rate.

Snowstorm Pasture:

1. This objective has not been met on the wetland riparian habitats. Numerous springs and meadows throughout the pasture had heavy use by cattle and wild horses.

2. This objective has not been met due to heavy and severe use by cattle and wild horses on First, Snowstorm, Winters, and Pole Creeks.
3. For the years of data available (1986, 1988) one year the upland objective was met and the other year it was not. High stocking rate was associated with the year when the objective was not met.

Analysis of the data indicate that 434 AUMs are available to cattle and wild horses under present management. Analysis indicates that short term riparian objectives would be met at this stocking rate. Under present management, the short term upland objectives should be met with a stocking rate of 791 AUMs. With intensive management, the short term riparian objectives should be met with a stocking rate of 791 AUMs.

Lower Kelly Pasture:

1. This objective has not been met. Meadows, springs, and associated wetland habitats received heavy use by cattle.
2. This objective has not been met. The streambank riparian plant species along Kelly Creek have received heavy use by cattle.
3. No key area is in Lower Kelly.

Analysis of data indicate that 197 AUMs are available to cattle and horses under present and intensive management. Analysis indicates that short term upland and riparian objectives would be met at this stocking rate.

Upper Kelly Pasture:

1. This objective has not been met. Meadows, springs, and associated wetland habitats were used heavy to severe by cattle.
2. This objective has not been met. Monitoring has shown heavy to severe use by cattle along Snowstorm Creek, Winters Creek, and Pole Creek.
3. The upland objectives have not been met three of the five years. The years of the objectives were not met, a high stocking rate occurred on those years.

Analysis of data indicate that 510 AUMs are available to cattle and horses under present management. Analysis indicates that short term riparian objectives would be met at this stocking rate. Under present management, the short term upland objective should be met with a stocking rate of 640 AUMs. With intensive management, the short term riparian objectives should be met with a stocking rate of 640 AUMs.

Kinney Pasture:

1. This objective has not been met on the wetland and riparian habitats of Twenty One Creek, Spring Creek, Kenny Creek, Kelly Creek Spring, and other springs and meadows in this pasture. Heavy and severe use has occurred on these habitats by cattle and wild horses.
2. This objective has not been met on First Creek where use by cattle and wild horses has been heavy to severe which exceeds the 30% utilization objective.
3. The upland objectives have not been met. Heavy use by cattle and wild horses has occurred in this pasture.

Analysis of the data indicate that 539 AUMs are available to cattle and horses under present management. Analysis indicates that short term riparian objectives would be met at this stocking rate. Under present management, the short term upland objective should be met with a stocking rate of 746 AUMs. With intensive management, the short term riparian objectives should be met with a stocking rate of 746 AUMs.

Bullhead Seeding:

1. There are no wetland habitats located in this seeding.
2. There are no streambank riparian habitats in this seeding.
3. The upland objectives have been consistently met, with the exception of 1989 when observations determined heavy to severe use by cattle.

Analysis of data indicate that 380 AUMs are available to cattle under present management. Analysis indicates that short term upland objectives would be met at this stocking rate.

Rabbit Pasture:

1. This objective has not been met. Heavy use by cattle has occurred along Rabbit Creek.
2. This objective has not been met. Heavy use by cattle has occurred on Kelly Creek.
3. The upland objectives have been consistently met throughout the monitoring period.

Analysis of data indicate that 1047 AUMs are available to cattle under present management. Analysis indicates that short term riparian and upland objectives would be met at this stocking rate.

C. Long Term

1. Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with an initial stocking level of 8,350 AUMs.

Analysis of trend data indicates that overall progress is being made toward achieving the trend objective in Rabbit pasture. Trend is declining in First Creek pasture at KA #301 as indicated by a decrease in Agropyron spicatum and Elymus cinereus, and an increase in Poa secunda. A change can not be detected at this time in Dry Hills, Kelly Burn, and Kinney pastures and movement toward or away from the objective can not be assessed.

Analysis of short term objective in relation to the upland habitat indicates that as a majority, the AUL objectives have been consistently met in all pastures except Kelly Burn and Kinney and at water sources where heavy to severe use by cattle and wild horses has occurred.

2. Improve to and maintain the seeded pasture in good condition (5-10 acres per AUM).

Production data is not available.

3. Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 1,542 AUMs for mule deer, 158 AUMs for pronghorn, 305 AUMs for bighorn sheep.

- a. Improve to and maintain 25,268 acres in Snowstorms DY-23, 35,359 acres in Snowstorms DY-23 (Elko Co.), 8,256 acres in DY-23 (Crucial, Elko Co.), 1,130 acres in

Snowstorms DS-2 and 6,522 acres in Snowstorms DS (Elko Co.) in good to excellent mule deer habitat condition.

- b. Improve to and maintain 50,137 acres in Snowstorms PY (Elko Co.), 24,242 acres in Hot Springs PY-11 and 18,171 acres in Snowstorms PY-10 in fair to good pronghorn habitat condition.
- c. Improve to and maintain 12,023 acres in Snowstorms BY-11 and 48,403 acres in Snowstorms BY-11 (Elko Co.) in good to excellent bighorn sheep habitat condition.

The majority of mule deer habitat is in good condition which meets the objective of good to excellent condition.

The pronghorn habitat is in fair condition and this meets the objective of fair to good.

The bighorn sheep habitat is in excellent condition and is meeting the objective of good to excellent.

- 4. Protect sage grouse strutting grounds and brooding areas. Maintain a minimum of 30% cover of sagebrush for nesting and/or winter use.

Baseline data is not available to evaluate the achievement of this objective. However, available information indicates that this objective is met on a large portion of the allotment except in the burned areas and riparian habitats where cattle and wild horse use has been heavy to severe.

- 5. Maintain and improve the free roaming behavior of wild horses by protecting and enhancing their home ranges.
 - a. Manage, maintain and improve public rangeland conditions to provide an initial level of 600 AUMs of forage on a sustained yield basis for 50 wild horses.
 - b. Maintain and improve wild horse habitat by assuring free access to water.

Utilization studies and UPM data indicate that progress is being made toward maintaining or achieving habitat objectives within the HMA.

Access to water is not restricted, but water rights should be secured for continued use.

The objective has been met.

6. Improve to and maintain 245 acres of aspen habitat types in good condition.

Baseline (ESI) and trend data has not been collected on Aspen habitat types to evaluate achievement of this objective.

7. Improve to and maintain 688 acres of riparian and meadow habitat types in good condition.

Baseline (ESI) and trend data has not been collected on riparian and meadow habitat types to evaluate achievement of this objective. The levels of utilization shown by the UPM, show current management is not compatible with maintenance of good condition riparian and meadow habitat types.

8. Improve to or maintain the following stream habitat conditions on South Fork Little Humboldt River, Pole, First, Snowstorm, Winters, Kelly and Kinney Creeks from 42% on South Fork Little Humboldt, 29% on Pole Creek, 46% on First Creek, unknown % on Snowstorm Creek, unknown % on Winters Creek, unknown % on Kelly Creeel and unknown % on Kinney Creek to an overall optimum of 60% or above.

- a. Streambank cover 60% or above.
- b. Streambank stability 60% or above.
- c. Maximum summer water temperatures below 70°.
- d. Sedimentation below 10%.

Baseline data indicates that this objective is not being consistently met on any of the above mentioned creeks. The UPMs developed indicate moderate or greater utilization levels on the creeks mentioned. No UPM is available for the South Fork of the Little Humboldt. The use levels revealed by the UPMs indicate progress is not being made towards the achievement of this objective outside of the South Fork enclosure.

9. Improve to or maintain the water quality of the South Fork of the Little Humboldt River to Class A Water Quality Standards and the following beneficial uses: livestock drinking water, cold water aquatic life, wading(water contact recreation) and wildlife propagation.

The objective is not being met. Stream temperature, pH, TDS and phosphate exceed state standards at least some of the time, stream temperatures were highest in 1979 at the lower sampling site. This would indicate that there is not enough streambank cover on the allotment. Temperatures rose an average of 46°F from the upper to lower stream sampling

points in May, July and September, 1979. TDS also rose significantly from upper to lower sites in 1979.

Phosphate levels are highest at the lower site and are higher for the more recent samples. This indicates a downward trend in water quality on the allotment.

High pH is a water quality problem that was identified in the MFP. The pH was not tested again at the same site where it was so high in 1977 (9.3). It also rises between the upper and lower sampling sites.

- b. Improve to and maintain the water quality of Pole, First, Snowstorm, Winters and Kelly Creeks to the state criteria set for the following beneficial uses: livestock drinking water, cold water aquatic life, wading (water contact recreation) and wildlife propagation. Kinney Creek's water quality should meet state criteria for livestock drinking water and wildlife propagation.

The objective is not entirely being met on Pole Creek. Turbidity exceeds the state criteria half the time for cold water aquatic life. The pH was sometimes too low for wildlife propagation and one fecal coliform test was too high for wading, although the minimum number of samples were not taken, the objective is being met for livestock drinking water.

The objective is not being met on First Creek for cold water aquatic life, because summer stream temperatures and spring turbidity are too high. One of the alkalinity values was extremely high which would make the water unsuitable for wildlife propagation. The high value was so out of scale with the others that it probably was a bad sample. Assuming that the alkalinity and dissolved oxygen is at acceptable levels, then the objective is being met for the other uses. Streambank cover is probably inadequate because stream temperatures and turbidity are often high.

It is not known if the objective is being met for Snowstorm, Winters, Kelly and Kinney Creeks since no data has been collected.

VI. Technical Recommendation

A. Water Rights

Water rights have not been secured on the public lands within the Bullhead Allotment to ensure that water will continue to be available to wild horses. Regardless of the management alternative selected, water rights for use by wild horses should be secured on the waters listed on Table 6. These water rights should include use by livestock and wildlife.

B. Water Developments

In order to assist in relieving the wetland/riparian habitats from the pressure they are receiving from present management, the development of alternative water sources is recommended. By developing water sources on the uplands, use made by livestock, wild horses and wildlife will be expanded. The better distribution of herbivores on the vegetative resource on the uplands, will allow for the much needed improvement of the riparian areas. With the development of water sources on the allotment, particularly in First Creek, Kinney, Snowstorm, and Upper and Lower Kelly pastures, the vegetative resource will sustain a more uniform utilization pattern.

There are numerous locations for small stock reservoirs throughout the allotment. Undeveloped springs and seeps also exist. The recommendation is to construct reservoirs and to develop the springs and seeps. Fencing off the headboxes and diverting the water into a trough via a pipeline is recommended. In FY93, proposed sites will be located and a map with the proposed sites will be given to the BLM by the permittee. In FY94 and 95 project planning will take place. Construction of these alternative water sources may take place in FY96. However, this is dependent on funding and prioritization of projects.

C. Appropriate Management Level

The appropriate management level (AML) is the number of horses which can occupy an area in thriving natural ecological balance with other resource values including livestock and wildlife.

Livestock and wild horses rely on a similar resource base for forage and water. Analysis of the monitoring data has determined that the desired stocking rate (DRS) for horses and cattle under present management is 5,898 AUMs. At this stocking rate, short term utilization objectives would be expected to be met, and progress toward meeting long term objectives impacted by grazing would be expected. If the combined stocking rate of cattle and horses does not exceed 5,898 AUMs, a thriving ecological balance

will be achieved between these two grazing animals and the other uses on the allotment. The question remains: What is the appropriate balance of wild horse use to livestock use? If livestock were excluded from the allotment, the 5,898 AUMs would provide forage for 490 horses. If wild horses were excluded from the allotment AUMs would be available for livestock grazing (except in rested fields). However, both have been recognized through the planning process as uses within the Bullhead Allotment, and forage must be apportioned between the two uses.

The following are alternative methods for determining the AML on Bullhead Allotment with a desired stocking rate of 5,898 AUMs:

1. The AML for the Bullhead Allotment is affected by the constraints imposed by the Strategic Plan for the Management of Wild Horses and Burros on Public Lands (Strategic Plan), signed June 4, 1992. In Nevada, the Plan calls for attainment of AML within 6 years, by 2 gathers at 3 year intervals following an initial gather. Only horses 5 years of age and younger will be shipped for adoption. All older animals must be returned to the range and provided for.

Population modeling shows that the general trend with an initial removal of the 0-5 year age class and subsequent removal of younger age class is for the population to continue to decrease following the last removal (due to the removal of the most productive age class) until it bottoms out and starts to slowly climb again. A second total removal of the 0-5 year old age class, 6 years after the first, will result in the virtual extinction of the population.

The following alternatives are proposed for the Bullhead Allotment/Snowstorm HMA AML.

- 1) The proposed AML is 80 adult horses. Gather when the population increases to +35% as per the HMAP, i.e. 108 horses. Maintain the herd within +/- 35% of AML (52-108 horses).

This AML can be reached after one gather, in fall 1993. The population will not increase to the +35% figure for another 12 years, at which time the herd will be gathered again.

80
120
160
90

Horse numbers at this AML will consume 960 AUMs, or 16% of the DSR of 5,898 AUMs. Horse numbers at 35% above AML will consume 1,296 AUMs, or 72% of DSR.

- 2) The proposed AML is existing numbers of 161 adult horses. Gather when the population increases +35% or 217 horses. Maintain the herd within +/- 35% of AML (105-217 horses).

Gather in 1995, when the 35% increase will be attained. However, gather only 4 year olds and younger rather than 5, as removal of the older animals will cause the population to drop to approximately 90-100 animals, less than the -35%. The population will drop to ~105 horses. Gather when it reaches 217 again, in 14-15 years. If 0-3 year olds are gathered in 1995, the population will drop to approximately 120 animals, and will need to be gathered again in 12 years.

Horse numbers at this AML will consume 1932 AUMs, or 33% of DSR. Horse numbers at 35% above AML will consume 2604 AUMs or 44% of DSR. One hundred five horses will consume 1,260 AUMs or 21% of DSR.

An AML of 50 horses, as per the CRMP, will not be considered, for the following reason. Given current numbers, a gather of 0-5 year olds in 1993 and 0-3 year olds in 1996 will cause population to drop to ~40-45 animals before rebounding. This number, however, is below the base herbivore schedule established in the Land Use Plan. This base number was established to minimize the potential of loss due to accidents, disease, or natural catastrophe such as drought or severe winters.

Due to the relatively large amount of private land within the summer pastures, (Kinney - 5,325 acres, Kelly Burn - 1,914 acres, Snowstorm - 1,856 acres) particularly Kinney Pasture, it is recommended that wild horses be maintained primarily within Castle Ridge, First Creek and Dry Hills pastures. During removals, the first priority should be to gather horses from the summer pastures. Notwithstanding, the HMA boundary shall remain as is and will not be adjusted to exclude Kinney, Kelly Burn and Snowstorm Flat pastures.

D. Livestock Grazing System

All of the grazing system alternatives would include the following terms and conditions:

Salt and/or mineral blocks shall not be placed within one quarter (1/4) mile of springs, meadows, streams, riparian habitats or aspen stands.

You are required to perform normal maintenance on the range improvements for which you have maintenance responsibility as per your signed cooperative agreements prior to turnout.

Your certified actual use report, by pasture, is due 15 days after the end of you authorized grazing period.

1. Alternative 1- Adjust Period of Use

Under this alternative, the season of use would be adjusted and the stocking rate would be reduced, to allow for allotment specific objectives to be met. The carrying capacity would range from 3,700 AUMs to 4,400 AUMs depending on the year, on which pastures would be used, and on the wild horse distribution. The spring season of livestock grazing use would be reduced from 04/01 through 6/30, to 04/01 through 05/14. The spring pastures would be alternately grazed two years, and rested two years. The summer season of use would be changed from 07/01 through 9/30, to 05/15 through 07/15. The summer pastures would be grazed in a three pasture rest rotation. Winter use would extend from 11/01 through 03/31.

The grazing treatments and pasture rotations follow:

Spring Use:

Year	Grazing Treatment	
	04/01 to 05/14	REST
1	First Creek	Dry Hills
2	First Creek	Dry Hills
3	Dry Hills	First Creek
4	Dry Hills	First Creek

Summer Use:

Year	Grazing Treatment		
	05/15 to 06/14	06/15 to 07/15	REST
1	Kelly Burn	Kinney	Snowstorm
2	Kinney	Snowstorm	Kelly Burn
3	Snowstorm Flat	Kelly Burn	Kinney

Winter Use:

<u>Year</u>	<u>Grazing Treatment</u>
	11/01 to 03/31

1 Rabbit and Bullhead Seeding

By grazing the spring pastures for two consecutive years and then allowing rest for two years, the recovery of aquatic habitat will be accelerated. Resting the spring pastures for two years will enhance lignification of woody species, and enhance establishment and survival of young plants, both woody and herbaceous. The earlier summer grazing use will encourage uniform utilization and distribution patterns by maximizing water availability and thereby reducing impacts to riparian habitats through cooler season of use. The livestock removal on 07/15 in the summer, will be beneficial to riparian and upland vegetation because of the regrowth potential, which in turn will improve the water quality and fisheries of the riparian habitats. The rest in the summer pastures will allow for an increase in plant vigor and seedling establishment plus give the riparian areas a recovery period. Extending the winter use period will not have an adverse effect on the vegetative resource because plant growth during most of this time is minimal, and the potential for regrowth is favorable once the livestock are removed on 03/31.

2. Alternative 2- Continue Current Season of Use

Under this alternative, cattle grazing would continue during the current season of use, but at a lower stocking rate so allotment specific objectives can be met. The stocking rate will range from 3,100 AUMs to 3,400 AUMs depending on the year, on which pastures would be used, and on the wild horse distribution.

This grazing system includes spring (04/01 to 06/30), summer (07/01 to 09/30) and winter (11/01 to 03/31) grazing. Spring grazing would be a two pasture rest rotation system. Summer grazing would be a three pasture rest rotation system which would enhance the opportunity for seedling establishment and restore plant vigor, except in Kinney Pasture, where continuous horse use would not allow rest. The summer use period, under this alternative, may adversely impact the riparian habitats in the summer pastures. During the hot season, livestock tend to concentrate on the riparian areas and make less use on the surrounding uplands. Several streams in the summer pastures are tributaries to the South Fork. Lahontan cutthroat trout, federally listed

as a threatened species, reside in the South Fork. Thus, the management on these tributaries directly effect the South Fork. Kinney and Lower Kelly Pastures are treated as one pasture under the three pasture rest rotation system to provide a more balanced system. The winter use fields are grazed yearly during periods of minimal growth, minimizing impact on vegetative resources.

The grazing treatments and pasture rotations follow:

Spring Use:

<u>Year</u>	<u>Grazing Treatment</u>	
	04/01 to 06/30	REST
1	First Creek	Dry Hills
2	Dry Hills	First Creek
3	First Creek	Dry Hills
4	Dry Hills	First Creek

Summer Use:

<u>Year</u>	<u>Grazing Treatment</u>		
	07/01 to 07/31	08/01 to 09/30	Rest
1	Snowstorm	Kelly Burn	Kinney
2	Kelly Burn	Kinney	Snowstorm
3	Kinney	Snowstorm	Kelly

Winter Use:

<u>Year</u>	<u>Grazing Treatment</u>
	11/01 to 03/31
1	Rabbit and Bullhead Seeding
2	Rabbit and Bullhead Seeding
3	Rabbit and Bullhead Seeding

3. Alternative 3- Fencing Riparian Areas

Under this alternative, up to 680 acres of meadows and riparian stream bank vegetation would be fenced to exclude livestock grazing. Up to 245 acres of aspen groves would also be fenced.

The grazing system is similar to the interim system outlined in the Bullhead Allotment Management Plan. The spring pastures would be alternately grazed one year from 04/01 to 06/30 and rested one year. The summer pastures would be

grazed in a three pasture rest rotation from 7/01 to 09/30. Winter use would extend from 10/01 through 12/15. The grazing treatments and pasture rotations follow:

Spring Use:

<u>Year</u>	<u>Grazing Treatment</u>	
	04/01 to 06/30	REST
1	First Creek	Dry Hills
	Castle Ridge	Bullhead Seeding
2	Dry Hills	First Creek
	Bullhead Seeding	Castle Ridge

Summer Use:

<u>Year</u>	<u>Grazing Treatment</u>		
	07/01 to 08/15	08/16 to 09/30	REST
1	Snowstorm	Kelly Burn	Kinney
2	Kelly Burn	Kinney	Snowstorm Flat
3	Kinney	Snowstorm	Kelly Burn

Winter Use:

<u>Year</u>	<u>Grazing Treatment</u>
	10/01 to 12/15
1	Rabbit

Under this alternative, the stocking rate would be reduced to allow short term utilization objectives to be met on riparian areas. Prior to fencing (1993-1995), the stocking rate would range from 2,700 AUMs to 3,400 AUMs depending on the year, which pastures would be used, and the wild horse distribution. The short term utilization objectives were established to insure maintenance or improvement in vegetative and stream conditions.

Following fence construction, grazing by cattle and horses would be eliminated on most meadows and streambank riparian vegetation on public land, allowing maximum opportunity to improve vegetative and stream conditions. After fencing, the stocking rate would be approximately 3,700 AUMs depending on the year, which pastures would be used, and the wild horse distribution. A large portion of the creeks on this allotment are located on private land. These private areas would continue to be heavily impacted by grazing animals because cattle concentrate on riparian areas during the hot summer months after upland vegetation becomes desiccated. This could prevent long term objectives for fisheries and water quality from being met on public land down stream from

the unfenced private land. Although it would provide only limited relief, consideration should be given to disallowing exchange of use on those areas where authorization results in high impact.

The spring and summer grazing systems provide upland vegetation with rest from livestock grazing which would enhance the opportunity for seedling establishment and restore plant vigor. Livestock use after seedripeness in the summer pastures may trample and plant seeds.

The fences would not be constructed earlier than 1995. Therefore, an interim system would be required for 1993, 1994 and 1995.

4. ALTERNATIVE 4- Fencing and water development in First Creek

With this alternative, First Creek pasture would be fenced in half, water would be developed, the season of use would be altered, and stocking rate would be reduced. The stocking rate would range from 3,400 AUMs to 4,400 AUMs depending on the year, which pastures would be used, and the wild horse distribution. The spring use of livestock grazing would be reduced from 04/01 through 06/30, to 04/01 through 05/30. The summer season of use would be changed from 07/01 through 09/30, to 06/01 through 07/31. Winter use would extend from 11/01 to 03/31.

During the spring, when the east half of First Creek pasture is used, Castle Ridge pasture and Rabbit pasture would also be used and the west half of First Creek pasture would be rested. The following year, the west half of the First Creek pasture would be used along with Bullhead Seeding and the east half of First Creek pasture would be rested. The rest that would be incorporated into this system will improve plant vigor and enhance seedling establishment. The summer pastures would be under a three pasture rest rotation system with use beginning 06/01 and ending 07/31. This earlier use would encourage uniform utilization and distribution patterns by maximizing water availability and thereby reducing impacts to riparian habitats. The season of use would be shortened two months, which will allow for regrowth in aquatic habitats, which in turn would improve the water quality and fisheries of the riparian habitats. The rest that would be incorporated in the summer pastures, would give the wetland/riparian habitats the recovery period which would enhance lignification of woody species and enhance establishment and survival of young plants, both woody and herbaceous. The winter grazing would be from 11/01 to 03/31 in the Dry Hills pasture. Extending the

winter use period would not have an adverse effect on the vegetative resource because plant growth during most of this time is minimal, and the potential for regrowth is favorable once the livestock are removed on 03/31.

Until the fencing takes place, riding of First Creek pasture is essential to maintain the integrity of this system. This will require commitment by the permittee with adequate riding, to ensure that the livestock are in the authorized areas. No interim system would be needed before the fence construction occurs.

The grazing treatments and pasture rotations follow:

Spring Use:

Year	Grazing Treatment	
	04/01 to 05/30	Rest
1	E. ½ of First Creek Castle Ridge Rabbit	W. ½ of First Creek Bullhead Seeding
2	W. ½ of First Creek Bullhead Seeding	E. ½ of First Creek Castle Ridge Rabbit

Summer Use:

Year	Grazing Treatment		
	06/01 To 06/30	07/01 To 07/31	Rest
1	Snowstorm	Kelly Burn	Kinney
2	Kelly Burn	Kinney	Snowstorm
3	Kinney	Snowstorm	Kelly Burn

Winter Use:

Year	Grazing Treatment
	11/01 To 03/31
1	Dry Hills

E. Monitoring Needs

1. Continue to implement the rangeland monitoring program on the Bullhead Allotment.
2. Continue to identify and establish Key Areas and collect baseline data on upland sites.

3. Establish monitoring studies on riparian areas.
4. Initiate Wildlife Habitat Inventory and Riparian/Fisheries Habitat Studies.
5. Initiate utilization studies to differentiate use by livestock and wild horses.
6. Develop ecological site descriptions for riparian areas and determine ecological status for wet meadows and stream riparian areas.

Determine desired seral stages for Key Areas where ecological condition has been determined.
7. Continue with intensive wild horse habitat and monitoring studies. Collect data to determine population estimates, population trend, population characteristics, population dynamics, seasonal movement patterns and population analysis.

F. Objectives

The allotment objectives under which the grazing use will be monitored and evaluated in FY 1997 should have the phrasing modified to accurately reflect how these objectives will be used in the future. These objectives are not intended to be "allowable use levels" dictating livestock removal on a seasonal basis. Utilization levels are intended as target levels, in accordance with Bureau manual guidance, to be used for monitoring and analysis of achievement of long term objectives. The short term objectives can be examined on an annual basis after the end of the grazing season when monitoring data is collected and analyzed. All data will be evaluated to determine if short and long term objectives are being met and to determine if changes in management will be required to meet objectives.

1. Short Term

- a. The objective for utilization of key plant species (CAREX, JUNCUS, POA) in wetland riparian habitats is 50%. Utilization data will be collected at the end of the grazing period.

- b. The objective for utilization of key streambank riparian plant species (CAREX, JUNCUS, POA, SALIX, ROWO) on South Fork, Pole, First, Snowstorm, and Winters Creeks is 30% and 50% on Kelly Creek. Utilization data will be collected at the end of the grazing period.
 - c. The objective for utilization of key upland and riparian plant species will be 50% for ORHY, AGSP, ELCI, CREPIS, AGCR, SENEC, TRIFO, CAREX, PONE3, 40% for SIHY, STTH2, FEID, SYOR, POTR5 and 30% for ARSP5. Utilization data will be collected at the end of the grazing period.
2. Long Term
- a. Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with an initial stocking level of 8,350 AUMs.
 - b. Improve to and maintain the seeded pasture in good condition.
 - c. Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 1,542 for mule deer, 158 AUMs for pronghorn, 305 AUMs for bighorn sheep.
 - 1. Improve to and maintain 25,268 acres in Snowstorms DY-23, 35,359 acres in Snowstorms DY-23 (Elko Co.), 8,256 acres in DY-23 (Crucial, Elko Co.), 1,130 acres in Snowstorms DS-2 and 6,522 acres in Snowstorms DS-2 (Elko Co.) in good to excellent mule deer habitat condition.
 - 2. Improve to and maintain 50,137 acres in Snowstorms PY-10 (Elko Co.), 24,242 acres in Hot Springs PY-11 and 18,171 in Snowstorms PY-10 acres in fair or good pronghorn habitat condition.
 - 3. Improve to and maintain 12,023 acres in Snowstorms BY-11 and 48,403 acres in Snowstorms BY-11 (Elko Co.) in good to excellent bighorn sheep habitat condition.
 - d. Protect sage grouse strutting grounds and brooding areas. Maintain a minimum of 30% canopy cover of sagebrush for nesting and winter use.

- e. Maintain and improve the free roaming behavior of wild horses by protecting and enhancing their home ranges.
 - 1. Manage, maintain and improve public rangeland conditions to provide an initial level of 960 AUMs of forage on a sustained yield basis. (AML may change depending on which alternative is chosen)
 - 2. Maintain and improve wild horse habitat by assuring free access to water.
- f. Improve to and maintain 245 acres of aspen habitat types in good condition.
- g. Improve to and maintain 544 acres of riparian and meadow habitat types in good condition.
- h. Improve to or maintain the following stream habitat conditions on South Fork Little Humboldt River, Pole, First, Snowstorm, Winters, Kelly, and Kinney Creeks from 59% on South Fork Little Humboldt, 32% on Pole Creek, 33% on First Creek, unknown % on Snowstorm, unknown % on Winters Creek, unknown % on Kelly Creek and unknown % on Kinney Creek to an overall optimum of 60% or above.
 - 1. Streambank cover 60% or above.
 - 2. Streambank stability 60% or above.
 - 3. Maximum summer water temperatures below 70°F.
 - 4. Sedimentation below 10%.
- i. Improve to or maintain the water quality of the South Fork of the Little Humboldt River to Class A Water Quality Standards and the following beneficial uses: livestock drinking water, cold water aquatic life, wading (water contact recreation) and wildlife propagation.

Improve to and maintain the water quality of Pole, First, Snowstorm, Winters, and Kelly Creeks to the state criteria set for the following beneficial uses: Livestock drinking water, cold water aquatic life, wading (water contact recreation) and wildlife propagation. Kinney Creek's water quality should meet state criteria for livestock drinking water and wildlife propagation.

G. Revise Bullhead Monitoring Plan

- Add ORHY to key species for key area 201
- Add AGSP to key species for key area 202
- Add AGSP to key species for key area 203
- Add STTH2 to key species for key area 204
- Add AGSP and ELCI to key species for key area 401
- Add ELCI to key species for key area 601
- Add ORHY and STTH2 to key species for key area 801
- Add AGSM to key species for key area 802

Table 6

Bullhead Water Sources

17

<u>Twp</u>	<u>Range</u>	<u>Sec</u>	<u>Subdiv</u>	<u>Source Type</u>	<u>Water Status</u>	<u>Pasture</u>
39N	43E	06	NW NE	Reservoir	Intermittent	Dry Hills
		06	SE NW	Well	"	" "
		09	SW SW	"	"	" "
	44E	06	NW NW	Seep	"	Kinney
40N	42E	23	NE SE	Reservoir	"	Dry Hills
	43E	13	SE NE	Spring	"	Kinney
		19	SE SW	Reservoir	"	Dry Hills
		25	SE SE	Seep	"	Kinney
			SW NE	"	"	"
		26	NE SW	Spring	Perennial	"
		29	SE NW	Reservoir	Intermittent	Dry Hills
		36	SW NE	Spring	Perennial	Kinney
			NW SW	Seep	Intermittent	"
	44E	02	SE SW	Spring	Perennial	"
		03	SW NE	"	"	"
			SE NW	Reservoir	Intermittent	First Creek
		04	SW NE	"	"	" "
		06	NW SE	Spring	Perennial	Kinney
		09	SE SE	"	Intermittent	"
			NE SW	"	Perennial	"
		11	NE SE	Seep	Intermittent	"
				Spring	"	"
			SW NE	"	Perennial	"
				Seep	Intermittent	"
			NW NE	Spring	Perennial	"
			SE NE	Seep	Intermittent	"
			SW SE	Spring	Perennial	"
		12	NW NW	"	"	"
				Seep	Intermittent	"
			SW NW	"	"	"
			SW SW	"	"	"
		13	SE SE	Spring	Perennial	Kelly Burn
		14	NW NE	"	"	Kinney
		16	NW SW	"	Intermittent	"
			NW NW	"	Perennial	"
		18	NE SE	"	Intermittent	"
			NW SW	"	"	"
			NE NE	"	Perennial	"
		21	SW NE	"	Intermittent	Kelly Burn
		23	NE SW	"	Perennial	" "
				"	Intermittent	" "
			NW SW	"	"	" "
		24	NW SW	"	Perennial	" "
			SE NE	"	Intermittent	" "
				Seep	"	" "
		25	SE SE	Spring	"	" "
				"	"	" "
		26	NE NE	"	"	" "
		32	SW SE	"	"	" "
			NW SE	Seep	"	" "
		33	NE NE	Spring	Perennial	" "
			NW SW	"	Intermittent	" "

Bullhead Allotment

December 9, 1992

			SW NW	"	"	"	"
			NE NE	"	Perennial	"	"
			NW SW	"	"	"	"
			SW NW	"	Intermittent	"	"
			NW SW	"	Perennial	"	"
45E	18		SE SE	"	Intermittent	"	"
	19		SE SW	Seep	"	"	"
				Spring	"	"	"
			NW NE	"	"	"	"
			SE SW	"	"	"	"
			SE NW	"	Perennial	"	"
			SE SW	Seep	Intermittent	"	"
				Spring	"	"	"
			NE SW	Seep	"	"	"
			NW NE	Spring	"	"	"
			SE NW	"	"	"	"
			SE SW	Seep	"	"	"
	20		SW NW	Spring	Perennial	"	"
	30		NW NE	"	Intermittent	"	"
			SE SE	"	"	"	"
			NE NE	"	Perennial	"	"
			NE SE	"	Intermittent	"	"
			NW SE	"	"	"	"
			SE NE	"	Perennial	"	"
				Seep	Intermittent	"	"
			SW NE	Spring	"	"	"
			SW SE	Seep	"	"	"
			NE SE	Spring	Perennial	"	"
			NW NW	"	"	"	"
				"	Intermittent	"	"
			NW SE	"	Perennial	"	"
	31		NW NE	"	Intermittent	"	"
			NE NE	"	"	"	"
				"	Perennial	"	"
			NE NE	"	"	"	"
			NE NE	"	"	"	"
				Seep	Intermittent	"	"
	32		NE NW	Spring	"	"	"
41N	43E	15	SE NE	Seep	"	"	"
	44E	14	NE SE	Spring	"	"	"
		15	SW SW	"	Perennial	"	"
		16	NE SW	"	Intermittent	"	"
		25	NW SE	Reservoir	"	"	"
		26	NW NW	"	"	"	"
	45E	19	SE SE	"	"	"	"
		32	NE SE	"	"	"	"

All waters on BLM land.
 "Perennial" as of date of survey (1983).

APPENDIX Plant list for pages 16-19

Upland Species

KEY SPECIES	SCIENTIFIC NAME	COMMON NAME
SIHY	Sitanion hystrix	bottlebrush squirreltail
ORHY	Oryzopsis hymenoides	Indian ricegrass
STTH2	Stipa thurberana	Thurber needlegrass
AGSP	Agropyron spicatum	bluebunch wheatgrass
ELCI	Elymus cinereus	basin wildrye
FEID	Festuca idahoensis	Idaho fescue
AGCR	Agropyron cristatum	crested wheatgrass
ARSP 5	Artemisia spinescens	bud sagebrush
CREPI	Crepis	hawksbeard
SYOR	Symphoricarpos orbiculatus	indiancurrant
SENEC	Senecio	groundsel
TRIFO	Trifolium	clover

Riparian Species

SALIX	Salix	willow
ROWO	Rosa woodsii	Woods rose
POM05	Polypogon monspeliensis	rabbitfootgrass
CAREX	CAREX	sedge
PONE3	Poa nevadensis	Nevada bluegrass
POTR5	Populus tremula	aspen

Key Management Area Utilization

% Utilization by Year

Key Area	Key Species	Allowable Use Levels	1983	1984	1985	1986	1987	1988	1989	1990	1991
Dry Hills	SIHY	40		9			34	64		10	
DH 0201	ARSP 5	30						12			
0202	STTH2	40	10	28			10	42		40	
	SIHY	40	10	11			7	17		32	
0203	STTH2	40		38			16	22		36	
	SIHY	40		54			9	20		32	
0204	ORHY	50		58			51	20			
	SIHY	40		43			36	70			
0205	SIHY	40	27				52	56		10	
First Creek	AGSP	50					53	27	56		44
FC 0301	EICI	50					44	42	50		37
	CREPIS	50									
0302	AGSP	50					47	0	28		25
	CREPIS	50				0	0	0			
0303	AGSP	50							30		8
	ORHY								17		10
	SIHY						27	50	10		14
Kelly Burn	SIHY	40				55	57	41	12	0	
KB 0401	FEID	40				65	67	68	30	15	
	SYOR	40							14		
0402	POTRT	40									
0403	TRIFOI	50									
Bullhead Seeding											
0501	AGCR	50	17	30		49	64				
0502	SIHY	40	15	8			39				
0503	AGCR	50	22	40		42	26				
Kinney Pasture	SIHY	40					67	53	48		24
	FEID	40					75	68	70		42
KF 0601	SENEC	50					19				
0602	POTRT	40					50				
0603	CAREX	50									
	PONE3	50									
Rabbit											
RF 0801	SIHY	40					10	1	14	12	
0802	EICI	50					14	2			
Snowstorm Flat											
SF 0901	AGSP	50				62		38			
	EICI	50				49		37			
0902	CAREX	50									
	PONE3	50									

Age Specific Survival

Assumptions:

1. Essentially all horses within this population are dead after 20 years.
2. Mortality favors younger age classes i.e. 0-3. Mortality is higher in young males than it is in young females.
3. Mortality increases in older animals i.e. 8-20. Mortality is higher in older females than in older males.
4. Mortality increases dramatically in age classes 14-20.

AGE CLASS	% SURVIVAL	
	MALES	FEMALES
0-1	.84	.86
1-2	.86	.88
2-3	.87	.89
3-4	.92	.92
4-5	.95	.95
5-6	.96	.96
6-7	.96	.96
7-8	.96	.96
8-9	.96	.94
9-10	.95	.93
10-11	.94	.92
11-12	.91	.89
12-13	.90	.88
13-14	.89	.87
14-15	.87	.85
15-16	.84	.82
16-17	.78	.72
17-18	.70	.64
18-19	.55	.45
19-20	.55	.45
20+	0	0

It is recognized that some wild horses live past twenty; however both their numbers and contribution to the population are negligible.

Bullhead Allotment

December 9, 1992

Age Specific Fecundity

AGE CLASS	% FECUNDITY
0-1	0
2	.30
3	.50
4-9	.75
10-13	.35
14-20	.15

Bullhead Allotment

December 9, 1992

BULLHEAD ALLOTMENT WILD HORSE POPULATION MODEL
 INITIAL POPULATION 161 ADULTS, GATHER FALL 1993 0-5 YEAR OLDS

Year 1992	1993		1994		1995		1996		1997		1998		1999		2000		2001	
Sex	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
16	16	21	21	10	10	8	8	7	7	7	7	7	7	8	8	9	9	9
10	11	13	14	0	0	8	9	7	7	6	6	6	6	6	6	7	7	8
9	10	9	10	0	0	0	0	7	8	6	6	5	5	5	5	5	5	6
8	9	8	9	0	0	0	0	0	0	6	7	5	5	4	4	4	4	4
7	8	7	8	0	0	0	0	0	0	0	0	6	6	5	5	4	4	4
6	8	6	7	0	0	0	0	0	0	0	0	0	0	5	6	4	5	4
5	7	6	7	0	0	0	0	0	0	0	0	0	0	0	0	5	6	4
5	6	4	7	5	6	0	0	0	0	0	0	0	0	0	0	0	0	4
4	5	4	6	4	7	4	5	0	0	0	0	0	0	0	0	0	0	0
4	4	3	4	4	6	3	6	4	5	0	0	0	0	0	0	0	0	0
3	4	4	4	3	4	4	6	3	6	4	5	0	0	0	0	0	0	0
3	3	3	4	4	4	3	4	4	6	3	6	4	5	0	0	0	0	0
2	2	3	3	3	4	4	4	3	4	4	5	3	5	4	4	0	0	0
2	2	2	2	3	3	3	4	4	4	3	4	4	4	3	4	4	4	0
2	1	2	2	2	2	3	3	3	3	4	3	3	3	4	3	3	3	4
2	1	2	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
2	1	2	1	2	1	2	2	2	2	3	2	3	2	3	2	3	2	3
1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Total Ad.	193	216	98	104	109	110	107	107	93	91	110	110	92	91	110	110	2111	93
AUMs	161	174	78	88	95	96	93	91	92	92	92	91	92	91	92	92	93	93

Bullhead Allotment

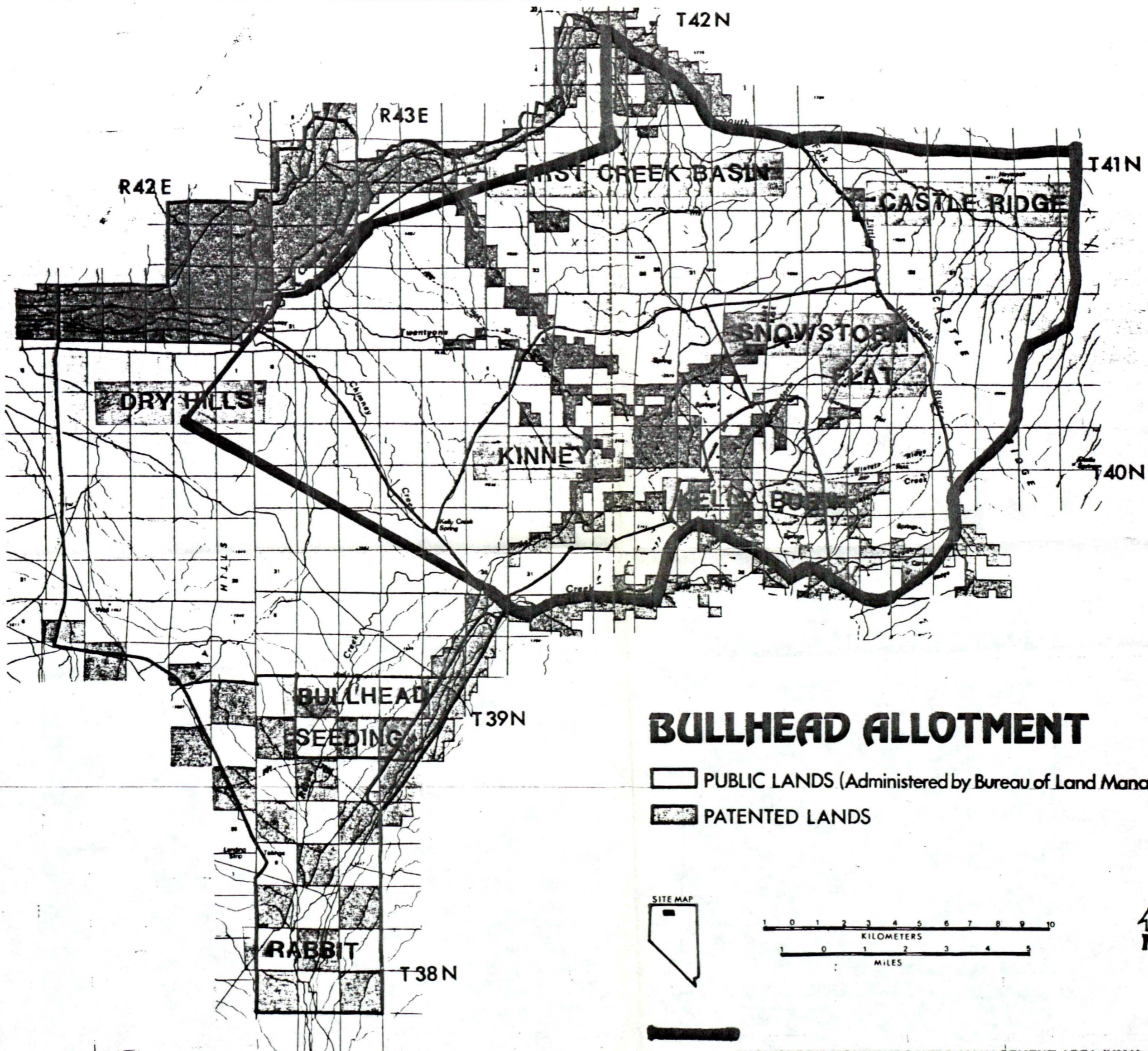
December 9, 1992

YEAR 2002	2003		2004		2005		2006		2007		2008		2009		2010		2011			
SEX	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
	10	10	10	10	11	11	12	12	13	13	14	14	15	15	16	16	18	18	19	19
	8	8	8	9	8	9	9	9	10	10	11	11	12	12	13	13	13	14	15	15
	7	7	7	7	7	8	7	8	8	8	9	9	9	10	10	11	11	11	11	12
	5	5	6	6	6	6	6	7	6	7	7	7	8	8	8	9	9	10	10	10
	4	4	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7	8	8	9
	4	3	3	4	5	4	5	6	5	5	6	5	5	5	5	5	6	6	6	8
	2	3	3	2	2	4	4	4	5	5	5	4	6	5	4	4	4	5	5	5
	4	3	1	2	2	1	2	3	4	4	4	4	5	4	6	4	4	4	3	4
	3	5	4	3	1	1	2	1	1	2	4	4	4	3	5	4	6	4	4	4
	0	0	3	4	4	3	1	0	1	1	0	2	3	3	4	3	5	4	5	4
	0	0	0	0	3	4	4	3	1	0	1	1	0	2	3	3	4	3	5	4
	0	0	0	0	0	0	3	4	4	3	1	0	1	1	0	2	3	3	4	3
	0	0	0	0	0	0	0	0	3	4	4	3	1	0	1	1	0	2	3	3
	0	0	0	0	0	0	0	0	0	3	4	4	3	1	0	1	1	0	1	2
	0	0	0	0	0	0	0	0	0	0	0	0	3	3	4	3	1	0	1	1
	3	3	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	1	0
	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	3	2	3	2
	2	1	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Total Ad.	113			114		119		128		137		150		162		178		196		211
AUM's	93			94		97		104		111		122		132		146		160		173

Bullhead Allotment

December 9, 1992

<u>Year</u>	<u>No. Ad. Male</u>	<u>No. Ad. Female</u>	<u>No. Adults</u>	<u>AUMs</u>
1992	78	83	161	1,932
1993	83	91	174	2,088
1994	37	41	78	936
1995	41	47	88	1,056
1996	45	50	95	1,140
1997	47	49	96	1,152
1998	47	46	93	1,116
1999	47	44	91	1,092
2000	47	45	92	1,104
2001	48	45	93	1,116
2002	48	45	93	1,116
2003	48	46	94	1,128
2004	49	48	97	1,164
2005	52	52	104	1,248
2006	56	55	111	1,332
2007	62	60	122	1,464
2008	67	65	132	1,584
2009	74	72	146	1,752
2010	80	80	160	1,920
2011	86	87	173	2,076



SNOWSTORM MOUNTAINS HERD MANAGEMENT AREA (HMA)

W H O A

WILD HORSE ORGANIZED ASSISTANCE

P.O. BOX 555
RENO, NEVADA 89504
(702) 851-4817

~~Osgood~~ 1/27/93
BOARD OF TRUSTEES

DAVID R. BELDING
JACK C. McELWEE
GORDON W. HARRIS

In Memoriam

LOUISE C. HARRISON
VELMA B. JOHNSTON, "Wild Horse Annie"
GERTRUDE BRONN

January 27, 1993

Scott Billings
Paradise-Denio Resource Area
Bureau of Land Management
705 East Fourth Street
Winnemucca, Nevada 89445

RE: Draft Bullhead Allotment Evaluation

Dear Mr. Billings,

Thank you for the opportunity to review and comment on the draft copy of the allotment evaluation prepared for the Bullhead Allotment.

It appears that your evaluation has confirmed for us that wild horses have a lesser impact on stream bank riparian than livestock.

First, we could like to commend you on the use of population modeling in determining the future viability of your wild horse herds. By using the models as you have it has shown that an adverse decision could "result in the virtual extinction of the population." Determining the future of your populations prior to making major decisions affecting the horses certainly is a more responsible approach to managing the herds than removing animals and waiting to see what the outcome will be.

You have presented us with two alternatives for management of the horses. We strongly object to Alternative #1, setting an AML at 80 horses with a plus or minus of 35% because the minus 35% would place the population at 52 horses. According to your own quote, page 63, "An AML of 50 horses, as per the CRMP, will not be considered for the following reason. Given the current numbers, a gather of 0-5 year olds in 1993 and 0-3 year olds in 1996 will cause population to drop to 40-45 animals before rebounding. This number, however, is below the base herbivore schedule established in the Land Use Plan. This base number was established to minimize the potential of loss due to accidents, disease, or natural catastrophe such as drought or severe winters." As stated on the previous page (62), such schedules for removals "will result in the virtual extinction of the population."

The HMA consists of the entire Bullhead Allotment of which the horses can only use a portion under the Land Use Plan. As you state "the HMA boundary shall remain as is," however, wild horses

Scott Billings
January 27, 1993
Page 2

are not allowed the benefit of use of that entire area.

We would urge you to consider Alternative #2 as the preferred choice for the management of wild horses in the Bullhead Allotment. Under Alternative #2, we feel it is equitable to allocate the AML of 161 horses with a plus or minus of 35%. Initially the horses would be allocated 21% of the limited portion of the HMA that they are allowed to use, this seems only fair. We would also like to urge that consistent monitoring be scheduled to include actual use on livestock not licensed use to better evaluate who ate what, when, and where.

Again, thank you for the opportunity to review this document and provide you with our comments. If you decide to schedule a consultation meeting for this allotment please keep us informed as we would like to attend. If you have any questions regarding our comments, please feel free to call.

Sincerely,

DAWN Y. LAPPIN
Director



STATE OF NEVADA
DEPARTMENT OF WILDLIFE

1100 Valley Road
P.O. Box 10678
Reno, Nevada 89520-0022
(702) 688-1500
Fax (702) 688-1595

BOB MILLER
Governor

WILLIAM A. MOLINI
Director

January 26, 1993

Mr. Scott Billings
Paradise-Denio Resource Area
Bureau of Land Management
705 East Fourth Street
Winnemucca, Nevada 89445

RE: Draft Bullhead Allotment Evaluation

Dear Scott:

The Department of Wildlife appreciates the District's effort to consult affected interests concerning the Bullhead Allotment. According to the land use plan, this allotment is number two in priority and has a completed Coordinated Resource Management Plan (1983), Allotment Management Plan (1985) and Allotment Monitoring Plan/Decision (1986). These plans and decisions were to fully implement the land use plan goals, objectives and decisions to protect critical wildlife habitats. Schedules in the Bullhead Allotment Monitoring Plan required allotment evaluations in 1988, 1990 and 1993 that would adjust, if necessary, livestock stocking rates and/or seasons-of-use to meet allotment specific objectives for fish and wildlife. The CRMP management actions were to exclude livestock use from critical riparian areas by 1983. These evaluations and planned management actions did not occur and we seek the proper remedial actions in the manager's decision resulting from this allotment evaluation.

SPECIFIC COMMENTS

Page 4, Other Information

The Coordinated Resource Management Plan recommended livestock exclosures at South Fork, Pole Creek and Kelly Creek. In addition to fencing projects, it proposed three years rest to protect fisheries and aspen vegetation associated with South Fork, Kelly Creek, First Creek, Snowstorm Creek, Winters Creek and Poles Creek by 1983.

Mr. Scott Billings
January 26, 1993
Page 2

The Bullhead Allotment Management Plan received a Section 7 Consultation from the Fish and Wildlife Service. This biological opinion requested three major actions: (1) livestock reductions and a rest rotation grazing system; (2) stream fencing to exclude livestock; (3) wild horse management. In addition to the recommendations of the Service, the allotment management plan proposed 16 water developments, five fences, two cattle guards, two seedings, two prescribed burns and the reduction of wild horses to 50 head.

The Bullhead Allotment Monitoring Plan/Decision further stated management actions to protect fish and wildlife habitats. Allowable use levels and monitoring studies specific to riparian and mountain browse species were established. These studies were to be used in the scheduled allotment evaluations (1988, 1990, 1993, 1995, etc.) to adjust livestock, if necessary, to meet the land use plan.

Page 5, Technical Review Team

This consultation did not involve the Department of Wildlife.

Page 7, CRMP Objectives

CRMP Objective No. 4 states full rest to Layton Creek Seeding, Castle Ridge Burn and Snowstorm Flat for a minimum of three years.

We found no reference in the CRMP Objectives to establish reasonable AUM demand for wildlife.

Page 15, Key Species Monitored

The Bullhead Allotment Monitoring Plan lists chokecherry, serviceberry and snowberry as key species to be monitored. These species were not addressed in the allotment evaluation.

Page 20, Wildlife Existing Numbers

We assume these numbers are based on the percentage of Snowstorm deer and antelope habitat as compared to the habitat located in Unit 066-068. Also, bighorn sheep numbers are based on a population model for the herd residing in the Little Humboldt Allotment.

Mr. Scott Billings
January 26, 1993
Page 3

Page 27, Use Pattern Mapping Data

Snowstorm Flat Pasture has critical stream bank riparian. The CRMP Objective called for a minimum of three years rest to restore fishery habitat and allow for aspen regeneration. Snowstorm Flat Pasture was rested from livestock in 1983, 1984 and 1985. In 1985 wild horses were reduced from 121 to 36 head on this pasture. Bureau stream survey data collected in 1985 indicated the Percent of Optimum had declined from the 1976 level of 57 to 49. In 1986 the District authorized 910 AUMs of livestock use from June 1 to July 31. Use pattern mapping data showed heavy use on stream bank riparian habitats for Snowstorm, First, Winter's and Pole Creeks. Bureau stream survey data collected in 1987 showed another decline in the Percent Optimum from 49 (1985) to 35 (1987).

Riparian and mountain browse vegetation trend studies for key species, identified in the Bullhead Allotment Monitoring Plan/Decision, were not conducted.

Page 42, Habitat Evaluation Stream Habitat Conditions

Monitoring data and observations of the Paradise-Denio Fishery Biologist concurs with the use pattern mapping data for riparian habitats. We agree with the Habitat Evaluation's conclusion that livestock adversely affect fishery habitat during the hot season-of-use.

Page 52, Conclusions

We concur with the conclusion that riparian allowable use levels or short term objectives cannot be met with past numbers of livestock during the hot season-of-use. Calculations of desired stocking rates or carrying capacities are not provided in the allotment evaluation. Attached is a table exhibiting the alternatives' stocking rates and corresponding monitoring data. It is apparent that additional alternatives are needed to meet all stated objectives.

As an example, Snowstorm Pasture underwent three years rest from livestock. Wild horse use pattern mapping data was not presented for the years of livestock rest (1983 - 1985). Bureau stream survey data showed a decline in the Habitat Percent of Optimum rating for First Creek. The 1986 authorization of livestock, after the reduction of wild horses, did not reverse the downward trend of First Creek.

We fail to find any supporting data analysis to conclude that Alternative A-434 AUMs or Alternative B-791 AUMs are available to livestock and horses, that will meet the riparian short term objectives. For example, in 1988 the District authorized 479 AUMs

Mr. Scott Billings
January 26, 1993
Page 4

of livestock use from July 1 to September 30. No wild horses were known to be in the Snowstorm Pasture and use pattern mapping data showed heavy and severe use of First, Snowstorm, Winters and Pole Creeks. Furthermore, the Bureau of Land Management stream survey data show a decline in the Habitat Percent of Optimum. It would appear that livestock have a greater impact on stream bank riparian than wild horses.

Page 58, Mule Deer Habitat

How can mule deer habitat be rated as good, when key mountain browse species of the Bullhead Allotment Monitoring Plan were not monitored? The allotment evaluation did not recognize these key species nor assess the habitat delineated in the land use plan.

How can sage grouse habitat be considered "protected" when all available use pattern mapping data indicates heavy to severe use by livestock and wild horse on all riparian areas?

Page 61, Technical Recommendations

Water developments were proposed in the Bullhead Allotment Management Plan in 1985. After eight years, is it reasonable to assume that funding is not available to complete these projects by 1996? Will resource damage continue in the interim?

Carrying capacity for the Bullhead Allotment is an essential element to resolving resource conflicts. Please provide us with the desired stocking rate calculations and assumptions.

The three alternatives consider carrying capacities based upon each pasture in the allotment. We cannot determine if riparian and mountain browse were considered in these stocking rate calculations.

Page 70, Objectives

Short term objectives of this allotment evaluation are consistent with MFP III Decisions of the Paradise-Denio Land Use Plan. Allowable use levels were set in the Draft Paradise-Denio Grazing EIS. These limitations of annual use are based upon the plants ability to maintain or retain viability. Past grazing practices, since the land use plan, have not met land use plan objectives to maintain critical fish and wildlife habitats. Funding and man time does not appear to be available to mitigate the adverse impacts of livestock grazing. Therefore, it would seem reasonable that management and management decisions must be based upon the proper use of key plant species. To discount the use of

Mr. Scott Billings
January 26, 1993
Page 5

proper utilization limits as management tools will not provide any assurances that critical fish and wildlife habitats will be protected or restored as required by law.

We do not concur that allowable use levels or utilization limits are mere targets to be met or not met.

Page 73, Revise Bullhead Monitoring Plan

As pointed out previously, key species for riparian and mountain browse have not been monitored. These shortcomings are throughout this allotment evaluation. The addition of more perennial grasses to be monitored further emphasizes the dominance of livestock grazing objectives over fish and wildlife resources.

SUMMARY

Riparian habitats are essential elements in all grazing systems and grazing strategies. Land use plan decisions and current Bureau policy requires full consideration of riparian and riparian monitoring data in all grazing plans and decisions. Therefore, we encourage the District to reexamine its technical recommendations or to select management alternatives to better address riparian habitats. Data presented in this allotment evaluation suggest that pastures with riparian habitat should receive two years rest followed by a year of early use (April 1 to May 14) and a year of summer use (May 15 to July 15). In this way "hot season use" would only occur one year out of four. Meeting proper short term or allowable use level objectives must be achieved during any authorization. This system most resembles the grazing strategy found in Instructional Memorandum No. NV-91-251.

We encourage you to consider our comments and concerns prior to the issuance of your decision for the Bullhead Allotment.

Sincerely,

WILLIAM A. MOLINI, DIRECTOR

Richard T. Heap, Jr.
Regional Manager
Region I

REL:rl/ph
CC: Habitat, Reno
Region II
Jim Jeffress
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January 27, 1993

Scott Billings
Paradise-Denio Resource Area
Bureau of Land Management
705 East Fourth Street
Winnemucca, Nevada 89445

RE: Draft Bullhead Allotment Evaluation

Dear Mr. Billings,

Thank you for the opportunity to review and comment on the draft copy of the allotment evaluation prepared for the Bullhead Allotment.

It appears that your evaluation has confirmed for us that wild horses have a lesser impact on stream bank riparian than livestock.

First, we could like to commend you on the use of population modeling in determining the future viability of your wild horse herds. By using the models as you have it has shown that an adverse decision could "result in the virtual extinction of the population." Determining the future of your populations prior to making major decisions affecting the horses certainly is a more responsible approach to managing the herds than removing animals and waiting to see what the outcome will be.

You have presented us with two alternatives for management of the horses. We strongly object to Alternative #1, setting an AML at 80 horses with a plus or minus of 35% because the minus 35% would place the population at 52 horses. According to your own quote, page 63, "An AML of 50 horses, as per the CRMP, will not be considered for the following reason. Given the current numbers, a gather of 0-5 year olds in 1993 and 0-3 year olds in 1996 will cause population to drop to 40-45 animals before rebounding. This number, however, is below the base herbivore schedule established in the Land Use Plan. This base number was established to minimize the potential of loss due to accidents, disease, or natural catastrophe such as drought or severe winters." As stated on the previous page (62), such schedules for removals "will result in the virtual extinction of the population."

The HMA consists of the entire Bullhead Allotment of which the horses can only use a portion under the Land Use Plan. As you state "the HMA boundary shall remain as is," however, wild horses

Scott Billings
January 27, 1993
Page 2

are not allowed the benefit of use of that entire area.

We would urge you to consider Alternative #2 as the preferred choice for the management of wild horses in the Bullhead Allotment. Under Alternative #2, we feel it is equitable to allocate the AML of 161 horses with a plus or minus of 35%. Initially the horses would be allocated 21% of the limited portion of the HMA that they are allowed to use, this seems only fair. We would also like to urge that consistent monitoring be scheduled to include actual use on livestock not licensed use to better evaluate who ate what, when, and where.

Again, thank you for the opportunity to review this document and provide you with our comments. If you decide to schedule a consultation meeting for this allotment please keep us informed as we would like to attend. If you have any questions regarding our comments, please feel free to call.

Sincerely,

A handwritten signature in cursive script, reading "Catherine Barcomb". The ink is a reddish-brown color. The signature is written in a fluid, connected style.

CATHERINE BARCOMB
Executive Director