1/14/93

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Winnemucca District Office
705 East 4th Street
Winnemucca, Nevada 89445

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
4110
(NV-026.14)

CERTIFIED MAIL NO.P374308519
RETURN RECEIPT REQUESTED

JAN 14 1993

Mrs. Dawn Lappin
Wild Horse Organ. Assist.
P.O. Box 555
Reno, NV 89505

Dear Ms. Lappin:

Enclosed is the Buffalo Hills Final Allotment Re-evaluation and the Notice of Proposed Full Force and Effect Decision for the Buffalo Hills Allotment.

An interdisciplinary team has analyzed comments sent by Affected Interest Groups and incorporated pertinent comments into the document. The re-evaluation has been restructured to make it more "reader friendly" by appendicizing most of the raw data.

Anyone having questions regarding these documents and those groups that submitted written comments and want to know how your recommendations were considered can contact Tom Seley at (702) 623-1500.

Sincerely yours,

Bud Cribley, Area Manager
Sonoma-Gerlach Resource Area

Enclosures

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Winnemucca District Office
705 East 4th Street
Winnemucca, Nevada 89445

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(NV-026.1)

JAN 14 1993

CERTIFIED MAIL NO.P374308519
RETURN RECEIPT REQUESTED

NOTICE OF PROPOSED FULL FORCE AND EFFECT MULTIPLE USE DECISION
BUFFALO HILLS ALLOTMENT

Mrs. Dawn Lappin
Wild Horse Organ. Assist.
P.O. Box 555
Reno, NV 89505

Dear Ms. Lappin:

The Record of Decision for the Sonoma/Gerlach Grazing Environmental Impact Statement and the Management Framework Plan (Land Use Plan) was issued on September 9, 1982. These documents established the multiple use goals and objectives which guide management of the public lands in the Buffalo Hills Allotment.

In 1988 the Buffalo Hills allotment was evaluated using monitoring data to determine whether or not the Land Use Plan's (LUP) objectives were being met. As a result of that evaluation an Agreement was negotiated with the permittees which specified a grazing system, established a livestock grazing preference, and established site specific objectives.

Monitoring has been conducted to determine if livestock grazing, wild horse use, and wildlife are within the objective parameters established in the LUP. These objectives were carried forward in the Buffalo Hills Allotment Management Plan, Allotment Agreement, and the Fox Mountain Habitat Management Plan. Since the 1988 evaluation additional monitoring data has been collected and analyzed to determine whether or not progress in meeting the multiple use objectives for the Buffalo Hills Allotment is being made, and if changes are required in management actions to meet these objectives.

Through the allotment re-evaluation process the Bureau of Land Management determined that changes in existing management are required to achieve the multiple use objectives for the allotment. Analysis of the monitoring data indicates that the existing numbers of wild horses and management of livestock is significantly contributing to the failure in meeting the LUP and the 1988 Allotment Agreement multiple use objectives. Analysis of wildlife monitoring data does not indicate a need for change in the existing wildlife management. Therefore, this decision changes livestock management, the grazing system, establishes new or modified objectives; and establishes an Appropriate Management Level (AML) for wild horses which will result in a thriving natural ecological balance.

The draft re-evaluation was sent to interested parties for consultation, coordination, and cooperation purposes. Five individuals or groups submitted comments that were incorporated into the document.

As a result of this process my proposed decisions are as follows:

ALLOTMENT WIDE MULTIPLE USE OBJECTIVES

Objectives 1, 2, and 3 listed below will be used to guide management on the allotment in the interim between completion of this allotment re-evaluation and the completion of the ecological site inventory. Upon completion of the ecological site inventory, desired plant community objectives will be developed for each pasture. The utilization levels shown in objectives #1-3 will be incorporated as management actions to be used to meet the desired plant community objectives.

1) The objective for wild horse utilization is 20% in livestock rest pastures by July 15 (seed dissemination).

2) The objective for combined utilization on grass species, upland browse species, and meadows by wild horses and livestock is 50% at the end of the livestock use period and 60% by February 28 or start of the new growing season.

3) The objective for utilization of current year's growth on key stream bank riparian plant species1/ is 30% at the end of the livestock use period and 40% by February 28 or the start of the new growing season for the following streams:

Red Mountain Creek
Cottonwood Creek
Wagon Tire Creek
Granite Creek
Rock Creek
Donnelly Creek
Cane Springs Creek

1/ Key riparian plant species will be: Aspen (Populus tremuloides), Willow (Salix spp.), Nevada Bluegrass (Poa nevadensis), Sedges (Carex spp.), Rushes (Juncus spp.), and Tufted Hairgrass (Deschampsia cespitosa).

Objectives 4 through 9 listed below will be requantified upon completion of ESI (1993), to Desired Plant Community objectives (1994) on wetland riparian and upland areas for wildlife, wild horses, and livestock. Specific management actions will be developed to attain the desired plant community resource objectives.

4. Maintain or improve 565 acres of aspen woodland and 349 acres of mountain mahogany thicket to good or equivalent. This includes acres burned in the Fox Mountain and Middle Fork Fires during 1985. (WL-1.9)

5. Manage, maintain, or improve public rangeland habitat condition to provide forage on a sustained yield basis with a forage demand for big game of 6,340 AUMs for mule deer, 1,060 AUMs for pronghorn and 1,228 AUMs for bighorn sheep by:

   a) Improving 7,680 acres of priority mule deer habitat to excellent.

   b) Improving overall mule deer habitat as follows:

      (1) From good to excellent 61,945 acres: Granite Range DS-1; Poodle Mtn. DS-2; Granite Range DS-6; Crutcher Canyon DW-4; Donnelly Peak DS-5.

      (2) From fair to good 4,713 acres: Buffalo Hills DW-2.

c) Maintaining mule deer habitat as follows:

(1) Good condition 93,402 acres: Buffalo Hills DS-2; Horse Canyon DS-2; Sawmill Canyon DS-2; Granite Basin DS-5; Granite Range DW-6.

(2) Excellent condition 5,249 acres: Granite Range DW-7; Rock Creek DW-8; Granite Creek DW-9.

d) Improving pronghorn habitat as follows:

(1) From fair to good 140,068 acres: Buffalo Hills AS-3; Granite Range AS-8; Middle Fork AS-8; Granite Basin AS-9; Crutcher Canyon AW-1; South Buffalo Hills AW-2; Middle Fork AW-8; Rock Creek AW-9; Donnelly Peak AS-1; Division Peak AS-6.

(2) From poor to fair 3,845 acres: Clear Creek AW-5; Granite Point AW-10.

e) Maintain pronghorn habitat as follows:

Good condition 57,298 acres: Buffalo Hills AW-3.

f) Improving 26,376 acres of priority bighorn sheep habitat (Granite Range BY-1) and Division Peak BY-5 from 70% to 90% of optimum.

6. Improve range/ecological 1/ condition from:
Poor to Fair on 267,748 acres.
Fair to Good on 74,138 acres.
Good to Excellent on 37,764 acres.

1/ The range/ecological conditions in this document are forage conditions that will be replaced with ecological status condition as information becomes available. The objective will be redefined or quantified to obtain a particular ecological status when site potential and identified uses are combined to meet vegetative objectives.

7. Manage, maintain or improve ecological status to provide forage on a sustained yield basis with a stocking level of 4114 AUMs for livestock on public lands.

8. Manage, maintain and improve public rangeland conditions to provide 8,568 AUMs of forage on a sustained yield basis for 714 (AMLs) wild horses in the following Herd Use Areas :

	AML	AUMs
Buffalo Hills	314	3768
Granite Range	258	3096
(Granite pasture)	(76)	(912)
(Dolly Varden past.)	(182)	(2184)
Calico Mountains*	142	1704
Total	714	8568

* Only 36% of the Calico Mountains HMA is contained within the Buffalo Hills Allotment. The number of horses shown is for that part of the HMA within the allotment.

9. Fisheries/Riparian: This objective represents a requantification and combination of the long term objections #1 and #3 from the 1988 evaluation and agreement.

Stream/Riparian Habitat Condition Classification
(% of Habitat Optimum)

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

The stream condition rating (expressed as percent habitat optimum) is based on the evaluation of factors considered limiting to trout. These include pool-riffle ratio, pool-quality, percent gravel and rubble on the stream bottom, bank cover and bank stability.

(A) Red Mountain Creek

(1) In the short term maintain/improve stream and riparian habitat conditions on 9 miles of Red Mountain Creek at 60% or higher.

(2) In the long term improve stream and riparian habitat conditions on 9 miles of Red Mountain Creek to a rating of excellent.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Red Mountain Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
	1989	SHORT TERM (1999)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	65	>65	>70

Based on data collected in 1989 from stations 2, 3 and 4 located on public land.

(B) Cottonwood Creek

(1) In the short-term improve stream and riparian habitat conditions on 3 miles of Cottonwood Creek by 11% (or to a rating of good as defined previously).

(2) In the long-term maintain stream and riparian habitat conditions on 3 miles of Cottonwood Creek at a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Cottonwood Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
	1987	SHORT TERM (1999)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	49	>60	>60

Based on data collected in 1987 by BLM from survey stations located on public land.

(C) Wagon Tire Creek

(1) In the short-term improve stream and riparian habitat conditions on 3 miles of Wagon Tire Creek by 15%

(2) In the long-term improve stream and riparian habitat conditions on 3 miles of Wagon Tire Creek to a rating of 60% or better.

Short and long term objectives for improvement of stream and riparian habitat conditions on Wagon Tire Creek within the Buffalo Hills Allotment.

		OBJECTIVE LEVEL	
		SHORT TERM	LONG TERM
	1989	(1999)	(2017)
STREAM CONDITION (% HABITAT OPTIMUM)	30	>45	>60

Based on data collected in 1989 by BLM from survey stations located on public land.

(D) Granite Creek

(1) In the short-term improve stream and riparian habitat conditions on the lower reaches Granite Creek from 25% to 40% and maintain an overall rating of 60% or better.

(2) In the long-term maintain and improve stream and riparian habitat conditions on Granite Creek at 60% or better.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Granite Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
		SHORT TERM	LONG TERM
	1992	(1999)	(2017)
STREAM CONDITION (% HABITAT OPTIMUM)	74	>60	>60

Based on data collected in 1992 by BLM from survey stations located on public land.

(E) Rock Creek

(1) In the short-term improve stream and riparian habitat conditions on 3 miles of Rock Creek by 6% (or to a rating of good as defined previously).

(2) In the long-term maintain stream and riparian habitat conditions on 3 miles of Rock Creek to a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian conditions on Rock Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
	1992	SHORT TERM (1999)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	54	>60	>60

Based on data collected in 1992 by BLM from survey stations located on public land.

(F) Donnelly Creek

(1) In the short-term improve stream and riparian habitat conditions on 2 miles of Upper Donnelly Creek by 10% (or to a rating of good as defined previously).

(2) In the long-term maintain stream and riparian habitat conditions on 2 miles of Upper Donnelly Creek at a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Upper Donnelly Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
	1988	SHORT TERM (1999)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	50	>60	>60

Based on data collected in 1988 by BLM from survey stations located on public land.

(G) Cane Springs Creek

(1) In the short-term improve stream and riparian habitat conditions on 2 miles of Cane Springs Creek by 7% (or to a rating of good as defined previously).

(2) In the long-term improve stream and riparian habitat conditions on 2 miles of Cane Springs Creek to a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Cane Springs Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
	1992	SHORT TERM (1999)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	53	>60	>60

Based on data collected in 1992 by BLM from survey stations located on public land.

10) Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

Red Mountain Creek
Cottonwood Creek
Wagon Tire Creek
Granite Creek
Rock Creek
Negro Creek
Donnelly Creek

11) Maintain the water quality of Negro Creek from its origin to the first irrigation diversion to the State Class A water quality standards.

CARRYING CAPACITY

The combined carrying capacity for livestock and wild horses on public lands is determined to be 12,682 AUMs. The allocation is as follows:

Livestock 4,114 aums
Wild Horses 8,568 aums

LIVESTOCK MANAGEMENT DECISION

ALLOCATION

The livestock allocation will remain the same as established in the 1988 evaluation and agreement.

A. A. F. Jackson

1. Grazing Preference (AUMs)

a.	Total Preference	3984	
b.	Suspended Preference	0	
c.	Active Preference	3984	
d.	Not Scheduled	0	
e.	Exchange of Use	19	
f.	Scheduled Use	4003	

2. Season of Use — 4/1 to 10/15

3. Number and Class of Livestock — 615, cow/calf

B. G. Selmi

1. Grazing Preference (AUMs)

a.	Total Preference	130	
b.	Suspended Preference	0	
c.	Active Preference	130	
d.	Not Scheduled	0	
e.	Exchange of Use	26	
f.	Scheduled Use	156	

2. Season of Use — 4/1 to 10/15

3. Number and Class of Livestock — 24, cow/calf

GRAZING SYSTEM (LONG-TERM)

Change the existing livestock grazing strategy.

From:

Year	Calico Pasture 4/1 to 7/31	Dolly Varden Pasture 8/1 to 10/15	Buffalo Hills Pasture 4/1 to 7/31	Granite Pasture 8/1 to 10/15
1989	2563 AUMs	1596 AUMs	Rest	Rest
1990	2563 AUMs	1596 AUMs	Rest	Rest
1991	Rest	Rest	2563 AUMs	1596 AUMs
1992	Rest	Rest	2563 AUMs	1596 AUMs

To:

	Calico Pasture 4/1 to 7/15	Dolly Varden Pasture 7/16 to 10/15	Buffalo Hills Pasture 4/1 to 7/31	Granite Pasture 8/1 to 10/15
YR 1	2226 AUMs	1933 AUMs	Rest	Rest
YR 2	2226 AUMs	1933 AUMs	Rest	Rest
YR 3	Rest	Rest	2563 AUMs	1596 AUMs
YR 4	Rest	Rest	2563 AUMs	1596 AUMs

INTERIM GRAZING SYSTEM (SHORT-TERM)

Due to wild horse numbers and the inability to reduce to AML, an interim management plan has been developed. This plan will be followed until wild horse numbers can be reduced to AML and the proposed grazing strategy can be implemented. It will consist of maintaining the present livestock numbers, changing on/off dates, and moving livestock to pastures with available AUMs. The scheduled rest pastures will also be grazed if there are available AUMs, and some of the pastures scheduled for livestock use will not be used until wild horses are brought to AML. The ensuing table summarizes the grazing strategy to be followed during the interim.

	Calico	Dolly Varden	Buffalo Hills	Granite
1993	No Use	7/16 to 10/15	4/1 to 7/15	No Use
1994	No Use	8/1 to 10/15	4/1 to 7/31	No Use

This plan consists of grazing the Buffalo Hills pasture in 1993 and 1994 during the first half of the grazing season. Livestock will then be moved to the Dolly Varden pasture and grazed during the second half of the grazing season. The Calico pasture will be rested from livestock use in 1993 to accommodate the excess wild horses. The Granite Pasture will also be rested from livestock use as scheduled, but will still be over allocated due to wild horse numbers. **The situation will be examined on a yearly basis to determine if it is feasible to progress with the proposed grazing system or continue with an amended version.**

LIVESTOCK DECISION ACTIONS

1) Improve Livestock Distribution

Require permittees to herd livestock so the short term utilization objectives (eventually becoming management actions) for stream bank riparian, wetland riparian and upland habitats are achieved. Also identify and develop any water projects that are needed to facilitate proper use of each pasture.

2) Limit utilization on important streams (Short Term Objective #1.) to:

(a) 30% use on key species at any time during the livestock use period or livestock will be moved within the pasture or removed from the pasture. This will be implemented with the start of the 1993 grazing season and will be followed even if wild horse AMLs are not attained.

(b) 15% on key species by wild horses at any time during livestock rest years. If this level of use and the 20% level on uplands (Management Action #4) cannot be met then the AML will be adjusted.

(c) If monitoring indicates that utilization levels cannot be kept below 30% during combined livestock and wild horse use periods (after the grazing strategy is implemented and wild horse numbers are at AML) then the streams will be fenced.

3) Conduct a re-evaluation in 1999 analyzing Resource Objectives developed from the ecological site inventory to determine if desired plant community objectives are being met. **If resource problems are identified a re-evaluation will be conducted sooner**.

4) Conduct a re-evaluation in 2017 to determine if long term desired plant community objectives have been achieved.

TERMS AND CONDITIONS

The below mentioned terms and conditions will be incorporated into the respective permittees term permit and their annual authorization via the grazing bill:

Grazing use will be in accordance with this grazing decision.

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

The permittees are required to perform normal maintenance on the range projects which they have been assigned maintenance responsibility.

Permittees shall be required to perform necessary riding (herding) to insure compliance with the decision actions described on page 6.

Actual Use will be submitted by November 15 each year.

AUTHORITY

The authority for this decision is contained in Title 43 of the Code of Federal Regulations; pertinent citations are below:

4100.0-8	Land use plans	4110.3	Changes in grazing preference status
4120.3-1(a)	Conditions for range improvements	4120.3-2	Cooperative agreements
4120.3-7	Contributions for range improvements	4130.6	Terms and conditions
4130.6-1(a)	Mandatory terms & conditions	4130.6-2	Other terms & conditions
4130.6-3	Modifications (CCC process)		

WILD HORSE MANAGEMENT DECISION

WILD HORSE OBJECTIVES

Allotment specific objective for Wild Horses on the Buffalo Hills Allotment are:

Maintain and improve the free-roaming behavior of wild horses by:

(a) protecting their home ranges.

(b) assuring free access to water.

WILD HORSE DECISION ACTIONS

1) To realize the benefit of the rest treatment it is necessary that wild horse use not exceed 20% utilization on key species by July 15 in the rest pastures. If use exceeds 20%, the AML for wild horses will be adjusted so that this management criteria can be met.

The 20% utilization limit on key species by July 15 will limit use sufficiently so that the key species will be able to reach seed ripe and receive the benefits of a rest treatment. This allows the plants to gain vigor through building of carbohydrate reserves and allows seed production and dispersal for reproduction. If wild horse use is not limited in the rest pastures then benefits of a rest rotation grazing system will not be realized and the plant communities will not maintain or improve in condition.

2) Prevent the wild horse population from exceeding AML in order to keep utilization levels within established limits to achieve a Thriving Natural Ecological Balance and to provide for a healthy and thriving wild horse population. The stocking rate for livestock and establishment of an AML for wild horses is based on calculations from monitoring studies. If numbers of either animal were to exceed the calculated carrying capacity it would not be possible to meet utilization goals and to maintain or improve the condition of plant communities thereby not providing for a Thriving Natural Ecological Balance.

To accomplish this goal it is necessary to calculate the number of wild horses to be removed based on the cycle of gathers. Presently, BLM is planning to gather HMAs every three years as set by the Wild Horse and Burro Strategic Plan. Based on this gather cycle and using existing information on herd recruitment from reproduction, the number to gather would be calculated so that the horses would be at AML when the next gather occurred three years later.

If the cycle of horse gathers is changed from three years, then the numbers of wild horses would be adjusted to fit the gather cycle so that numbers do not exceed AML before a scheduled gather date.

WILD HORSE APPROPRIATE MANAGEMENT LEVELS
(ALLOCATION)

The following wild horse AMLs are based on monitoring, and should result in a thriving natural ecological balance for the three herd management areas.

HMA	AML	AUMs
Buffalo Hills	314	3768
Granite Range	258	3096
(Granite pasture)	(76)	(912)
(Dolly Varden past.)	(182)	(2184)
Calico Mountains*	142	1704
Total	714	8568

* Only 36% of the Calico Mountains HMA is contained within the Buffalo Hills Allotment. The number of horses shown is for that part of the HMA within the allotment.

Once AML is reached the wild horse population will be maintained within the following ranges in order to ensure that the carrying capacity is not exceeded. These ranges are based on gathering horses every three years. If gathering schedules change, these ranges may also change.

HMA	75% of AML to AML	AUM's
Buffalo Hills	235 to 314	2820 to 3768
Granite Range	193 to 258	2316 to 3096
(Granite pasture)	(57) to (76)	(684) to (912)
(Dolly Varden past.)	(136) to (182)	(1632)to(2184)
Calico Mountains	106 to 142	1272 to 1704
Total	534 to 714	6408 to 8568

RATIONALE: During the evaluation period wild horse numbers have exceeded the recommended evaluation and LUP level of 7164 AUMs (in 1991 by almost 15,000 AUMs). Wild horses have made disproportionate use of the forage resource during the evaluation period due to the high population levels found in each pasture.

All of the riparian, uplands, and meadows objectives were not met at one time or another due to poor livestock distribution, unauthorized livestock use by non permittees, and wild horse use as a result of excessive numbers. The poor livestock distribution could be attributed to a lack of herding or alternative water sources and to competition for forage, space, and water with wild horses.

AUTHORITY

The authority for this decision is contained in Sec. 3(a) and (b) of the Wild-Free-Roaming Horse and Burro Act (P.L. 92-195) as amended and in Title 43 of the Code of Federal Regulations, which states:

4700.0-6(a) Population levels

4710.4 Management

4720.1 Removal

WILDLIFE MANAGEMENT DECISION

WILDLIFE OBJECTIVES

The allotment specific objectives for wildlife habitat on the Buffalo Hills Allotment are:

Protect sage grouse strutting grounds and brooding habitat and improve nesting and wintering habitat by:
(WL-1.11)

a) Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.

b) Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.

REASONABLE WILDLIFE NUMBERS

Reasonable numbers for wildlife will remain the same as the 1988 evaluation. They are:

	Number	AUMs
Bighorn Sheep	512	1228
Mule Deer	2113	6340
Pronghorn	479	1060

RATIONALE: Analysis of the existing management and monitoring of wildlife and wildlife habitat indicates that wildlife populations are not significantly contributing to the failure in meeting the 1988 allotment agreement objectives.

A final decision will be issued at the end of the protest period and I propose to issue that final decision in Full Force and Effect in accordance with:

43 CFR 4160.3(c) - "....The authorized officer may place the final decision in full force and effect in an emergency to stop resource deterioration. Full force and effect decisions shall take effect on the date specified, regardless of an appeal (emphasis added)"

43 CFR 4770.3(c) - "The authorized officer may place in full force and effect decisions to remove wild horses or burros from public or private lands if removal is required by applicable law or to preserve or maintain a thriving ecological balance and multiple use relationship. (emphasis added) Full force and effect decisions shall take effect on the date specified, regardless of an appeal. Appeals and petitions for stay of decisions shall be filed with the Interior Board of Land Appeals as specified in this part."

The rationale to implement the decision Full Force and Effect is the immediate need for the removal of wild horses. The combined current forage demand by livestock and wild horses of 26,155 AUMs exceeds the calculated carrying capacity of 12,727 AUMs. If horses are not removed immediately the following will occur:

- Unacceptable degradation of crucial habitat for bighorn sheep and mule deer will continue.

- Unacceptable degradation of riparian areas will continue.

- Progression toward the attainment of a Thriving Natural Ecological Balance and Multiple Use Relationship within this allotment will be delayed for another year.

- There is potential for loss or substantial damage to the health of the wild horse population at the existing AUM demand and current winter conditions.

If horses are not removed immediately it would not be possible to conduct a removal until the following winter. Wild horse removals are not conducted from March 1 to June 30 to minimize the risk of injury to pregnant mares and young foals. Past gathering experience in these HMAs found that summer and fall removals resulted in substantial injuries to foals.

If you wish to protest this Proposed Full Force and Effect Multiple Use Decision in accordance with 43 CFR 4160.2, you are allowed fifteen (15) days from receipt of this notice within which to file such protest in person or in writing with the Area Manager. Protests should be sent to:

Area Manager
Sonoma-Gerlach Resource Area
Bureau of Land Management, Winnemucca District
705 E. 4th Street
Winnemucca, NV 89445

Sincerely yours,

Bud Cribley, Area Manager
Sonoma-Gerlach Resource Area

BUFFALO HILLS ALLOTMENT RE-EVALUATION

Table of Contents

BUFFALO HILLS ALLOTMENT
Re-Evaluation Summary

I. INTRODUCTION

The purpose of this document is to evaluate the effectiveness of existing management in meeting short term objectives and if there is progression toward the achievement of long term objectives which were outlined in the 1988 Buffalo Hills Allotment Evaluation and livestock agreement, the Fox Mountain Habitat Management Plan, and the Buffalo Hills Allotment Management Plan. The re-evaluation is based on an analysis of monitoring data collected during the evaluation period which included actual use (livestock and wild horses), climate, utilization, stream survey, wild horse distribution and wildlife habitat data. The re-evaluation has determined the overall carrying capacity by pasture for the allotment, establishes an appropriate management level (AML) for wild horses, a stocking level for livestock, and outlines the time frames for requantifying the existing wetland riparian habitat, upland habitat, initial stocking level/sustained yield, and range/ecological condition objectives.

The allotment is managed as a multiple-use area which includes many activities in addition to the family run cattle operation, wild horse habitat, and wildlife habitat analyzed in this document. Other multiple use activities which occur throughout the allotment that are not within the scope of this re-evaluation include hiking, camping, hunting, fishing, domestic sheep trailing and a recreational cattle drive.

The Buffalo Hills Allotment is immediately north of Gerlach, Nevada and is located in a portion of northern Washoe County, the northwestern portion of Pershing County and the southwestern portion of Humboldt County.

The allotment is within the Basin and Range Physiographic province. Typical features of the area are the high elevation north-south trending mountain ranges, numerous buttes and mesas with rim rock bluffs, steep rocky canyons, and gently rolling terrain to the broad flat Hualapai Valley. Elevations vary from 4,000 feet on the desert floors to over 9,000 feet on the higher peaks.

The allotment contains 461,739 acres made up of 431,006 acres of public land and 30,733 acres of private land. Vegetation ranges from greasewood-shadscale, salt grass communities at lower elevations to bitterbrush, mountain mahogany, needlegrass communities in higher elevations.

A. Buffalo Hills Allotment (#00127)

B. Permittees - A. F. Jackson
Guiseppe Selmi

C. Evaluation Period - 1988 through 1991

D. Selective Management Category and Priority - Category I, Priority 2

E. Livestock Preference, Wild Horse, and Wildlife Numbers

1. Livestock Preference

Operator	Active	Suspended	E.O.U.*	Total	Lvstk	Use Period
A.F. Jackson	3984	0	19	4003	615	4/1 - 10/15
G. Selmi	130	0	26	156	24	4/1 - 10/15

* Exchange -of- Use AUMs are authorized on unfenced private lands which are accessible and suitable for all authorized livestock grazing during the same periods as the public lands. Grazing use allowed cannot exceed the livestock grazing capacity of the private lands offered.

2. Recommended Wild Horse Numbers from the 1988 Evaluation

HMA	AML*	AUMs
Buffalo Hills	272	3264
Granite Range	176	2112
Calico Mountains	149**	1788

* AML refers to the number of wild horses listed in the Sonoma- Gerlach MFP-III Wild Horse and Burro decision 1.1, to be used as a starting point for monitoring purposes. In accordance with the June 7, 1989 Interior Board of Land Appeals Ruling (IBLA 88-591) adjustments to wild horse populations and establishment of AMLs will be based on monitoring data to obtain the optimum number of wild horses which results in a Thriving Natural Ecological Balance and avoids deterioration of the range.

** Buffalo Hills and Calico Allotments combined. Only 36% of the Calico Mountains HMA is contained in the Buffalo Hills Allotment. The number of horses shown is for that part of the HMA within the allotment.

3. Wildlife Numbers

These are reasonable numbers established for wildlife in the Sonoma - Gerlach MFP- III (WL 1.1) and are a combination of the Buffalo Hills and Calico Allotments.

	Number	AUMs
Bighorn Sheep	512	1228
Mule Deer	2113	6340
Pronghorn	479	1060

II. SUMMARY OF 1988 ALLOTMENT EVALUATION AND OBJECTIVES

A. The initial allotment evaluation conducted in 1988 concluded that the upland short term utilization objectives were met except in the priority mule deer habitat adjoining the Fox Mountain Fire. The short term utilization objectives for stream bank and wetland riparian were not being met. Factors contributing to not meeting the objectives are as follows:

1. Imbalance of livestock distribution due to steep, rocky topography, inadequate water distribution, tendency of livestock, wildlife, and wild horses to concentrate in upland riparian zones, movement of Susanville livestock across the western boundary, and AML's being 95% to 220% above AML allotment wide at various intervals.

2. The lower country of Buffalo Hills, Granite, and Dolly Varden Pastures were not grazed by livestock.

3. Due to the Fox Mountain burn, which removed approximately half of the priority mule deer area, the mule deer use was concentrated in the unburned habitat. Antelope, horse, and cattle utilization increased in the burned portion of Fox Mountain allowing slow fire recovery.

4. Current stocking levels and grazing management system provided for a sustained yield on forage in the upland site to benefit all ungulates.

B. Based on the preceding conclusions, the 1988 Evaluation developed allotment specific objectives which are illustrated in Appendix 1. Fox Mountain HMP objectives not addressed in the 1988 Evaluation are also listed and addressed in this Appendix 1 II. The 1988 Evaluation covered objectives from the Buffalo Hills AMP so they are not re-stated in this document.

III. MANAGEMENT ACTIONS FROM PREVIOUS DOCUMENTS

A. Grazing System from 1988 Evaluation

The two allotments, Calico and Buffalo Hills, were combined to one allotment and divided into four grazing pastures. The following chart shows the grazing system that was used.

Year	Calico Pasture	Dolly Varden Pasture	Buffalo Hills Pasture	Granite Pasture
1989	Graze 4/1 to 7/31	Graze 8/1 to 10/15	Rest	Rest
1990	Graze 4/1 to 7/31	Graze 8/1 to 10/15	Rest	Rest
1991	Rest	Rest	Graze 4/1 to 7/31	Graze 8/1 to 10/15
1992	Rest	Rest	Graze 4/1 to 7/31	Graze 8/1 to 10/15

Livestock (639 cows) shall be turned out on 4/1 into one of four pastures where they remain until 8/1. The livestock are then moved into the summer pasture and remain from 8/1 until 10/15 and then trail to private land. Two of the pastures are rested for the entire season. This rotation is repeated the 2nd year, then grazing is switched to the two rested pastures for two years. Any use above 639 cows, if authorized, would be made during the winter 10/16 to 2/28. This is effective until such time as monitoring confirms that there is proper livestock distribution.

B. Planned Actions from the Fox Mountain HMP are included and addressed in Appendix 1, III.

C. Monitoring Program

1. Refer to the monitoring section of the Buffalo Hills AMP for specific details. This plan is designed to describe the rangeland monitoring program and methodology that will be implemented in the Buffalo Hills and Calico Allotments. Standardized monitoring studies have been established on the Buffalo Hills and Calico Allotments and the gathering of

data was initiated in 1984. Rangeland monitoring was conducted prior to 1984. The earliest studies conducted were 3 x 3 photo trend plots. These earlier studies will either be updated to present standards or if unsuitable, files will be maintained for future reference.

2. The process for establishing initial and subsequent levels of livestock grazing use and the rangeland monitoring program are discussed in the Rangeland Program Summary (RPS). The method for implementing the rangeland management program in the planning area will occur through monitoring and the selective management approach.

3. The monitoring program in the Buffalo Hills and Calico Allotments is designed to determine if the established management objectives are being met. Grazing is one of the tools being used to meet these objectives. Monitoring will indicate if grazing use is following the annual operations. The objectives will be evaluated on a long-term basis utilizing permanent transects in key and/or critical areas. Short and long term management actions adjustments and/or decisions will be based on the evaluation of the results of these monitoring studies.

4. Monitoring Program from the Fox Mountain HMP Specific or special studies undertaken to monitor progress of the planned actions are:

   a. <u>Middle Fork/Fox Mtn. Fire Recovery Study</u>

      A total of 6 Community Structure Analysis (CSA) transects are read to compare burned with unburned areas to determine the recovery of the burns in relation to what 3 key vegetation sites were prior to the fire. Guidance for these transects is given in BLM Technical Reference 4400-4 Rangeland Monitoring-Trend Studies 1985.

      Small mammal trapping is also performed for 105 trap nights in each of the vegetation sites (burned and unburned) where the CSA transects are read. This is supplemental monitoring to check any changes in diversity between the burned and unburned areas.

      Locations of these transects are provided below. Additional information can be obtained from the study files maintained in the Sonoma-Gerlach Resource Area.

      Middle Fork No. 1 T. 37 N., R. 23 E., Sec. 19, NWSE

      Middle Fork No. 2 T. 37 N., R. 23 E., Sec. 19, SWNE

Fox Mtn. No. 1	T. 36 N., R. 22 E., Sec. 17, NESE
Fox Mtn. No. 2	T. 36 N., R. 22 E., Sec. 17, NESE
Fox Mtn. No. 3	T. 36 N., R. 22 E., Sec. 28, NESW
Fox Mtn. No. 4	T. 36 N., R. 22 E., Sec. 28, NESW

b. Fox Mountain Browse Studies

Two browse studies have been placed in the Fox Mtn. area. One study is in a summer use area. The other study is in a winter use area. Key species for these studies are antelope bitterbrush (Purshia tridentata), snowberry (Symphoricarpos oreophilus), serviceberry (Amelanchier alnifolia) and currant (Ribes velutinum). Methodology used is the Extensive Utilization Method as described in BLM Technical Reference 4400-3 Rangeland Monitoring-Utilization Studies.

Locations of the studies is listed below. Additional information is available in the Fox Mountain Browse Study file in the Sonoma- Gerlach Resource Area.

Fox Mtn. No. 1	T. 36 N., R. 22 E., Sec. 30, SENW
Fox Mtn. No. 2	T. 36 N., R. 22 E., Sec. 17, NESE

c. The Buffalo Hills, Calico, Coyote, and Leadville Allotment Monitoring Plans

Allotment monitoring plans within the WHA provide for wildlife key forage species analysis. All key areas are selected with wildlife as a consideration.

d. Stream-Fisheries Habitat Monitoring

Cottonwood, Granite, Red Mountain, Rock, Clear, and Wagon Tire Creeks have been monitored biennially or will begin to be monitored in odd years beginning in 1989.

IV. MONITORING AND INVENTORY DATA ANALYSIS

A. Summary of Studies

1. Actual Use: Actual use is defined as where, how many, what kind or class of animal, and how long the animals graze on an allotment. This information is illustrated in the following sections.

a) Licensed Livestock Use

(1) Operator

A.F. Jackson

Year	AUMs
1988	4003
1989	4003
1990	4003
1991	4003

G. Selmi

Year	AUMs
1988	156
1989	156
1990	156
1991	156

(2) AUMs per season of use by pasture:

Year	Calico Pasture 4/1 to 7/31	Dolly Varden Pasture 8/1 to 10/15	Buffalo Hills Pasture 4/1 to 7/31	Granite Pasture 8/1 to 10/15
1988	Rest	Rest	2563 AUMs	1596 AUMs
1989	2563 AUMs	1596 AUMs	Rest	Rest
1990	2563 AUMs	1596 AUMs	Rest	Rest
1991	Rest	Rest	2563 AUMs	1596 AUMs

b) Wildlife

The Nevada Department of Wildlife (NDOW) does not provide wildlife population data by allotment. BLM has calculated population estimates for mule deer, bighorn sheep, and antelope based on NDOW's annual report. The mule deer and antelope estimates were made using a dot grid to calculate the proportion of each hunt unit in each allotment. The bighorn sheep estimates are actual estimates as noted by NDOW. Actual numbers are in Appendix 2.

Mule deer estimates appear to be quite variable. Numerous factors may cause or add to this situation. The weather during the census may be a factor, the drought could be responsible for deer movements along with the mobility of deer as fences are not a barrier. Mule deer may be impacted due to the high wild horse numbers and their avoidance of the wild horses, especially at watering sites. With the mule deer population, the stress from the excessive wild horse numbers may be a prominent factor until the wild horse population is reduced to AML or below.

The pronghorn antelope population has been increasing during the evaluation period. The population increase has been attributed to mild winters that allows easier access to forage, which leads to improved body condition and survival of adults, and increased kid survival.

Bighorn sheep estimates indicate the population is expanding to possibly more areas in the Granite Range. Drought which causes low flow springs to dry up and the avoidance of larger species like horses may impact this species the most. Presently, the bighorn sheep population appears to be viable as long as domestic sheep conflicts do not occur. The potential conflicts have been documented as direct nose to nose contact or close proximity contact. To date, these bighorn sheep are not known to have been impacted by domestic sheep trailing near the bighorn sheep habitat.

c) Wild Horses

Actual use data for wild horses is derived from the total number of horses (adults and foals) inhabiting a Herd Management Area multiplied by 12 months (March 1 thru February 28). The number of wild horses is based on the most recent helicopter census of an HMA. For years in which an aerial census was not conducted a population estimate is calculated by multiplying the previous year's census or population estimate by 11% as outlined in the Draft Sonoma-Gerlach Grazing Environmental Impact Statement. The 11% rate of increase is based on an analysis of helicopter census data collected by experienced personnel in the Sonoma-Gerlach Resource area in 1974, 1977, and 1980 and verified by data gathered during Wild Horse and Burro removals.

The census population is obtained by utilizing a helicopter to conduct a direct count of all adults and foals found within an HMA. This method assumes

complete coverage of the HMA and observation of all animals. However, Cauley (1974) found in his study and literature search that the closest an aerial survey ever came to the actual population size was 89%. Wagner reported that studies conducted in four horse management areas (Nevada - 2, Oregon and Wyoming) showed about 93% accuracy in areas of low vegetation and moderate terrain, while 60% of the animals in wooded and mountainous topography were missed (TRANSACTIONS of the Forty-eighth North American Wildlife and Natural Resources Conference). Actual use is calculated on the total census population to more closely approximate the true forage demand made by wild horses since it is recognized that all animals are not observed during a census.

When conducting a census, an HMA is flown in a modified transect pattern utilizing topography and natural or man-made barriers to ensure complete coverage and that animals are not counted twice. The following tables show the number and AUM demand of wild horses in the allotment by pasture.

Calico Pasture - Calico Mountains HMA

Year	Population - Head	AUMs
1988	358	3,324*
1989	375	4,500
1990	416	4,992
1991	462	5,544
1992	365	4,380

* actual use has been adjusted to reflect the removal of 81 wild horses in December 1988

Dolly Varden Pasture - Granite Range HMA

Year	Population - Head	AUMs
1988	443	5,316
1989	469	5,628
1990	521	6,252
1991	578	6,936
1992	620	7,440

Buffalo Hills Pasture - Buffalo Hills HMA

Year	Population - Head	AUMs
1988	602	7,224
1989	704	8,448
1990	781	4,476*
1991	414	4,968
1992	586	7,032

* actual use has been adjusted to reflect the removal of 408 wild horses in January 1990

Granite Pasture - Granite Range HMA

Year	Population - Head	AUMs
1988	181	2,172
1989	307	3,684
1990	341	4,092
1991	379	4,548
1992	530	6,360

The 1988 and 1989 population levels are from helicopter census data collected in September 1988 and July 1989. The 1990 and 1991 population level is an estimate based on an 11% increase of the 1989 census population. The 1992 population level is from helicopter census data collected in October 1992.

d) The following tables show a summary of the recommended forage demand from the 1988 allotment evaluation and a summary of the actual use made in the allotment during this evaluation period. Actual use is further illustrated in Figure 1.

1988 - Recommended Forage Demand Summary - Aums

Pasture	Livestock	Wild Horses and Burros	Wildlife	Pasture Totals
Calico	2563	1788	-	4351
Dolly Varden	1596	1512	-	3108
Buffalo Hills	2563	3264	-	5827
Granite	1596	600	-	2196
Allot. Total	8318 1/	7164	8628 2/	24110

1/ A total of 19551 Aums of use by livestock, wild horses and wildlife each year were identified in the 1988 allotment evaluation. The 1988 allotment evaluation limited livestock use to the carrying capacity allowed for livestock in each pasture. The remaining 4159 Aums in the rest pastures would not be used in order to promote increased vigor and health in

the plant communities and maintain a Thriving Natural Ecological Balance.

2/ Initial AUM demand for the allotment from the 1988 allotment evaluation. Wildlife Aums were not broken down to a pasture level basis.

Actual Use Summary - Aums

Pastures		Year 1988	1989	1990	1991
Calico (spring)	Livestock	0	2563	2563	0
	WH/B	3324*	4500	4992	5544
Dolly Varden (summer)	Livestock	0	1596	1596	0
	WH/B	5316	5682	6252	6936
Buffalo Hills (spring)	Livestock	2563	0	0	2563
	WH/B	7224	8448	4476*	4968
Granite (summer)	Livestock	1596	0	0	1596
	WH/B	2172	3684	4092	4548
Yearly Allot. Totals	Livestock	4159	4159	4159	4159
	WH/B	18036	22314	19812	21996
	Wildlife	6178	3895	9883	6291
TOTALS		28373	30368	33854	32446

* Actual use has been adjusted to reflect the removal of 81 wild horses from the Calico pasture in 1988, and 408 wild horses from the Buffalo Hills pasture in 1990.

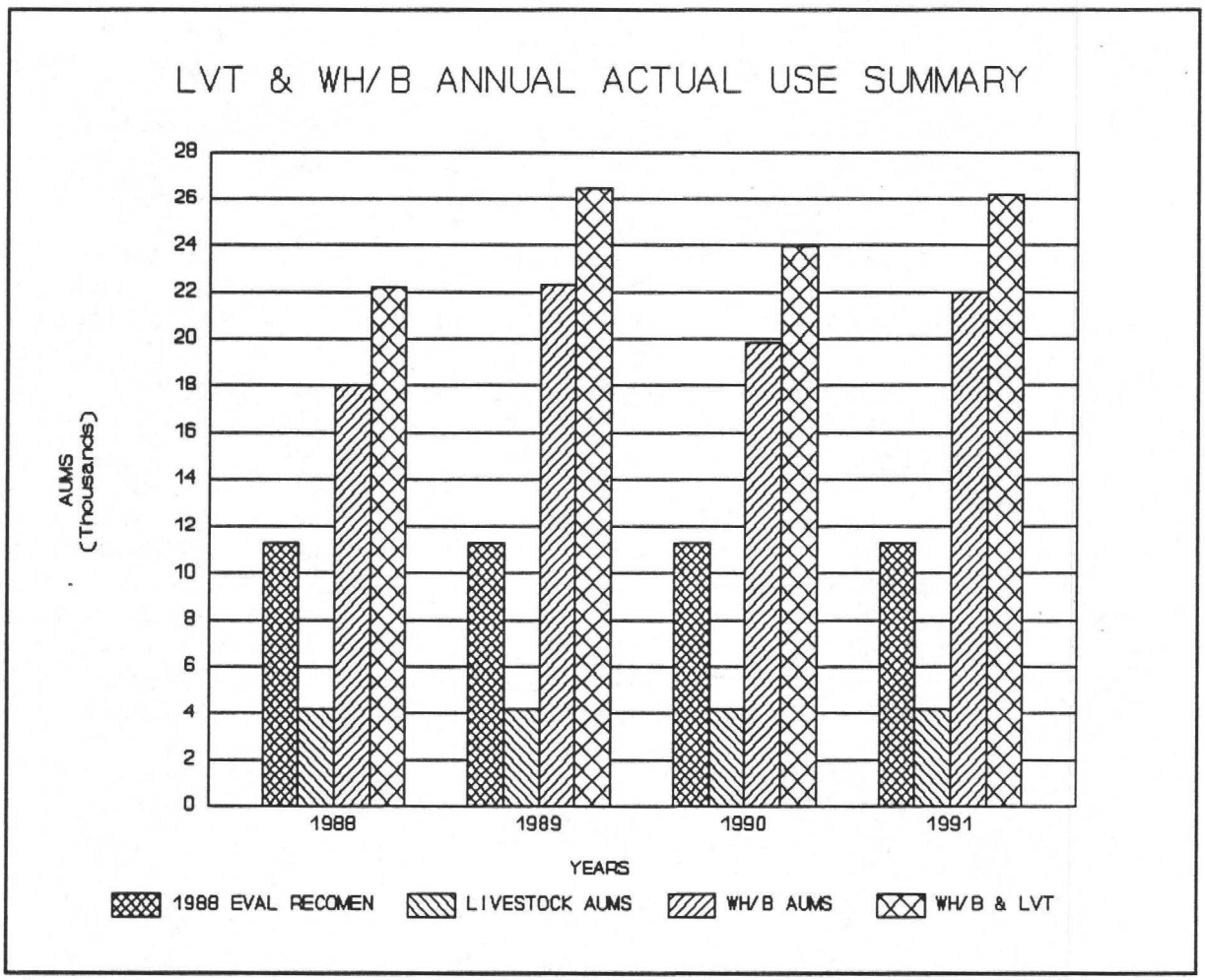


Figure 1

2. **Wild Horse Removal Data**

December 1988	81 head	Calico Mtns. HMA
January 1990	408 head	Buffalo Hills HMA

The removals were gate cut captures (all captured animals removed) which did not selectively remove age groups of horses. At the completion of each removal, horses which remained on the HMA's were a normal age structure

population.

3. Climatological Data

There are six weather stations that collect climatological data that are relatively close to the Buffalo Hills Allotment. Four of the stations are well established National Oceanic and Atmospheric Administration (NOAA) sites and two are BLM Remote Automated Weather System (RAWS) sites. Based on the data collected at these stations we were able to draw some conclusions about how this allotment has been influenced by precipitation patterns since the last evaluation. At the NOAA stations the growing season precipitation has averaged 75% to 138% of normal (2.89" to 5.36") from 1988 to 1991. The annual average has averaged 77% to 102% of normal (6.16" to 8.10") during this period. Although this data does not indicate that the allotment has been affected by drought, some of the springs have died up and areas that usually have abundant supplies of water are extremely low. Timing, form, and amount of precipitation in each event, along with spring time temperatures are all factors which could contribute to lack of recharge. Although the stations are fairly close to the allotment and can be used as a relative indicator of precipitation storm events in this area tend to be highly localized and variable so actual precipitation on the allotment is not available. Reference Appendix 3.

4. Utilization Data and Analysis

There were two study methods used during the evaluation period to collect forage utilization data: key forage and use pattern mapping. Key Forage Plant Utilization transects were read at Key Area monitoring sites established throughout the allotment in 1982, 1984 and 1985. The purpose for collecting Key area utilization data is to determine the relationship between utilization levels and changes in trend of each ecological site where key areas are established.

Use Pattern Maps (UPM) were used to determine utilization zones and levels within each pasture. Key Forage Plant Utilization transects were completed on upland and riparian sites to supplement use pattern maps and to differentiate and ascertain use zones and their levels. This data has been used to assess the effectiveness of existing management and to calculate a desired stocking level for each pasture. That will result in progression toward attainment of short and long term objectives. The procedures used to collect this data can be found in the Nevada Rangeland Monitoring Handbook and BLM Technical Reference 4400-3. General analysis of the data is below and detailed data summaries

for each pasture are in Appendix 5.

Authorized livestock use the allotment in a deferred rest-rotation system and are present on the allotment from April to October. Wild horses, mule deer, and pronghorn antelope use the allotment throughout the year. Bighorn sheep are present in the Calico and Granite pastures, and use these two areas throughout the year. Monitoring was conducted to determine the amount of utilization occurring throughout the allotment and to what user it could be attributed.

Pre-livestock monitoring measures the amount of horse and wildlife use occurring before livestock are turned out. Post-livestock and total use monitoring measure combined utilization levels of all users. Monitoring data collected during rest years shows wild horse and wildlife use. Regardless of when data was collected, use pattern mapping tends to show that the water sources, meadows, and certain upland areas are consistently receiving heavy use. The high levels of use occurring before livestock turnout and during rest years indicate that uncontrolled wild horse numbers are a major contributor to heavy use areas. Post-livestock use patterns indicate that poor livestock distribution is also a factor. A more detailed pasture level analysis is contained on pages 26-30 under Short Term Objectives 1-3.

5. Trend

Key areas were established in 1984 for the purpose of trend studies. Data was collected, on most areas, in 1984, 1985, 1986, and 1987 to establish base line data. Data was collected again in 1988.

The frequency and trend data collected during the evaluation period (1988-1991) is not adequate to determine an upward, downward, or static trend. Variations in the data collected were too great to be valid due to difference in readers and lack of training.

6. Ecological Status

An ecological site is a distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. An ecological site is the product of all environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differ from that of other range sites in the kind or proportion of species or in total production.

Ecological sites are a basic component of rangeland inventories. They are ecological subdivisions into which

rangeland is divided for study, evaluation, and management. The ecological site map provides the basic ecological data for planning the use, development, rehabilitation, and management of the rangeland.

Ecological site information can be interpreted as to suitability of a site for a single use as grazing or for many other uses, such as wildlife habitat, recreation, natural beauty, watershed, and open space.

An ecological site inventory (ESI) has not been completed on this allotment. ESI data has been collected on some areas in the allotment and is scheduled for completion in the fall of 1993. Upon completion of the ecological site inventory, Desired Plant Community objectives will be developed for each pasture. Desired Plant Communities are the plant communities that produce the kind, proportion, and amount of vegetation necessary for meeting or exceeding the Land Use Plan goals and activity plan objectives established for the site.

7. Stream Survey Data

Streams were surveyed to determine percent of optimum stream habitat available according to stream inventory methods in the BLM Manual Handbook 6720-1 with adaptations developed by the Elko and Winnemucca BLM Districts. Level III inventories were conducted collecting data to determine pool/riffle ratios, pool quality, percent of desirable bottom substrate, bank cover and bank stability. A Habitat Condition Index (HCI) is then determined for the stream by averaging the values for the above ratings. This is expressed as a percentage of optimum for the stream. Objectives for stream habitat are also expressed as a percentage of optimum. Because the criteria for optimum ratings for pool quality and bank cover are probably unachievable for the stream habitats in northwestern Nevada, HCI ratings above 75% are highly unlikely for most of the streams in this allotment for the following reasons:

- Optimal pool depths need to be 3 feet deep or deeper which is not possible in this area.

- Optimum bank cover would be composed primarily of trees which is not possible for most of these streams.

The following is data collected on streams in the allotment:

a) Red Mountain Creek - Dolly Varden Pasture

Data collected in 1989 revealed that conditions

improved significantly from a percent optimum of 37% in 1987 to 65% in 1989. A riparian exclosure was completed on Red Mountain Creek in 1990 to improve degraded stream conditions.

b) Cottonwood Creek - Granite Pasture

Cottonwood Creek has been identified by the Winnemucca District as proposed Lahontan cutthroat trout habitat. This system has also been identified by the Nevada Department of Wildlife (NDOW) as a phase III Lahontan cutthroat trout recovery stream in NDOW's draft Quinn River Basin Management Plan. Riparian data has not been collected since 1987. At that time, the percent overall optimum had declined from 63% in 1977 to 49% in 1987. It is unknown what condition the riparian zone is in along Cottonwood Creek at the present time.

c) Wagon Tire Creek - Dolly Varden Pastures*

Available information shows that the percent overall optimum for Wagon Tire Creek remains poor at 30% (1989 data). No riparian data has been collected since 1989 to indicate whether conditions have improved. Wagon Tire Creek has been proposed as Lahontan cutthroat trout habitat by the Winnemucca District of the B.L.M.

*The portion of Wagon Tire Creek falling in the Granite Pasture will be managed with Cottonwood Creek.

d) Granite Creek - Granite Pasture

Data was collected on the condition of the riparian zone and stream for Granite Creek in 1992. At that time, the percent overall optimum was excellent at 74%. However, the section of Granite Creek just upstream from the Granite Ranch fence is in poor condition at 25% of optimum due to a lack of pools. The lack of pools in the lower section combined with the excess of pools in the upper two sections surveyed results in this stream having an overall excellent pool/riffle ratio. Granite Creek has been proposed as Lahontan cutthroat trout habitat by the Bureau of Land Management.

e) Rock Creek - Granite Pasture

Data collected in 1992 indicated that the percent overall optimum had decreased from 65% in 1977 to 53% in 1992. Bank cover and pool quality are the limiting factors identified in the inventory.

f) Donnelly Creek - Calico Pasture

Information collected on Donnelly Creek shows that the percent overall optimum dropped from 53 % in 1977 to 48% in 1988. No additional data on the condition of Donnelly Creek in the Buffalo Hills Allotment has been collected. Donnelly Creek has been identified by NDOW as a phase II Lahontan cutthroat trout recovery stream in NDOW's draft Quinn River Basin Management Plan.

g) Negro Creek - Dolly Varden Pasture

No data available.

h) Cane Springs Creek - Calico Pasture

This creek was identified by NDOW as having fisheries potential. An inventory was completed in 1992 and conditions were shown to be fair at 53% of optimum. Pool quality and bank cover are the limiting factors identified by the inventory.

8. Wild Horse Distribution

Data on the distribution of wild horses has been collected from the ground and by aircraft (helicopter and fixed-wing) since 1988. In 1990, winter distribution flights were initiated to identify and map the location of winter habitat area(s) in each HMA. As funding became available, distribution flights were expanded to include spring, summer and fall flights to determine if wild horses were found utilizing well defined areas within an HMA during these seasons.

Distribution of horses in the allotment appears to be primarily affected by weather conditions and forage and water availability. During the period covered by this evaluation there was very little snow pack on the mountains, which allowed the horses to occupy all habitats from the lower to higher elevations throughout the year.

When collecting distribution data by fixed wing aircraft the objective is to identify those areas that wild horses are utilizing at that point in time, not to obtain as accurate a count as a helicopter census. The entire HMA is flown in a transect pattern with the flight lines ranging from 1/2 mile to 2 miles apart depending on visibility and flight

conditions. In steep mountainous country the straight line transects are modified to follow the topography of the area to ensure complete coverage. Aircraft altitude ranged from approximately 300 to 600 feet above ground level, depending on visibility and local flight conditions.

During the evaluation period data was collected from 2 different fixed wing aircraft, a Maule M-5 and a Cessna 210. In addition to the fixed wing distribution data, each helicopter census provides distribution information on wild horses. When utilizing the Cessna aircraft there were two observers on board, with one of the individuals recording flight lines, animal locations and the number of animals (adults and foals) observed at each location. In areas of high concentrations a total count of all bands was recorded on the map rather than each individual band.

Distribution data collected by the Maule aircraft is stored in an on board computer system. When conducting a flight there were two observers on board the aircraft. As horses were seen, the observer would call out the number of adults and foals to the pilot who would enter the data into the on board computer system. The computer records the number of horses seen (adults and foals), the location of the animals by latitude and longitude using a global positioning system, and any remarks the observer may want to record for a specific sighting. Once the flight is completed, the results are printed out and transferred by hand to an HMA map. This system does not record the general flight path of the aircraft as is done when utilizing the Cessna aircraft. In areas of high concentration a total count of all bands is recorded into the computer system.

Aerial distribution maps are on file in the District Office. Appendix 7 shows the results of each distribution flight, date flown, and the number of horses observed. An analysis of the distribution data collected during the evaluation period was conducted by pasture.

<u>Calico Pasture</u> (Calico Mtns. HMA)

The Calico pasture contains 36% of the Calico Mountains HMA. During the evaluation period horses were found to be occupying most of the habitat through out each year, however there were definite changes noted in animal density during each season.

Analysis of nine data sets collected during the evaluation period indicates that at the end of winter, horses were following the spring green up of grasses from the less productive lower elevation sites to the most productive higher elevations sites around Division Peak and the head

waters of Donnelly Creek. Horses remained at higher elevations where water and forage availability is best through the hot summer period. As temperatures decreased in the fall and forage at higher elevations was depleted, horses scattered through out the pasture. With lower fall temperatures the amount of water required by the horses decreased so they were able to utilize most of the pasture. During the winter period horses were found throughout the area, however, they were primarily located on south/southeast aspect slopes, lower elevation hills and in the Donnelly Flat area. Horses were able to make use of habitat areas that contain little, if any, permanent water by utilizing snow or storm water that had ponded in depressions. They were capable of traveling greater distance between forage and water because their daily water requirement is lower than that required during the hot summer period.

It is not possible to accurately identify critical habitat for horses from the data collected during the evaluation period. There was very little snow pack or severe winter weather conditions which would have moved and concentrated horses into areas that could be identified as critical winter habitat. Since this pasture only makes up 36% of the HMA, it is highly probable that critical winter habitat for some of these animals may lie outside of this area in the adjacent allotments (Leadville, Soldier Meadows). Summer habitat does not appear to be critical. Horses were found in definite areas with good water and forage availability.

It is possible to identify habitat which may prove to be critical for horses within this part of the HMA. Listed below are areas within the pasture which are suspected of being critical habitat, and seasonal use areas. However, this is based on limited data that was collected during a lower than normal precipitation period. The attached pasture map shows the location of suspected critical habitat and seasonal use areas.

<u>Suspected Critical Habitat</u>

Winter
1. Razor Creek south to the northern edge of Hualapai Flat and east to Cain Spring.
2. East side of the Calico Hills from Petrified Canyon south.

<u>Seasonal Use Area(s)</u>

Summer
1. Elevations above 6500 feet from South Donnelly Peak north.

At this time there does not appear to be any indication of definite spring or fall seasonal use areas. To accurately identify critical habitat and seasonal use areas will require the continued systematic collection of distribution data through out the full spectrum of climatic regimes and should be on an HMA basis rather than an allotment basis.

Dolly Varden Pasture (Granite Range HMA)

The Dolly Varden pasture contains approximately 60% of the Granite Range HMA. There appears to be very little movement of horses between the Dolly Varden and Granite pastures, due to the Cottonwood drift fence which was constructed in 1944 and reconstructed in 1973. The drift fence essentially restricts any movement of horses from this pasture to the Granite pasture resulting in two distinct populations of horses on the Granite Range HMA.

During the evaluation period horses were found occupying the upper elevation areas during the spring and summer, while during the fall and winter, horses were found throughout the pasture. There were definite changes in animal density noted during each season.

Analysis of nine data sets collected during the evaluation period indicates that at the end of winter horses moved from lower elevation sites almost directly to the high plateaus which make up the majority of the pasture. During the spring and summer horses were found where water and forage was readily available; in and around the headwaters of Negro Creek in the area that is to be managed primarily for crucial mule deer habitat and around the head waters of Wagon Tire Creek and Wagon Tire Mountain. With lower fall temperatures and decreasing available forage, horses dispersed over a larger area in the higher elevations of the pasture. There were also a number of animals that had moved eastward to upland sites in the mid reaches of Negro Creek and Wagon Tire Creek. During the winter months horses were found throughout most of the area, however they tended to concentrate on south aspect slopes, the flats associated with Negro Creek and the lower elevation hills east of Negro Creek. Horses were able to make use of habitat areas that contain little, if any, permanent water by utilizing snow or storm water that had ponded in depressions. They were also capable of traveling greater distances between water and forage because their daily water requirement is lower than that required during the hot summer period.

The higher elevations in the vicinity of Negro Creek are identified in the Land Use Plan to be managed primarily for crucial mule deer habitat with domestic livestock use to be considered secondary and must be complimentary to this

primary use. The attached pasture map shows the exact location of the crucial habitat.

It is not possible to accurately identify critical habitat from the data collected during the evaluation period. Winters were mild and there was very little snow pack which would have concentrated horses into areas that could be identified as critical winter habitat. Summer habitat does not appear to be critical. There were definite summer use areas on and around Wagon Tire Mountain, and the high plateau from Melody Mountain northwest to Potatoe Patch Spring. However, if water had been readily available in the area bounded by Dolly Varden Basin to Melody Mountain to Supply Camp Spring, all or part of this area potentially could be summer habitat.

It is possible to identify habitat which may prove to be critical for horses within this part of the HMA. Listed below are areas which are suspected of being critical habitat, and seasonal use areas. However, this is based on limited data that was collected during a lower than normal precipitation period. The attached pasture map shows the location of suspected critical habitat and seasonal use areas.

Suspected Critical Habitat

Winter
1. Flats and lower hills from Red Mountain Creek north, that are associated with Negro Creek.
2. Crutcher Canyon from Crutcher Springs south to the pasture fence.

Seasonal Use Area(s)

Summer
1. Wagon Tire Mountain
2. High Plateau from Melody Mountain northwest to Potatoe Patch Spring.

At this time there does not appear to be any indication of definite spring or fall seasonal use areas. To accurately identify critical habitat and seasonal use areas will require the continued systematic collection of distribution data through out the full spectrum of climatic regimes.

Buffalo Hills Pasture (Buffalo Hills HMA)

The Buffalo Hills pasture contains the entire Buffalo Hills HMA. During the evaluation period horses were found to be

occupying most of the habitat throughout the year. Definite changes in animal density were noted, however, with the exception of the winter season, there were few similarities found during the evaluation period to indicate seasonal use areas.

Analysis of ten data sets collected during the evaluation period indicates that at the end of winter horses were found occupying the middle to upper slopes in the HMA which contain the most productive sites. Horses tended to be found in the vicinity of Burnt Mountain, Button Mountain and Black Butte during the hot summer period however animals were scattered throughout the entire HMA except for the low elevation area adjacent to the Smoke Creek Road. During the fall period horses were found in the same areas utilized during the spring and summer. There was some movement of animals into the area from Stockade Canyon north to Frog Creek, and the large benches around Saw Mill Canyon. During the winter period horses were found on the lower flats and benches in Frog Creek, from Big Sawmill Canyon southwest to Five Springs Canyon and from the Smoke Creek Road north to Granite Spring. Horses were able to make use of habitat areas that contain little, if any, permanent water by utilizing snow or storm water that had ponded in depressions. They were also capable of traveling greater distances between water and forage because their daily water requirement is lower than that required during the hot summer period.

It is not possible to accurately identify critical habitat from the data collected during the evaluation period. There was very little snow pack or severe winter weather conditions which would concentrate horses into areas that could be identified as critical winter habitat. During the spring, summer and fall months it was not possible to identify specific seasonal use areas due to the lack of similarity between data. Data indicates that the distribution of horses during these months is primarily based on forage and water availability throughout the HMA.

Listed below are areas in the HMA which are suspected to be critical habitat, however it is based on limited data that was collected during a period of mild winters. The attached pasture map shows the location of suspected critical habitat areas.

<u>Suspected Critical Habitat</u>

Winter

1. Granite Spring south to the Smoke Creek Road.

2. Benches and low rolling hills from Wall

Canyon north to Big Sawmill Canyon, bounded by the Smoke Creek Road on the south and Highway 447 on the east.

To accurately identify critical habitat and seasonal use areas will require the continued systematic collection of distribution data throughout the full spectrum of climatic regimes.

Granite Pasture (Granite Range HMA)

The Granite pasture contains approximately 40% of the Granite Range HMA and has the highest elevation habitat for horses on the Winnemucca District. Until recently horses were found to occupy habitat from Rock Creek south through Granite Basin. As the population increased horses have been found north of Rock Creek primarily on the steep eastern slopes between Rock Creek and Little Cottonwood Creek. As previously discussed, there are essentially two distinct populations in the Granite Range HMA, one in the Dolly Varden pasture and the other in the Granite pasture. One of the most striking differences between the two populations is the color patterns. Horses in this pasture tend to be either paints, roans or appaloosas with a smaller number of solid colored animals, while horses in the Dolly Varden pasture tend to be a solid color with a small number of paints, roans and appaloosas.

During the evaluation period horses were found to be primarily occupying the higher elevation habitat in spring and summer. During the fall and winter periods they were found to be primarily occupying the flats and east aspect slopes west of Highway 34. There were some horses found at higher and lower elevations throughout the year.

Analysis of nine data sets collected during the evaluation period indicate that at the end on winter horses were following the spring green up of grasses from the less productive lower elevation sites to the most productive meadow and mountain browse sites at higher elevations. Horses remained at higher elevations in the vicinity of Granite Peak throughout the hot summer period. As temperatures decreased in the fall and forage was depleted, horses were found to be moving to the steep eastern slopes and Granite Basin. During the winter period horses were primarily found between Highway 34 and the toe slopes of the mountain from Little Cottonwood Creek south to the basin surrounding the Granite Ranch.

The higher elevation habitat around Granite Peak is an area identified in the land use plan to be managed primarily for crucial bighorn sheep and mule deer habitat with domestic

livestock use to be considered secondary and must be complimentary to this primary use. The steep eastern slope from Rock Creek south through Granite Creek is to be managed primarily for crucial mule deer habitat with domestic livestock use to be considered secondary. The attached pasture map shows the exact location of the crucial habitat.

It is not possible to accurately identify critical habitat for horses from the data collected during this evaluation period. There was very little snow pack or severe winter weather condition which would have moved and concentrated horses into areas that could be identified as critical winter habitat. Summer habitat does not appear to be critical. There was a definite summer use area in the vicinity of Granite Peak.

It is possible to identify habitat which may prove to be critical for horses within this part of the HMA. Listed below are areas in the pasture which are suspected of being critical habitat, and seasonal use areas. However, this is based on limited data that was collected during a period of lower than normal precipitation. The attached pasture map shows the location of suspected critical habitat and seasonal use areas.

Suspected Critical Habitat

Winter	1.	Flats and toe slopes west of Highway 34, from Little Cottonwood Creek south to the basin surrounding the Granite Ranch.

Seasonal Use Area(s)

Summer	1.	Elevations above 7000 feet in the vicinity of Granite Peak.

At this time there does not appear to be any indication of definite spring or fall seasonal use areas. To accurately identify critical habitat and seasonal use areas will require the continued systematic collection of distribution data throughout the full spectrum of climatic regimes.

V. EVALUATION OF OBJECTIVES

A. Short Term Objectives

1. Utilization of key stream bank riparian plant species shall not exceed 30% in the following streams except where adjusted by an approved activity plan. (WLA-1.3)

Data was not collected on these streams in 1988 and 1989 to determine whether or not the objective was met in these years. Data was collected for most of the streams in 1990 and 1991 with the following results:

Red Mountain Creek - Dolly Varden Pasture

This objective was not met in 1990 (livestock use year) on a small segment of the stream which was outside the exclosure. Utilization on Salix (Willow) in this segment ranged from 35% to 74%. This objective was met in 1991 (rest year) with 7% use on Salix.

Cottonwood Creek - Granite Pasture

This objective was met for 1990 (rest year), with 5% use on Salix (Willow), but was not met in 1991 (livestock use year) when utilization on Salix and Carex (Sedges) was 39% and 78% respectively.

Wagon Tire Creek - Dolly Varden Pasture

This objective was not met in 1990 (livestock use year) as the 30% utilization level was exceeded on Salix (55% use). This objective was met in 1991 (rest year) with 22% use on Salix.

Granite Creek - Granite Pasture

Data collected in 1992 (livestock use year) indicated that this objective was not met as the 30% utilization level was not met on Salix (67% use) or Carex (64% use).

Rock Creek - Granite Pasture

There was no data collected in 1990 or 1991 to determine whether this objective was met or not met.

Donnelly Creek - Calico Pasture

This objective was not met in 1990 (livestock use year) or 1991 (rest year). Use on Populus (Aspen) was 90% in 1990 and use on Salix was 77% in 1991.

Use Pattern Mapping data and wild horse distribution flights show that when this objective was not met it could be attributed to a combination of poor livestock distribution and excessive wild horse numbers. Cottonwood and Wagon Tire Creeks did not meet the objective due to poor livestock distribution. Donnelly Creek did not meet the objective due to excessive wild horse numbers and poor livestock distribution.

2. Total utilization of key plant species in 2,493 acres of wetland riparian habitat shall not exceed 50%. (WL -1.10)

Dolly Varden Pasture

This objective was met in 1988 (livestock rest year), however, utilization by wild horses at the Crutcher Springs complex and Dolly Varden Spring was in the moderate use category. Light use (1-40%) was found at Scraper, Potato Patch, Mud, and Supply Camp Springs. In 1989 this objective was not met in the meadows along Negro Creek, meadows adjacent to Heward Reservoir, and around White Rock and Dolly Varden springs. In 1990 it was not met in the Crutcher Springs Complex, meadows along Negro Creek, meadows adjacent to Heward Reservoir, wetland riparian adjacent to Wagon Tire Creek, and at Dolly Varden, Warm, Supply Camp, White Rock, Potato Patch, and Mud Springs. The objective was not met in 1989 and 1990 as a result of the number of wild horses in the pasture and poor livestock distribution. Spring flow in 1989 and 1990 at Dolly Varden, Mud and Supply Camp Springs was very low which appears to have concentrated livestock in areas with more readily available water. Competition for water between wild horses and livestock may also have concentrated livestock to areas with more readily available water. There was no data collected in 1991.

Calico Pasture

This objective was met in 1988 (livestock rest year), however, light use (1-40%) was recorded at Donnelly, McCarty and Harry Springs, and in the wetland riparian habitat associated with Donnelly Creek. In 1989 this objective was not met in the meadows above Black Canyon, meadows associated with the head waters of Donnelly Creek, and in the areas around McCarty, Harry, and Donnelly springs. In 1990, it was not met in the meadows around the head waters of Donnelly Creek, meadows above Black Canyon, and in the areas around Harry, Burro, and Cane springs. The objective was not met in 1989 and 1990 due to the number of wild horses in the pasture and poor livestock distribution. It appears that wild horses and livestock were concentrated in the higher elevation areas where water and forage

availability was the best. There was no data collected in 1991.

Granite Pasture

This objective was not met during the evaluation period from 1988 to 1991. In 1988 it was not met in the meadows adjacent to the south fork of Wagon Tire Creek, meadows adjacent to Cottonwood Creek, in The Banjo, and in Skull Meadows. Utilization in 1989 (livestock rest year) exceeded the 50% level in the meadows adjacent to the south fork of Wagon Tire Creek, meadows adjacent to Granite Peak, and around the spring sources in Granite Basin. In 1990 (livestock rest year) it was not met in the meadows in the vicinity of Granite Peak, The Tank, Skull Meadows, Granite Basin, and the meadows adjacent to the south fork of Wagon Tire Creek. It was not met in the meadows associated with the head waters of Cottonwood Creek in 1991.

In the northern part of the pasture the objective was not met in the meadows associated with Cottonwood Creek, the south fork of Wagon Tire Creek and the Banjo due to poor livestock distribution. There were few horses found in these areas during census and distribution flights conducted during the evaluation period.

South of the Banjo the objective was not met in wetland riparian habitat found at Skull Meadows, the Tank, in the vicinity of Granite Peak and Granite Basin as a result of the number of wild horses using the area. There were few livestock utilizing this area during the evaluation period.

The objective may have been met during the re-evaluation period if livestock could have used the entire pasture. Livestock were not able to use the area south of the Banjo because wild horses used most of the available forage during each year of the re-evaluation period.

Buffalo Hills Pasture

This objective was not met in 1988, 1989 (livestock rest year) and 1990 (livestock rest year). In 1988 it was not met in the meadows adjacent to Burnt Mtn. In 1989 utilization exceeded the 50% level in the meadows from Button to Burnt Mtn., meadows north of Granite Spring, meadows adjacent to the south fork of Frog Creek, and in the areas around Cherry, Buck, Pauls Camp, and White Heifer springs. In 1990 it was not met in the meadows north of Granite Spring, in areas adjacent to Buck Spring, meadows from Button to Burnt Mtn., and in meadows adjacent to Twin Springs Canyon.

This objective was not met in 1988 due to the number of wild horses using the area and poor livestock distribution. In 1989 (livestock rest year) the objective was not met as a result of the number of wild horses living in the pasture. Following the January 1990 removal, utilization data found that the objective was still not being met in 1990 (livestock rest year) due to the number of wild horses inhabiting the area. There was no data collected in 1991.

3. Utilization of key plant species in upland habitats shall not exceed 50% except where adjusted by an activity plan. (WL 1.7, WL 1.9, RM 1)

Dolly Varden Pasture

This objective was met in the Dolly Varden pasture in 1988, which was a rest year, but not met in 1989 or 1990. In 1989 the pre-livestock use pattern map showed moderate use at Dolly Varden Spring and Rocky Basin. The post-livestock map showed that these areas had developed into heavy use and other areas had developed into moderate use. In 1990 there were several areas of moderate to heavy utilization. There was no data collected in 1991. (Reference Appendix 6)

Calico Pasture

The objective was met in this pasture during 1988 (livestock rest year). It was not met in 1989, 1990, or 1991 (livestock rest year). In 1989 there was heavy use from Donnelly Flat to the northern boundary fence and from Petrified Canyon to Mormon Dan Canyon. In 1990 the use was moderate to heavy from Cane Springs north to the pasture boundary fence. There was heavy use from Donnelly Peak, north in 1991. (Ref. Appendix 6)

The objective was not met in 1989 and 1990 during combined use by livestock and wild horses primarily as a result of the high wild horse population and the concentration of animals at higher elevations where water and forage availability is best.

Granite Pasture

The objective was not met in this pasture from 1988 to 1991. There was heavy use from Skull Meadows to Cottonwood Creek in 1988. In 1989, there were several areas of moderate to heavy use in the Granite Peak area and around Granite Ranch. Heavy use occurred in 1990 (livestock rest year) in Granite Basin, Skull Meadows, The Tank, and in two areas along the LAWP power line. In 1991, prior to livestock turnout there were areas of moderate use around Granite Peak and one small

area of heavy use at the head of Cottonwood Creek. (Ref. Appendix 6)

The objective was not met during the evaluation period primarily as a result of the high wild horse population in the pasture which tended to concentrate livestock north of the Banjo. Horses made almost exclusive use of the pasture from Skull Meadows south.

Buffalo Hills Pasture

The objective was not met in areas of the Buffalo Hills pasture. In 1988 there were several areas of light to moderate use and moderate use around Button Mtn. In 1989, which was a livestock rest year, there was moderate to heavy use scattered throughout the pasture due to excessive wild horse numbers. In 1990 (livestock rest year) the objective was not met from Boulder Flat to Burnt Mtn. There was no data collected in 1991. (Ref. Appendix 6)

With the exception of 1988 (rest year) in the Calico and Dolly Varden pastures, this objective was not met as a result of the number of wild horses inhabiting the allotment and poor livestock distribution which may be partially attributed to water availability and, competition for forage and water with wild horses. Although this objective was met in the Calico and Dolly Varden pastures in 1988, it was not met in subsequent years when the pastures were used by livestock and wild horses which suggests that the existing population of wild horse are making a disproportionate use of the forage resource prior to livestock turnout.

4. Combine the Buffalo Hills Allotment with the Calico Allotment to be grazed as the Buffalo Hills grazing management system.

This objective was met when the Buffalo Hills Grazing Agreement was signed on November 2, 1988 and published in the 1992 Rangeland Program Summary update.

B. Long Term Objectives

1. Improve and maintain the overall stream habitat from the percent of optimum indicated to 60% or better. (WLA-1.3)

Stream/Riparian Habitat Condition Classification
(% of Habitat Optimum)

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

The stream condition rating (expressed as percent habitat optimum) is based on the evaluation of factors considered limiting to trout. These include pool-riffle ratio, pool-quality, percent gravel and rubble on the stream bottom, bank cover and bank stability.

	Percent Optimum	Year	Public Land Surveyed
Red Mountain Creek	36%	1987	9 miles

Data collected in 1989 shows that this objective was met in Red Mountain Creek at 65%. With the completion of the Red Mtn. Creek exclosures in 1990 it is expected that this objective will be maintained.

Cottonwood Creek	49%	1987	3 miles

There was no data collected during the evaluation period to determine if we are progressing towards achievement of this objective. The last data collected was in 1987.

Wagon Tire Creek	23%	1987	3 miles

We are progressing towards the achievement of this objective for this creek. By 1989 conditions had improved to 30%. No further data has been collected.

Granite Creek	74%	1992	2 miles

Data collected in 1988 shows that the condition of the creek has remained static at 45%. Additional data collected in 1992 indicates that the stream condition has improved to 74%. The lower reach is still at 25% of optimum.

Rock Creek	54%	1992	3 miles

Data collected in 1992 indicates that we are not progressing toward this objective as percent of optimum decreased from 65% to 54%.

Donnelly Creek	53%	1977	2 miles

Data collected in 1988 indicates a slight downward trend from 53% in 1977, to 48% in 1988. No additional data has been collected. We are not progressing toward this objective.

This objective will be requantified in the technical recommendations with long term objective #3.

2. Improve or maintain the condition of 2,493 acres of wetland riparian habitat to good or higher. (WL-1.10)

Data is insufficient to determine whether or not we are moving towards this objective. No ESI data has been collected, areas have not been specifically identified, and the condition class of the areas was not noted in the objective in order to determine if the wetland riparian habitat is progressing toward or away from good condition.

3. Improve or maintain riparian habitat at good condition from the condition indicated. (WLA 1.3 & WL 1.9)

Red Mountain Creek	109 acres poor
Cottonwood Creek	36 acres good
Wagon Tire Creek	36 acres poor
Granite Creek	24 acres good
Rock Creek	36 acres good
Donnelly Creek	24 acres fair

No data was collected to determine whether or not we are progressing toward this objective.

This objective will be requantified in the technical recommendations with long term objective #1.

4. Protect sage grouse strutting grounds and brooding habitat and improve nesting and wintering habitat by: (WL 1.11)

a) Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.

This objective has been met. There were no fires or vegetative manipulation to impact the habitat.

b) Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.

No data was collected to determine whether or not we are progressing toward this objective.

5. Maintain or improve 565 acres of aspen woodland and 349 acres of mountain mahogany thicket to good or equivalent. This includes acres burned in the Fox Mountain and Middle Fork Fires during 1985. (WL 1.9)

   It is undeterminable if we are progressing toward this objective because the past condition was not stated in the objective and no ESI data has been collected during the evaluation period.

   Aspen stands are considered a woodland site and are given a woodland suitability index rather than a seral stage and mountain mahogany sites are considered mahogany savannas and not thickets. It would therefore be more appropriate to address age class structure rather than a seral stage for aspen stands in future evaluations.

   This objective will be requantified in the technical recommendations.

6. Manage, maintain, or improve public rangeland habitat condition to provide forage on a sustained yield basis with an initial forage demand for big game of 6,340 AUMs for mule deer, 1,060 AUMs for pronghorn, and 1,228 AUMs for bighorn sheep by:

   a) Improving 7,680 acres of priority mule deer habitat to excellent.

   b) Improving overall mule deer habitat as follows:

      1) From good to excellent 61,945 acres: Granite Range DS-1; Poodle Mtn. DS-2; Granite Range DS-6; Crutcher Canyon DW-4; Donnelly Peak DS-5.

      2) From fair to good 4,713 acres: Buffalo Hills DW-2.

   c) Maintaining mule deer habitat as follows:

      1) Good condition 93,402 acres: Buffalo Hills DS-2; Horse Canyon DS-2; Sawmill Canyon DS-2; Granite Basin DS-5; Granite Range DW-6.

      2) Excellent condition 5,249 acres: Granite Range DW-7; Rock Creek DW-8; Granite Creek DW-9.

d) Improving pronghorn habitat as follows:

1) From fair to good 140,068 acres: Buffalo Hills AS-3; Granite Range AS-8; Middle Fork AS-8; Granite Basin AS-9; Crutcher Canyon AW-1; South Buffalo Hills AW-2; Middle Fork AW-8; Rock Creek AW-9; Donnelly Peak AS-1; Division Peak AS-6.

2) From poor to fair 3,845 acres: Clear Creek AW-5; Granite Point AW-10.

e) Maintain pronghorn habitat as follows:

1) Good condition 57,298 acres: Buffalo Hills AW-3.

f) Improving 26,376 acres of priority bighorn sheep habitat (Granite Range BY-1) and Division Peak BY-5 from 70% to 90% of optimum.

There was no habitat or ESI data collected during the evaluation period to determine whether or not long term objectives #6(a-f) are progressing toward achievement.

7) Manage, maintain or improve ecological status to provide forage on a sustained yield basis with an initial stocking level of 4,114 AUMs (for livestock). The goal is to provide forage on a sustained yield basis with a stocking level of 11,920 AUMs.

This objective was not met due to the number of wild horses inhabiting the allotment and poor livestock distribution. The utilization levels for the combined use was greater than 50% in all pastures. Utilization levels greater than 50% before August 31 (end of the growing season) each year tends to lead to a static or downward trend. At this level of combined use a sustainable yield of forage will not be maintained.

8) Improve range/ecological 1/ condition from:

Poor to Fair on 267,748 acres.
Fair to Good on 74,138 acres.
Good to Excellent on 37,764 acres.

1/ The range/ecological conditions in this document are forage conditions that will be replaced with ecological status condition as information becomes available. The

objective will be redefined or quantified to obtain a particular ecological status (desired plant community) when the ecological site inventory has been completed on the allotment.

About half (200,000 acres) of the ESI data has been collected to determine whether or not this objective is being met.

9) Manage, maintain and improve public rangeland conditions to provide an initial level of 6,660 AUMs of forage on a sustained yield basis for 555 (AMLs) wild horses in the following Herd Use Areas:

	AML	AUMs
Buffalo Hills	272	3264
Granite Range	176	2112
Calico Mountains*	107	1284

* only 36% of the Calico Mountains HMA is contained in the Buffalo Hills Allotment. The number of horses shown is for that part of the HMA within the allotment.

This objective has not been met as a result of the number of horses inhabiting the allotment and poor livestock distribution. Poor livestock distribution is partially the result of competition for forage and water with wild horses at these population levels. There has also been documented and undocumented livestock trespass in the HMA's by individuals who are not permittee's on the allotment.

Total AUM demand by wild horses within the allotment ranged from a low of 18,036 AUMs in 1988 to a high of 22,314 AUMs in 1989. In 1988 AUM demand in the Buffalo Hills, Granite Range, and Calico Mountains Herd Management Areas exceeded the recommended AUM level identified in the 1988 evaluation by 221%, 355%, and 186% respectively. The initial AUM demand in 1989 was exceeded in all three Herd Management Areas in the Buffalo Hills Allotment by 260% in the Buffalo Hills, 443% in the Granite Range, and 252% in the Calico Mountains. In 1990, the initial AUM demand was exceeded by 137% in the Buffalo Hills, 490% in the Granite Range, and 279% in the Calico Mountains. The initial AUM demand in 1991 was exceeded by 152% in the Buffalo Hills, 544% in the Granite Range, and by 310% in the Calico Mountains. Initial AUM levels were exceeded for all years in each Herd Management Area.

Although there were more than 6,660 AUMs of forage provided, it was not provided on a sustained yield basis. By not meeting the 50% utilization level (short term objective #3;

Ref. pp. 29) we have not improved or maintained public rangeland condition to provide forage on a sustained yield basis.

10) Manage, maintain and improve public rangeland conditions to provide an initial level of 504 AUMs of forage on a sustained yield basis for 42 (AMLs) wild horses in the Calico Mountains Herd Use Areas.

This objective was addressed above in long term objective #9.

11) Maintain and improve the free-roaming behavior of wild horses by protecting and enhancing their home ranges.

Aerial distribution mapping and on the ground distribution data collected during the evaluation period indicates that wild horses have freedom of movement within the HMA's and are maintaining their free roaming behavior. This objective is being met.

12) Maintain/improve wild horse habitat by assuring free access to water.

This objective has been met. Wild horses have free access to all water sources within the allotment.

13) Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

Red Mountain Creek
Cottonwood Creek
Wagon Tire Creek
Granite Creek
Rock Creek
Negro Creek
Donnelly Creek

There was no data collected during the evaluation period to determine whether or not we are achieving this objective.

14) Maintain the water quality of Negro Creek from its Class A water quality standards.

There was no data collected during the evaluation period to determine whether or not we are achieving this objective.

C. Summary of Conclusions

The total stocking level for livestock and wild horses in the allotment during the evaluation period exceeded the recommended level of 11,323 Aums established in the 1988 evaluation by 196% in 1988, 234% in 1989, 212% in 1990 and 231% in 1991 (refer to actual use summary page). During the evaluation period livestock use remained constant at 4159 AUMs, wildlife use was below the recommended carrying capacity except for 1990, and the wild horse population was above the recommended level for the entire evaluation period.

The short term utilization objectives for stream bank riparian habitat were met during rest years except for the Calico pasture. The objective was not met in the Calico pasture due to the high numbers of horses and livestock utilization. This indicates poor livestock distribution which in part may be the result of poor water availability in some areas, insufficient herding of livestock within pastures, and competition for forage, space, and water with wild horses.

Short term utilization objectives for wetland riparian and upland habitats were not met during the evaluation period due to wild horses exceeding the recommended carrying capacity in all pastures and poor livestock distribution. Poor livestock distribution may be the result of poor water availability in some areas, insufficient herding of livestock within pastures, and competition for forage, space, and water with wild horses. Wild horses made a disproportionate use of the forage resource during the evaluation period due to the high population levels found in each pasture. There have been several incidents of trespass cattle in the allotment, both documented and undocumented, which have contributed to the failure to meet objectives, especially riparian objectives. These trespasses have been by non-permittees and have occurred near Rock Creek, Negro Creek Frog Creek, and Fox Mountain.

There was not sufficient data collected during the evaluation period to determine if we are progressing toward the achievement of long term stream habitat, wildlife or water quality objectives. However, since the short term utilization objectives were not met it is probable that progress toward achievement of these objectives did not occur.

The long term stocking level objectives for livestock and wild horses were not met during the evaluation period due to wild horses exceeding recommended levels. The AUMs utilized by wild horses each year exceeded the total stocking level of 10,819 AUM's recommended in the 1988 allotment evaluation for combined use by livestock and wild horses. At the current level of use in the allotment, a sustained forage yield and maintenance or improvement of rangeland condition (ecological status) will not occur and a

Thriving Natural Ecological Balance cannot be achieved. It is difficult to determine if the livestock grazing strategy set up in the 1988 evaluation and implemented in the 1988 livestock agreement is working due to the over population of wild horses in the allotment.

VI. TECHNICAL RECOMMENDATIONS

A. Stocking Levels

Based on use pattern mapping, key area transects, distribution, and census data, stocking levels for livestock and wild horses have been established. The recommended stocking level should enable us to achieve the objectives developed in this document as well as future Desired Plant Community objectives. The following tables show total carrying capacity and distribution of allocated AUMs between livestock and wild horses.

	Carrying Capacity by Pasture	
Pasture	Available AUMs	Allocated - AUMs*
Calico	4166	3935
Dolly Varden	5074	4115
Buffalo Hills	6722	6327
Granite	2519	2503
TOTAL	18,481	16,880

*AUMs to be utilized by livestock and wild horses

1) Livestock

Operator	Active	Suspended	E.O.U.*	Total	Lvstk	Use Period
A.F. Jackson	3984	0	19	4003	615	4/1- 10/15
G. Selmi	130	0	26	156	24	4/1- 10/15

* Exchange -of- Use AUMs are authorized on unfenced private lands which are accessible and suitable for all authorized livestock grazing during the same periods as the public lands. Grazing use allowed cannot exceed the livestock grazing capacity of the private lands offered.

2) Wild Horses

HMA	AML	AUMs
Buffalo Hills	314	3768
Granite Range	258	3096
(Granite pasture)	(76)	(912)
(Dolly Varden past.)	(182)	(2184)
Calico Mountains*	142	1704
Total	714	8568

* Only 36% of the Calico Mountains HMA is contained within the Buffalo Hills Allotment. The number of horses shown is for that part of the HMA within the allotment.

Once AML is reached the wild horse population will be maintained within the following ranges in order to ensure that the carrying capacity is not exceeded.

HMA	75% of AML to AML	AUMs
Buffalo Hills	235 to 314	2820 to 3768
Granite Range	193 to 258	2316 to 3096
(Granite pasture)	(57) to (76)	(684) to (912)
(Dolly Varden past.)	(136) to (182)	(1632)to(2184)
Calico Mountains	106 to 142	1272 to 1704
Total	534 to 714	6408 to 8568

This is based on gathering horses every three years. If gathering schedule changes, these ranges may also change.

The following table shows a summary of the stocking level by pasture for livestock and wild horses.

Forage Demand - Aums

Pasture	Livestock	Wild Horses	Pasture Totals
Calico	2226	1704	3930
Dolly Varden	1933	2184	4117
Buffalo Hills	2563	3768	6331
Granite	1596	912	2508
Allot. Total	8318	8568	16886

A total of 12,727 AUMs of use by livestock and wild horses will be authorized each grazing year. The stocking level for livestock and wild horses was calculated on a pasture level basis. Each year livestock will use only 4159 AUMs of the 8318 AUMs shown in the above table. The AUMs in excess of the stocking level (VI.A.1.) and the 4159 AUMs not utilized by livestock in rest pastures will not be allocated to any user (livestock, wild horses or wildlife) in order to attain allotment objectives and achieve a Thriving Natural Ecological Balance in the allotment.

B. Requantified Objectives

Present objectives will be requantified to Desired Plant Community objectives. Management actions developed in this re-evaluation will also address the requantified Desired Plant Community objectives. Objectives 1, 2, and 3 listed below will be used to guide management on the allotment in the interim between completion of this allotment re-evaluation and the completion of the ecological site inventory. Upon completion of the ecological site inventory, desired plant community objectives will be developed for each pasture. The utilization levels shown in objectives #1-3 will be incorporated as management actions to be used to meet the desired plant community objectives.

1) The objective for wild horse utilization is 20% in livestock rest pastures by July 15 (seed dissemination).

2) The objective for combined utilization on grass species, upland browse species, and meadows by wild horses and livestock is 50% at the end of the livestock use period and 60% by February 28 or start of the new growing season. (Utilization on grass species from 50% to 60% by wild horses will occur during the dormant season and should not have a detrimental impact to plant health and vigor).

3) The objective for utilization of current year's growth on key stream bank riparian plant species1/ is 30% at the end of the livestock use period and 40% by February 28 or the start of the new growing season for the following streams:

Red Mountain Creek
Cottonwood Creek
Wagon Tire Creek
Granite Creek
Rock Creek
Donnelly Creek
Cane Springs Creek

1/ Key riparian plant species will be: Aspen (Populus tremuloides), Willow (Salix spp.), Nevada Bluegrass (Poa nevadensis), Sedges (Carex spp.), Rushes (Juncus spp.), and Tufted Hairgrass (Deschampsia cespitosa).

4) Fisheries/Riparian

Stream/Riparian Habitat Condition Classification
(% of Habitat Optimum)

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

The stream condition rating (expressed as percent habitat optimum) is based on the evaluation of factors considered limiting to trout. These include pool-riffle ratio, pool-quality, percent gravel and rubble on the stream bottom, bank cover and bank stability.

a) Requantify long term objectives #1 and #3 by combining these objectives into the following:

(1) Red Mountain Creek

(a) In the short term maintain/improve stream and riparian habitat conditions on 9 miles of Red Mountain Creek at 60% or higher.

(b) In the long term improve stream and riparian habitat conditions on 9 miles of Red Mountain Creek to a rating of excellent.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Red Mountain Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
	1989	SHORT TERM (2001)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	65	>65	>70

Based on data collected in 1977 from stations 2, 3 and 4 located on public land.

(2) Cottonwood Creek

(a) In the short-term improve stream and riparian habitat conditions on 3 miles of Cottonwood Creek by 11% (or to a rating of

good as defined previously).

(b) In the long-term improve stream and riparian habitat conditions on 3 miles of Cottonwood Creek to a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Cottonwood Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
	1987	SHORT TERM (2001)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	49	>60	>60

Based on data collected in 1987 by BLM from survey stations located on public land.

(3) Wagon Tire Creek

(a) In the short-term improve stream and riparian habitat conditions on 3 miles of Wagon Tire Creek by 15%

(b) In the long-term improve stream and riparian habitat conditions on 3 miles of Wagon Tire Creek to a rating of 60% or better.

Short and long term objectives for improvement of stream and riparian habitat conditions on Wagon Tire Creek within the Buffalo Hills Allotment.

		OBJECTIVE LEVEL	
	1989	SHORT TERM (2001)	LONG TERM (2017)
STREAM CONDITION (% HABITAT OPTIMUM)	30	>45	>60

Based on data collected in 1989 by BLM from survey stations located on public land.

(4) Granite Creek

(a) In the short-term maintain stream and riparian habitat conditions on 2 miles of Granite Creek at 74% or better.

(b) In the long-term improve stream and riparian habitat conditions on the lower reaches of Granite Creek to 60% (or to a rating of good as defined previously).

Short and long-term objectives for improvement of stream and riparian habitat conditions on Granite Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
		SHORT TERM	LONG TERM
	1992	(2001)	(2017)
STREAM CONDITION (% HABITAT OPTIMUM)	74	>60	>60

Based on data collected in 1977 by BLM from survey stations located on public land.

(5) Rock Creek

(a) In the short-term improve stream and riparian habitat conditions on 3 miles of Rock Creek by 6% (or to a rating of good as defined previously).

(b) In the long-term improve stream and riparian habitat conditions on 3 miles of Rock Creek to a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian conditions on Rock Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
		SHORT TERM	LONG TERM
	1992	(2001)	(2017)
STREAM CONDITION (% HABITAT OPTIMUM)	54	>60	>60

Based on data collected in 1988 by BLM from survey stations located on public land.

(6) Donnelly Creek

(a) In the short-term improve stream and riparian habitat conditions on 2 miles of Upper Donnelly Creek by 10% (or to a rating of good as defined previously).

(b) In the long-term improve stream and riparian habitat conditions on 2 miles of Upper Donnelly Creek to a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Upper Donnelly Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
		SHORT TERM	LONG TERM
	1988	(2001)	(2017)
STREAM CONDITION (% HABITAT OPTIMUM)	50	>60	>60

Based on data collected in 1988 by BLM from survey stations located on public land.

(7) Cane Springs Creek

(a) In the short-term improve stream and riparian habitat conditions on 2 miles of Cane Springs Creek by 7% (or to a rating of good as defined previously).

(b) In the long-term improve stream and riparian habitat conditions on 2 miles of Cane Springs Creek to a rating of 60% or better.

Short and long-term objectives for improvement of stream and riparian habitat conditions on Cane Springs Creek within the Buffalo Hills Allotment are shown below.

		OBJECTIVE LEVEL	
		SHORT TERM	LONG TERM
	1992	(2001)	(2017)
STREAM CONDITION (% HABITAT OPTIMUM)	53	>60	>60

Based on data collected in 1992 by BLM from survey stations located on public land.

5) Requantify long term objectives #2, #5, #6(a-f), #7, #8, #9, and #10 upon completion of ESI (1993), to Desired Plant Community objectives (1994) on wetland riparian and upland areas for wildlife, wild horses, and livestock. Develop specific management actions to attain the desired plant community resource objectives.

6) Protect sage grouse strutting grounds and brooding habitat and improve nesting and wintering habitat by: (WL-1.11)

   a) Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.

   b) Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.

7) Maintain and improve the free-roaming behavior of wild horses by:

   (a) protecting their home ranges.

   (b) assuring free access to water.

8) Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

   Red Mountain Creek
   Cottonwood Creek
   Wagon Tire Creek
   Granite Creek
   Rock Creek
   Negro Creek
   Donnelly Creek

9) Maintain the water quality of Negro Creek from its origin to the first irrigation diversion to the State Class A water quality standards.

C. Management Actions

1) Change the existing livestock grazing strategy.

FROM:

Year	Calico Pasture 4/1 to 7/31	Dolly Varden Pasture 8/1 to 10/15	Buffalo Hills Pasture 4/1 to 7/31	Granite Pasture 8/1 to 10/15
1989	2563 AUMs	1596 AUMs	Rest	Rest
1990	2563 AUMs	1596 AUMs	Rest	Rest
1991	Rest	Rest	2563 AUMs	1596 AUMs
1992	Rest	Rest	2563 AUMs	1596 AUMs

TO:

Year	Calico Pasture 4/1 to 7/15	Dolly Varden Pasture 7/16 to 10/15	Buffalo Hills Pasture 4/1 to 7/31	Granite Pasture 8/1 to 10/15
1993	2226 AUMs	1933 AUMs	Rest	Rest
1994	2226 AUMs	1933 AUMs	Rest	Rest
1995	Rest	Rest	2563 AUMs	1596 AUMs
1996	Rest	Rest	2563 AUMs	1596 AUMs

2) Improve Livestock Distribution

Meet with the permittees in 1993 to develop a movement strategy for livestock in each pasture so the short term utilization objectives for stream bank riparian, wetland riparian and upland habitats are achieved. The strategy should include the initial distribution of livestock within the pasture at the beginning of the use period, herding of livestock during the use period, the final location of livestock just prior to moving out of a pasture, and an outline of any water development projects that are needed to facilitate proper use of each pasture.

3) Limit utilization on important streams (Long Term Objective #1. pp 31) to:

(a) 30% use on key species at any time during of the livestock use period or livestock will be moved.

(b) 15% on key species by wild horses at any time during livestock rest years. If this level of use and the 20% level on uplands (Management Action #4) cannot be met then the AML will be adjusted.

(c) If monitoring indicates that utilization levels cannot be kept below 30% during combined livestock and wild horse use periods (after the grazing strategy is implemented and wild horse numbers are at AML) then the streams will be fenced.

4) To realize the benefit of the rest treatment it is necessary that wild horse use not exceed 20% utilization on key species by July 15 in the rest pastures. If use exceeds 20%, the AML for wild horses will be adjusted so that this management criteria can be met.

The 20% utilization limit on key species by July 15 will limit use sufficiently so that the key species will be able to reach seed ripe and receive the benefits of a rest treatment. This allows the plants to gain vigor through building of carbohydrate reserves and allows seed production and dispersal for reproduction. If wild horse use is not limited in the rest pastures then benefits of a rest rotation grazing system will not be realized and the plant communities will not maintain or improve in condition.

5) Prevent the wild horse population from exceeding AML in order to keep utilization levels within established limits to achieve a Thriving Natural Ecological Balance and to provide for a healthy and thriving wild horse population. The stocking rate for livestock and establishment of an AML for wild horses is based on calculations from monitoring studies. If numbers of either animal were to exceed the calculated carrying capacity it would not be possible to meet utilization goals and to maintain or improve the condition of plant communities thereby not providing for a Thriving Natural Ecological Balance.

To accomplish this goal it is necessary to calculate the number of wild horses to be removed based on the cycle of gathers. Presently, BLM is planning to gather HMA's every three years as set by the Wild Horse and Burro Strategic

Plan. Based on this gather cycle and using existing information on herd recruitment from reproduction, the number to gather would be calculated so that the horses would be at AML when the next gather occurred three years later.

If the cycle of horse gathers is changed from three years, then the numbers of wild horses would be adjusted to fit the gather cycle so that numbers do not exceed AML before a scheduled gather date.

It may not be possible to implement this population strategy initially because of the excessive numbers of wild horses on the range and the age structure limitations (horses 6 years or older are turned back out) set by the Wild Horse and Burro Strategic Plan. This strategy will be implemented as numbers are brought into line with AML. By managing the wild horse populations in this manner it should be possible to guarantee a healthy population of wild horses for the future while maintaining and improving the ecological sites.

6) Interim Management Plan

Due to wild horse numbers and the inability to reduce to AML, an interim management plan has been developed. This plan will be followed until wild horse numbers can be reduced to AML and the proposed grazing strategy can be implemented. It will consist of maintaining the present livestock numbers, changing on/off dates, and moving livestock to pastures with available AUMs. The scheduled rest pastures will also be grazed if there are available AUMs, and some of the pastures scheduled for livestock use will not be used until wild horses are brought to AML. The ensuing table summarizes the grazing strategy to be followed during the interim if the proposed gathers take place.

Interim Grazing Strategy

	Calico	Dolly Varden	Buffalo Hills	Granite
1993	No Use Horses only. 4380 AUMs	7/16 to 10/15 1933 AUMs for livestock. 2976 AUMs for horses.	4/1 to 7/15 2226 AUMs for livestock. 2808 AUMs for horses.	No Use Horses only. 2544 AUMs
1994	No Use Horses only. 1944 AUMs	8/1 to 10/15 1576 AUMs for livestock. 3300 AUMs for horses.	4/1 to 7/31 2563 AUMs for livestock. 3120 AUMs for horses.	No Use Horses only. 2820 AUMs

This plan consists of grazing the Buffalo Hills pasture in 1993 and 1994 from 4/1 to 7/15. Livestock will then be moved to the Dolly Varden pasture and grazed from 7/16 to 10/15. The Calico pasture will be rested from livestock use in 1993 to accommodate the excess wild horses. The Granite pasture will also be rested from livestock use as scheduled, but will still be over allocated due to wild horse numbers. The situation will be examined on a yearly basis to determine if it is feasible to progress with the proposed grazing system or continue with an amended version.

7) Reconstruct the following projects to wildlife specifications as outlined below.

   (a) Granite Mountain Drift Fence, project number 520307, will be modified to pronghorn antelope or bighorn sheep standards at locations to be identified by the area wildlife biologist.

   (b) Leadville and Coyote fence, project number 524172, from Frog Creek to Crutcher Canyon will be modified to pronghorn antelope standards.

   (c) C-2-N Fence at Corner Spring will be reconstructed to pronghorn antelope standards.

D. Monitoring

1) Complete ecological site inventory field data collection in 1993. Complete data entry into the IDSU and GIS data base by 1994 and establish key areas with Desired Plant Community objectives.

2) Complete Use Pattern Maps after livestock are removed and prior to start of next growing season to monitor Objective #2 & 3. After key areas are identified key area utilization will be used instead of Use Pattern Mapping.

3) On livestock rest years complete Use Pattern Maps at seed dissemination or around July 15 to determine if the 20% utilization level by wild horses is being met (Objectives 1 & 3).

4) Stream surveys will be scheduled at least once during the four year grazing cycle on the following streams: (Objectives 4 and 9)

Cottonwood Creek	Red Mountain Creek
Wagon Tire Creek	Rock Creek
Granite Creek	Negro Creek
Cane Springs Creek	Donnelly Creek

5) Identify sage grouse strutting grounds and brooding habitat in the spring of 1993 with the assistance of NDOW (Objective 6).

6) Establish canopy cover transects for sage grouse, where sagebrush does not exceed three feet in height, in each pasture of the allotment in the spring of 1993. (Objective 6)

7) Establish key areas in stream bank riparian areas, for key forage transect monitoring and photo trends by 1994 (Objectives 3 & 4).

8) Establish at least one mahogany savanna monitoring site in each pasture for age class and vigor by 1994 (Desired Plant Community Objective).

9) Establish aspen woodland monitoring sites for age class, vigor, and density in each pasture by 1994 (Desired Plant Community Objective).

10) Establish key management areas in each pasture on upland habitat and wetland riparian habitat identified by the ecological site inventory by 1995 (Objectives 1-3).

11) Continue collecting wild horse census and seasonal distribution data to determine population trends (reproductive rate, recruitment rate, etc.) and seasonal use areas. Wild horse monitoring should be conducted on alternate years as follows:

   a) Census every three years in July.(First year)

   b) Aerial distribution mapping every three years with flights conducted in January, April, July, and October.(Second year)

   c) Conduct on the ground distribution mapping in July and October every three years to supplement aerial distribution mapping and provide more specific population information on band size and composition. (Third year)

12) Review all proposed projects to insure there are no adverse impacts to wild horses. (Objective 7)

E. Project inspection should be completed in accordance with the project maintenance inspection schedule to insure that range improvements are being maintained to Bureau standards.

F. Conduct a re-evaluation in 2001 analyzing Resource Objectives developed from the ecological site inventory to determine if desired plant community objectives are being met. If resource problems are identified a re-evaluation will be conducted sooner. The re-evaluation date is based on completing two grazing cycles. It will take two cycles to measure the effectiveness of management actions, the grazing system, and estimated AMLs for wild horses to conclude if the short term objectives are met or not met.

G. Conduct a re-evaluation in 2017 to determine if long term desired plant community objectives have been achieved.

H. Annually, a narrative will be written documenting the success of the management actions and the grazing system toward meeting the AMP objectives. This is an informal process. This narrative will analysis climate, actual use, utilization, upland/riparian trend, and any other pertinent data. If the available information documents management actions are not achieving or meeting resource needs, BLM, through consultation; coordination; and cooperation with all affected parties, will devise a strategy to deal with the shortcomings.

The type and frequency of monitoring will be considered when the narrative is written. This will be the time to insure the studies are appropriate for the objective, if time frames between readings should be expanded, new studies added, or if a study should be dropped.

VII. CONSULTATION AND COOPERATION

The following individuals and groups were mailed copies of the draft evaluation.

NV Dept. of Wildlife

Mr. John Leitch, NV Wildlife Federation

Mr. Charles Watson, National Public Lands Task Force

Mr. Tom Ballow, NV State Predatory & Rodent Control Co.

Mrs. S. Martin, Amer. Bashkir Curley Reg.

Ms. Cathy Barcomb Commission for the Protection of Wild Horses

Mrs. Dawn Lappin, Wild Horse Organ. Assist

Ms. Karen Sussman, Int. Soc. for Protection of Mustangs and Burros

Mr. Dart Anthony, U.S. Wild Horse & Burro Foundation

Wild Horse & Burro Comm, Natl' Academy of Science

Demar Dahl, NV Land Action Assoc.

Ms. Rose Strickland, Sierra Club

State Multiple Use Advisor, Committee Fed. Lands

Ms. Johanna H. Wald, NRDC

Ann Selmi

Jeanie Casey

Nevada Conservation District

USDI, BLM Susanville District

Audubon Society

USDI, FWS, Reno

Fund for Animal

Helen Reilly, Int. Soc. for the Protection of Wild Horses & Burros

Ms. Paula Jewell, Humane Soc. of the U.S.

Ms. Deborah Allard

U.S. Humane Society

Nevada Land Action Assoc.

Mr. Craig C. Downer

State of Nevada, Div. of State Lands

NV Cattlemen's Association

John J. Casey

Andrew F. Jackson

The following individuals and groups provided comments on the draft which were incorporated into the final document:

NV Dept. of Wildlife

Dawn Lappin, WHOA

Cathy Barcomb, Commission for the Preservation of Wild Horses

Rose Strickland, Sierra Club

Andrew F. Jackson

VIII. SELECTED MANAGEMENT ACTIONS

The selected management action selected for this re-evaluation will be to incorporate all of the Technical Recommendations as previously outlined in this document.

IX. RATIONALE

Through the re-evaluation process it has been determined that changes in existing management are required to achieve the multiple use objectives for this allotment. Analysis of the monitoring data indicates that the existing numbers of wild horses and management of livestock is significantly contributing to the failure in meeting LUP and the 1988 Allotment Agreement multiple use objectives. Analysis of wildlife monitoring data does not indicate a need for change in the existing wildlife management. These adopted Technical Recommendations change livestock management, the grazing system, establish new or modified objectives, and establish an Appropriate Management Level for wild horses. With all of these technical recommendations implemented it should be possible to attain the objectives for this allotment.

X. FUTURE MONITORING AND GRAZING ADJUSTMENTS

The Sonoma-Gerlach Resource Area will continue to monitor existing studies as outlined on pages 50-51. This monitoring data will continue to be collected in the future to provide the necessary information for subsequent evaluations. These evaluations are necessary to determine if the allotment specific objectives are being met under the existing and/or new grazing strategies. In addition, these subsequent evaluations will determine if adjustments are required to meet the established allotment specific objectives.

XI. NEPA REVIEW

The selected management action for grazing in the Buffalo Hills Allotment conforms with the environmental analysis of grazing impacts described in the Final Sonoma-Gerlach Environmental Impact Statement dated September 9, 1982.

The EIS and NEPA Compliance Record are on file in the Winnemucca District Office, located at 705 E. Fourth Street, Winnemucca, Nevada 89445.

APPENDIX 1 OBJECTIVES FROM PREVIOUS DOCUMENTS

I. 1988 Evaluation and Livestock Agreement Objectives

A. Short Term

1. Utilization of key stream bank riparian plant species shall not exceed 30% in the following streams except where adjusted by an approved activity plan. (WLA-1.3)

Red Mountain Creek
Cottonwood Creek
Wagon Tire Creek
Granite Creek
Rock Creek
Donnelly Creek

2. Total utilization of key plant species in 2,493 acres of wetland riparian habitat shall not exceed 50%. (WL-1.10)

3. Utilization of key plant species in upland habitats shall not exceed 50% except where adjusted by an activity plan. (WL 1.7, WL 1.9, RM 1)

4. Combine the Buffalo Hills Allotment with the Calico Allotment to be grazed as the Buffalo Hills grazing management system.

B. Long Term

1. Improve and maintain the overall stream habitat from the percent of optimum indicated to 60% or better. (WLA-1.3)

Red Mountain Creek	36%	9 miles
Cottonwood Creek	49%	3 miles
Wagon Tire Creek	23%	3 miles
Granite Creek	45%	2 miles
Rock Creek	65%	3 miles
Donnelly Creek	53%	2 miles

2. Improve or maintain the condition of 2,493 acres of wetland riparian habitat to good or higher. (WL-1.10)

3. Improve or maintain riparian habitat at good condition from the condition indicated. (WLA-1.3 & WL-1.9)

Red Mountain Creek	109 acres poor
Cottonwood Creek	36 acres good
Wagon Tire Creek	36 acres poor
Granite Creek	24 acres good
Rock Creek	36 acres good
Donnelly Creek	24 acres fair

4. Protect sage grouse strutting grounds and brooding habitat and improve nesting and wintering habitat by: (WL-1.11)

   a) Following NDOW's guidelines for Vegetal Control Programs in Sage Grouse Habitat in Nevada.

   b) Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height.

5. Maintain or improve 565 acres of aspen woodland and 349 acres of mountain mahogany thicket to good or equivalent. This includes acres burned in the Fox Mountain and Middle Fork Fires during 1985. (WL-1.9)

6. Manage, maintain, or improve public rangeland habitat condition to provide forage on a sustained yield basis with an initial forage demand for big game of 6,340 AUMs for mule deer, 1,060 AUMs for pronghorn and 1,228 AUMs for bighorn sheep by:

   a) Improving 7,680 acres of priority mule deer habitat to excellent.

   b) Improving overall mule deer habitat as follows:

      (1) From good to excellent 61,945 acres: Granite Range DS-1; Poodle Mtn. DS-2; Granite Range DS-6; Crutcher Canyon DW-4; Donnelly Peak DS-5.

      (2) From fair to good 4,713 acres: Buffalo Hills DW-2.

   c) Maintaining mule deer habitat as follows:

      (1) Good condition 93,402 acres: Buffalo Hills DS-2; Horse Canyon DS-2; Sawmill Canyon DS-2; Granite Basin DS-5; Granite Range DW-6.

      (2) Excellent condition 5,249 acres: Granite Range DW-7; Rock Creek DW-8; Granite

Creek DW-9.

d) Improving pronghorn habitat as follows:

(1) From fair to good 140,068 acres: Buffalo Hills AS-3; Granite Range AS-8; Middle Fork AS-8; Granite Basin AS-9; Crutcher Canyon AW-1; South Buffalo Hills AW-2; Middle Fork AW-8; Rock Creek AW-9; Donnelly Peak AS-1; Division Peak AS-6.

(2) From poor to fair 3,845 acres: Clear Creek AW-5; Granite Point AW-10.

e) Maintain pronghorn habitat as follows:

Good condition 57,298 acres: Buffalo Hills AW-3.

f) Improving 26,376 acres of priority bighorn sheep habitat (Granite Range BY-1) and Division Peak BY-5 from 70% to 90% of optimum.

7. Manage, maintain or improve ecological status to provide forage on a sustained yield basis with an initial stocking level of 4,114 AUMs. The goal is to provide forage on a sustained yield basis with a stocking level of 11,920 AUMs.

8. Improve range/ecological 1/ condition from:

Poor to Fair on 267,748 acres.
Fair to Good on 74,138 acres.
Good to Excellent on 37,764 acres.

1/ The range/ecological conditions in this document are forage conditions that will be replaced with ecological status condition as information becomes available. The objective will be redefined or quantified to obtain a particular ecological status when site potential and identified uses are combined to meet vegetative objectives.

9. Manage, maintain and improve public rangeland conditions to provide an initial level of 6,660 AUMs of forage on a sustained yield basis for 555 (AMLs) wild horses in the following Herd Use Areas (WH&B 1.1):

	AML	AUMs
Buffalo Hills	272	3264
Granite Range	176	2112
Calico Mountains	107	1284

10. Manage, maintain and improve public rangeland conditions to provide an initial level of 504 AUMs of forage on a sustained yield basis for 42 (AMLs) wild horses in the Calico Mountains Herd Use Areas (WH&B 1.1).

11. Maintain and improve the free-roaming behavior of wild horses and burros by protecting and enhancing their home ranges.

12. Maintain/improve wild horse/burro habitat by assuring free access to water.

13. Improve or maintain the water quality of the following streams to State criteria set for livestock drinking water, cold water aquatic life, water contact recreation (wading), and wildlife propagation:

    Red Mountain Creek
    Cottonwood Creek
    Wagon Tire Creek
    Granite Creek
    Rock Creek
    Negro Creek
    Donnelly Creek

14. Maintain the water quality of Negro Creek from its origin to the first irrigation diversion to the State Class A water quality standards.

II. Fox Mountain HMP Objectives not addressed in the 1988 Evaluation

NOTE: Those objectives constrained by habitat projects are target dated. Planned action dates and projects are dependent upon workload, workforce and funding levels. Those objectives that were not met were due to changes in funding, workforce and workload priorities.

A. Establish fisheries potential and objectives for Clear Creek by 1989. (Not met.)

B. Maintain the potential use of Cottonwood, Wagon Tire and Donnelly Creeks for recovery of the Lahontan cutthroat trout. (At this time these creeks are still being managed as potential habitat for Lahontan cutthroat trout. Further action will be taken when the

Lahontan cutthroat trout recovery plan is finalized.)

C. Reintroduce California bighorn sheep into the Calico Mts BY-6 during 1989. (This objective was met in 1988.)

D. Establish accurate bighorn sheep potential for Buffalo/ Granites BY-2 use area by 1990. (Not met.)

E. 1. Establish Sage Grouse habitat improvement needs by 1991. (Not met.)

2. Protect sage grouse strutting grounds and nesting habitat and improve brooding habitat by 1996.

F. Improve Chukar habitat by 1998 as follows:

68,659 acres from low to medium density
204,881 acres from medium to high density
138,139 acres maintain at high density
(Not met.)

III. Fox Mountain HMP Planned Actions

NOTE: Dates provided in this HMP are target dates. Planned action completion is constrained by workload, workforce and funding levels.

A. Description of Actions

1. Fisheries

a) Lower sedimentation loading, and maximum summer water temperature while increasing bank cover, bank stability and average pool quality in Cottonwood, Donnelly, Red Mountain, and a portion of Wagon Tire Creeks by fencing those portions of the streams on public lands as needed (Overlay 10, Appendix One). Cottonwood and Wagon Tire Creeks are fenced as one unit.

(1) Red Mountain Creek: Engineering and design completed in 1988. Construction completed in 1989. (Completed 1990)

(2) Cottonwood/Wagon Tire Creeks: Project layout and design completed in 1988. Engineering, design, and clearances completed in 1989. Construction completed in 1991. (Not completed)

(3) Donnelly Creek: Project layout and design completed in 1989. Engineering, design, and clearances completed in 1990. Construction

completed in 1992. (Not completed)

(4) Granite and Rock Creek will be monitored in relation to the approved grazing plan to insure the objectives are being met through controlled grazing. Evaluate progress or lack of during odd numbered years beginning in 1989.

Construct rock check dams in Granite Creek to assist in pool development in 1989 and 1990. (Not completed)

(5) Clear Creek will be inventoried and objectives set in 1989. (Not completed)

(6) Properly water bar roads on Red Mountain and Cottonwood Creeks in 1991. (Not completed)

(7) Cottonwood, Donnelly and Wagon Tire Creeks are available to be used as Lahontan cutthroat trout streams as long as no treatment of existing cold water game fish population is necessary. If treatment is deemed necessary an amendment to this HMP will be necessary.

2. Terrestrial

a) Through cooperation and coordination BLM, NDOW and the permittee (Wesley Cook) will establish a trailing route along the edge of Highway 447 during 1988 (Overlay 9, Appendix One) with one overnight stop at Deephole Hills and constant herder presence. A secondary trailing route may be established over the range in the vicinity of Fox Mtn. and Negro Creek if no bighorn sheep are endangered.

Once the trailing route has been established the exact agreed to use areas for existing domestic sheep will be completed and the Buffalo Hills habitat reevaluated by both BLM and NDOW during 1989. (Not done)

b) (1) Lower the competition between wild horses and bighorn sheep in the 17,820 acres identified on Overlay 7, Appendix One by bringing wild horse numbers to Appropriate Management Levels (AMLs) in the Granite Range by 1990. (Not done)

(2) Install four big game guzzlers on the west face of the Granite Range between Granite Peak and Granite Basin. Location of the guzzlers will be chosen in a cooperative effort between NDOW and BLM during 1988. Project survey, design, and

clearances will be completed during 1989 and 1990. Construction will be completed in 1991. (Not done)

c) Mule deer habitat improvement will be accomplished through a few broad steps.

(1) The grazing system established in the Buffalo Hills AMP will be monitored to insure proper utilization levels of wildlife key forage species are met. (Completed)

(2) Remove wild horses in the Granite Range, particularly in the priority mule deer area (Overlay 7, Appendix One), and the Calico Mts. to AMLs by 1990. (Not completed)

(3) Continue to not allow grazing in the Fox Mountain and Middle Fork Fires until 1990. This will allow the shrub species recovering from the wildfires to reach a height above four feet. (Met through grazing plan)

(4) Reconstruct Dolly Varden Basin Exclosure No. 4759 and Rocky Basin Exclosure No. 4930 to a 3-wire antelope specifications with a rail top. The gates of the exclosure will be closed except when the grazing plan calls for licensed livestock to be in the area. Gates may be opened during drought years to provide water for horses. Complete reconstruction design by 1989. Complete reconstruction by 1990. (Not completed)

d) Improvement of Pronghorn habitat will be accomplished in several broad steps following c) (1), (2), (3), and (4) above.

e) (1) Some improvement of sage grouse habitat should be accomplished through the grazing system established in the Buffalo Hills AMP. Specific improvements can only be accomplished when brooding and other key areas can definitely be identified. NDOW and BLM will coordinate efforts in locating and analyzing strutting grounds and brooding areas. The habitat and sage grouse key area analysis will be completed in 1991.

(2) Protect sage grouse strutting grounds and nesting habitat and improve brooding habitat by:

(a) Following NDOW's guidelines for Vegetal

Control Programs in Sage Grouse Habitat in Nevada. (Met)

(b) Maintain sagebrush canopy at 30% in sage grouse nesting areas where sagebrush does not exceed three (3) feet in height. (Met)

f) Chukar improvement will be accomplished as follows:

(1) NDOW installed 5 guzzlers during 1987.

(2) Locate additional needed guzzler sites by 1990.

(3) Monitor the impact of the above guzzler construction. (Not done)

g) The following specific actions for wetland riparian shall be taken on an allotment basis.

(1) Maintain the two existing meadow enclosures in the Calico Mtn. (Done)

(2) Fence the meadow/spring complex at the head of Donnelly Creek in the Calico Allotment by 1992. (Not accomplished)

(3) Include the Skull and Clear Creek meadow complexes as key areas in the Buffalo Hills Allotment.

APPENDIX 2 BLM WILDLIFE POPULATION ESTIMATES

Deer Population			Pronghorn Population		
Year	#'s	AUMs	Year	#'s	AUMs
1988	1794	4306	1988	722	1733
1989	1194	2866	1989	371	890
1990	2701	6482	1990	1303	3127
1991	1227	2945	1991	1280	3072

Big Horn Sheep Population		
Year	#'s	AUMs
1988	58	139
1989	58	139
1990	114	274
1991	114	274

APPENDIX 3 WEATHER STATION DATA

a) NOAA

The following table describes the amount of growing season, annual, departure from normal, and percent of normal precipitation recorded at the Denio, Duferrena, Gerlach, and Leonard Creek Ranch NOAA weather stations from 1988 through 1991. Annual precipitation is recorded from October to September and growing season precipitation is March through August. This is provisional data supplied by the SCS Climatic Data Facility.

Precipitation Data

	Precip - Inches		Departure from Normal		Percent of Normal	
1988	Grow Ssn	Annual	Grow Ssn	Annual	Grow Ssn	Annual
Denio	3.14	6.56	-1.46	-2.66	68.3	71.1
Duferrena	2.74	5.46	-1.03	-1.54	72.7	76.5
Gerlach	2.72	5.32	-0.80	-2.08	77.3	71.9
Leonard Crk	2.94	7.21	-0.68	-0.89	81.2	89.0
1989						
Denio	4.37	9.04	-0.23	-0.18	95.0	98.0
Duferrena	2.91	5.60	-0.86	-1.54	77.2	78.4
Gerlach	3.80	8.09	0.28	0.69	108.0	109.9
Leonard Crk	3.89	9.43	0.27	1.33	107.5	116.4
1990						
Denio	4.38	6.60	-0.22	-2.62	95.2	71.6
Duferrena	3.37	4.93	-0.40	-2.21	89.4	69.0
Gerlach	6.28	8.15	2.76	0.75	178.4	110.1
Leonard Crk	4.67	7.74	1.05	-0.36	129.0	95.6
1991						
Denio	6.37	9.58	1.77	0.36	138.5	103.9
Duferrena	5.72	7.85	1.95	0.71	151.7	109.9
Gerlach	4.27	7.08	0.75	-0.32	121.3	95.7
Leonard Crk	5.06	7.90	1.44	-0.20	139.8	97.5

The following table shows the average precipitation normally received at each station.

Station	Growing Season	Annual
Denio	4.60"	9.22"
Duferrena	3.77"	7.14"
Gerlach	3.52"	7.40"
Leonard Crk	3.62"	8.10"

NOTE: The previous tables were based on best available data.

b) RAWS

The following table lists the amount of growing season, annual, departure from normal, and percent of normal precipitation recorded at the Dry Canyon Remote Automated Weather System (RAWS) from 1987 through 1990. Due to a change in RAWS archival procedures, 1991 precipitation data is not available at this time. The Fox Mountain Remote Automated Weather System was not fully operational until 1989. It shows the data collected in 1989 and 1990 and the changes in precipitation.

Dry Canyon Elevation - 5249'

	Precipitation -Inches		Departure From Normal		Percent of Normal	
Year	Grow Ssn	Annual	Grow Ssn	Annual	Grow Ssn	Annual
1987	6.00	7.90	2.32	1.82	163.0	129.9
1988	2.60	5.70	-1.08	-0.38	70.7	93.8
1989	3.10	6.10	-0.58	0.02	84.2	100.3
1990	3.00	4.60	-0.68	-1.48	81.5	75.7

Normal = 4 year average (1987 - 1990) = 3.68 in. growing season
= 4 year average (1987 - 1990) = 6.08 in. annual

Fox Mountain

	Precipitation - Inches		
Month	1989*	1990	Changes in Precipitation-In.
January	-	.20	NA
February	-	.30	NA
March	-	.80	NA
April	-	1.10	NA
May	-	1.40	NA
June	-	.30	NA
July	.00	.50	+ .50
August	.70	.50	- .20
September	1.40	.30	-1.10
October	1.00	.00	-1.00
November	.00	.10	+ .10
December	.10	.00	- .10
Total	3.10	5.50	

* station not operational until July 1989

Years of incomplete data

Denio Elevation - 4185'

Growing season based on 38 years (1952-1991); incomplete for 1964 & 1965.
Annual based on 37 years (1952 -1991); incomplete for 1964, 65 & 87.

Duferrena Elevation - 4800'

Growing season based on 32 years (1960 -1991).
Annual based on 28 years (1960 -1991); incomplete for 1974, 82, 84 & 86.

Gerlach Elevation - 3950'

Data from stations at two different locations, but in the same general area. Growing season based on 25 years (1949 - 1991); incomplete for 1950, 58-62, & 73-85. Annual based on 21 years (1949 - 1991); incomplete for 1950, 51, 58-62, & 72-86.

Leonard Crk Elevation - 4220'

Growing season based on 36 years (1955 - 1991); incomplete for 1980.
Annual based on 32 years (1956 - 1991); incomplete for 1980 - 83.

APPENDIX 4 PLANT LIST

The following is a list of plant symbols, their common name and scientific name used in key area transects and use pattern mapping.

PLANT LIST

Symbol	Common Name	Scientific Name
ACMIL	Western Yarrow	Achillea millefolium
AGSP	Bluebunch Wheatgrass	Agropyron spicatum
AMEL	Serviceberry	Amelanchier spp.
ASTER	Aster	Aster spp.
BAHO	Hooker's Balsamroot	Balsamorhiza hookeri
BRMA4	Mountain Brome	Bromus marginatus
CAREX	Sedge	Carex spp.
CELE3	Curl-leaf Mtn. Mahogany	Cercocarpus ledifolius
CREPI	Hawksbeard	Crepis spp.
DECE	Tufted Hairgrass	Deschampsia cespitosa
ELCI	Basin Wildrye	Elymus cinereus
ERIOG	Buckwheat	Eriogonum spp.
FEID	Idaho Fescue	Festuca idahoensis
HAVE	Velvety Stickseed	Hacklea velutina
JUNCU	Rush	Juncus spp.
LUPIN	Lupine	Lupine spp.
POA++	Bluegrass	Poa spp.
POSE	Sandberg's Bluegrass	Poa secunda
PONE3	Nevada Bluegrass	Poa nevadensis
POTR	Quaking Aspen	Populus tremuloides
PRVI	Common Chokecherry	Prunus virginiana
PUTR2	Antelope Bitterbrush	Purshia tridentata
ROSA+	Rose	Rosa spp.
SALIX	Willow	Salix spp.
SIHY	Bottlebrush Squirreltail	Sitanion hystrix
STCO3	Columbia Needlegrass	Stipa columbiana
STTH2	Thurber's Needlegrass	Stipa thurberiana
SYMPH	Snowberry	Symphoricarpos spp.
TARAX	Dandelion	Taraxacum spp.
TRIFO	Clover	Trifolium spp.

APPENDIX 5 KEY AREAS

The 15 existing key areas in the allotment were established in 1982, 1984, and/or 1985. Key area utilization readings were made using the six (6) standard use classes; no use (0%), slight use (1-20%), light use (21-40%), moderate (41-60%), heavy (61-80%) and severe (81-100%).

(1) Dolly Varden Pasture

(a) Mahogany Troughs

Rest	08/88	PUTR2 12%, CELE3 3%, FEID 2%
Post-Livestock	11/89	PUTR2 12%, CELE3 4%, FEID 17%
Pre-Livestock	07/90	PUTR2 42%, CELE3 38%, FEID 18%

(b) Potato Patch

Rest	08/88	STCO3 8%, AGSP 4%, CREPI 3%
Post-Livestock	11/89	STCO3 60%, ELCI2 73%, CREPI 30%
Pre-Livestock	07/90	STCO3 43%, ELCI2 36%, CREPI 62%

(c) Scraper Spring

Rest	08/88	STTH2 8%, POA++ 7%, ERIOG 2%
Post-Livestock	11/89	STTH2 5%, POA++ 1%, ERIOG 2%

(d) Negro Creek #1

No transects done

(e) Negro Creek #2

Post-Livestock	11/89	SIHY 64%, POSE 56%
Pre-Livestock	07/90	SIHY 3%

(2) Calico Pasture

(a) Calico #1

Rest	10/88	STTH2 17%, SIHY 12%
Post-Livestock	07/89	STTH2 50%, SIHY 29%

(b) Calico #2

Rest	10/88	FEID 19%, STTH2 15%, SIHY 12%
Post-Livestock	07/89	FEID 68%, STTH2 58%, SIHY 42%

(c) Black Canyon

Rest	10/88	STTH2 17%, POA++ 12%, LUPIN 17%
Post-Livestock	07/89	STTH2 54%, POA++ 16%, LUPIN 54%

(3) Granite Pasture

(a) Rock Creek

Post-Livestock	10/88	SYMPH 11%, ELCI2 7%, BRMA4 5%
Rest	09/89	SYMPH 4%, ELCI2 12%, HAVE 7%

(b) The Banjo

Post-Livestock	10/88	BRMA4 22%, POTR 5%, AMELA 7%
Rest	09/89	BRMA4 4%, ACMIL 2%

(c) Wagon Tire

Post-Livestock	10/88	JUNCU 68%, PONE3 70%
Rest	09/89	JUNCU 3%, PONE3 42%

(4) Buffalo Hills Pasture

(a) Jones Flat

Post-Livestock	08/88	POA++ 4%, STTH2 18%, SIHY 5%
Rest	09/89	POA++ 13%, STTH2 24%, SIHY 26% BAHO 17%

(b) Boulder Flat

Post-Livestock	08/88	POSE 28%, BAHO 22%, STTH2 40%, SIHY 38%
Rest	09/89	POA++ 25%, BAHO 18%, SIHY 17%

(c) Currant Canyon

Post-Livestock	8/88	STTH2 32%, POA++ 34%, LUPIN 36%
Rest	09/89	STTH2 56%, POA++ 30%, LUPIN 38%

(d) Stockade Canyon

Post-Livestock	08/88	STTH2 33%, BAHO 18%, PUTR 22%, ELCI2 50%
Rest	09/89	PUTR2 6%, AGSP 18%, ELCI2 16%

APPENDIX 6 USE PATTERN MAPPING DATA
(maps available in District Office)

Use pattern mapping data was collected using four (4) use classes; no use (0%), light use (1-40%), moderate use (41-60%), and heavy (61-100%). Maps are available at the Winnemucca District office.
The following use pattern mapping data has been broken down by pasture.

(1) Dolly Varden Pasture

Use Class	08/88	6/89	11/89	7/90	10/90	11/90
Non-Use	2,234	10,900	5,387	0	748	0
Light	11,177	14,162	12,224	15,369	20,804	4,710
Moderate	1,133	902	1,127	7,364	3,919	257
Heavy	0	0	4,057	223	6,841	61
Total	14,544	25,964	22,795	22,956	32,312	5,028

(a) August 1988 - Rest

Non-use 15%, Light 77%, Moderate 8%, Heavy 0%. Light use throughout the pasture, areas near water sources were in the higher light use category (30-40%). Dolly Varden spring and creek both had moderate use.

(b) June 1989 - Pre-livestock Turnout

Non-use 42%, Light 55%, Moderate 3%, Heavy 0%. No use to light over the pasture. Rocky Basin and Dolly Varden Basin showed moderate use. The use in Rocky Basin occurred on the Fox Mtn. burn area. Moderate use in Dolly Varden Basin occurred primarily near the Dolly Varden spring area. Low elevations between Cottonwood Creek and Negro Creek generally showed no use.

(c) November 1989 - Post-livestock Use

Non-use 24%, Light 53%, Moderate 5%, Heavy 18%. Utilization was generally light over the pasture. The North Fork and Middle Fork of Negro Creek to Potato Patch Spring had no use to slight use. White Rock Spring had heavy use. Scraper, Corner, Mahogany Troughs, and Potato Patch Spring had light use. Heavy use occurred along all forks of Negro Creek drainage down to

the Chez Ranch where the use was in the high heavy range. Heavy use was also noted in the burn area, at Heward Reservoir, and at Dolly Varden Spring. Primary vegetation was Mtn. Big Sage (ARVA2), Antelope Bitterbrush (PUTR2), Curl-leaf Mtn. Mahogany (CELE3), and Low Sage (ARAR8).

(d) July 1990 - Pre-livestock Turnout

Non-use 0, Light 67%, Moderate 32%, Heavy 1%. Livestock had been turned out a week prior to use pattern mapping. Antelope Bitterbrush (PUTR2) had been lightly browsed by wildlife. Supply Camp Spring showed moderate use. Use was uniformly moderate from Dolly Varden Basin to Mud Spring on bluegrass (POA++), Thurber's Needlegrass (STTH2), Basin Wildrye (ELCI2), Cheatgrass (BRTE), and Bottlebrush Squirreltail (SIHY). Light use was found at Mud Spring. Wagon Tire Mtn. and Creek showed high moderate use and moderate use respectively. Wagon Tire Pass had light use. Potato Patch Spring had heavy utilization and the Negro Creek drainage showed light use on Shadscale (ATCO), Cheatgrass (BRTE), Thurber's Needlegrass (STTH2), Bluegrass (POA++), and Indian Ricegrass (ORHY).

(e) October 1990 - Post-livestock Use

Non-use 2%, Light 64%, Moderate 12%, Heavy 22%.

Use ranged from no use in Crutcher Canyon to heavy use in Negro Creek and Rocky Basin. Most of the pasture had light use (21-40%). The key species used for low elevations were: Bottlebrush Squirreltail (SIHY), Bluegrass (POA++), Basin Wildrye (ELCI2), and Willow (SALIX). The high elevation key species were: Bluegrass (POA++), Bluebunch Wheatgrass (AGSP), Idaho Fescue (FEID), Thurber's Needlegrass (STTH2), and Antelope Bitterbrush (PUTR2).

(f) November 1990 - Total Use

Non-use 0%, Light 16%, Moderate 18%, Heavy 66%. Utilization was generally heavy in the riparian areas of the pasture and in the Dolly Varden Basin. The upland areas had light to moderate use.

(g) November 1990 - Browse Studies

In November 1990, snowberry, bitterbrush, and serviceberry had varying degrees of use. Cattle did graze this pasture in the summer and wild horses were present all year long. All of the snowberry and most of the bitterbrush at the highest elevations had slight use. The leader growth and overall health of the plants was found to be good. The Crutcher Canyon, Red Mountain Creek area, and a canyon area just south of Melody Canyon all had heavy and severe use on bitterbrush. Red Mountain Creek also had moderate and light use further upstream.

Crutcher Canyon had about 50% of the bitterbrush plants with no current annual leader growth and the overall health was poor. The plants which grew had short (1" - 2") leader growth. The plants appeared to be stressed due to the drought conditions.

Red Mountain Creek area had the most severe use on bitterbrush at the lower elevations where shadscale and greasewood communities are predominant. Some of the bitterbrush inside the Red Mountain exclosure had moderate and heavy use possibly due to lack of forage competition by cattle and wild horses. In other words, the mule deer most probably congregated in this area because it is devoid of cattle and wild horse impacts.

The area south of Melody Canyon had bitterbrush poor leader growth and the overall plant vigor was poor.

The areas which had the heaviest use on browse also correspond to those areas which had the higher use on the grasses and to a lesser degree on the forbs.

(2) Calico Pasture

Use Class	10/88	7/89	10/89	3/90	7/90	10/90
Non-Use	0	0	0	0	0	0
Light	14,493	0	1,221	159	0	0
Moderate	0	3,468	1,935	7,513	18,334	93
Heavy	0	17,216	1,777	587	4,100	2,533
Total	14,493	20,684	4,933	8,259	22,435	2,626

(a) October 1988 - Rest

Non-use 0%, Light 100%, Moderate 0%, Heavy 0%. Utilization was near 40% over the area mapped. Most use occurred on the Mountain Big Sage (ARVA2) sites with the Low Sage (ARAR8) sites used to a lesser degree.

(b) July 1989 - Post-livestock

Non-use 0%, Light 0%, Moderate 17%, Heavy 83%. Cattle were being removed during use pattern mapping. Utilization was generally heavy throughout the pasture (61-80%). The higher country between Sheep Buttes and Division Peak had moderate to heavy use. Key species used in the higher elevations were Thurber's Needlegrass (STTH2), Idaho Fescue (FEID), Bottlebrush Squirreltail (SIHY), and Bluegrass (POA++). In the lower country use was heavy in the Donnelly Flat area and moved towards the moderate category going south to Cane Spring. Key species were Thurber's Needlegrass (STTH2), Cheatgrass (BRTE), Bottlebrush Squirreltail (SIHY), and Bluegrass (POA++). Heavy use was noted on the east side between Mormon Dan Canyon and Petrified Canyon.

(c) October 1989 - Rest

Non use 0%, Light 25%, Moderate 39%, Heavy 36%. Light utilization was shown in the Donnelly Flat area with heavy utilization occurring near water sources. Heavy utilization occurred between Sheep Buttes to Division Peak.

(d) March 1990 - Total Use

Non-use 0%, Light 2%, Moderate 91%, Heavy 7%. Moderate use occurred in the Donnelly Flat area with heavy utilization near water sources and around Harry Spring.

(e) July 1990 - Post-livestock Use

Non-use 0%, Light 0%, Moderate 82%, Heavy 18%. Utilization generally fell within the moderate range. There were three areas of heavy use (61-100%): McCarty Spring, Government/Burro Springs, and Cane Spring. Key species for the

lower elevations were Bottlebrush Squirreltail (SIHY) and Indian Ricegrass (ORHY) and the high elevation species were Bluegrass (POA++), Idaho Fescue (FEID), and Thurber's Needlegrass (STTH2).

(f) October 1990 - Total Use

Non-use 0%, Light 0%, Moderate 3%, Heavy 97%. Overall use appears to be heavy between Sheep Buttes and Buck Spring.

(3) Granite Pasture

Use Class	10/88	9/89	8/90	11/90	7/91
Non-Use	0	13,506	0	0	0
Light	1,241	13,561	20,237	3,791	4,710
Moderate	0	7,536	269	1,356	257
Heavy	348	327	3,957	6,169	61
Total	1,589	34,930	24,463	11,316	5,028

(a) October 1988 - Post-livestock Use

Non-use 0%, Light 78%, Moderate 0%, Heavy 22%. Overall use appeared to be no use to light on the upland forage. Heavy use was concentrated on the areas near water sources. The mapping effort was concentrated on high summer country and all areas which were accessible by motor vehicle.

(b) September 1989 - Rest

Non-use 38%, Light 39%, Moderate 22%, Heavy 1%.

The use on Granite Mtn. was light from the Banjo to Skull Meadows and increased to moderate and heavy use from Skull Meadows to the Tank. The wet and dry meadows south of Skull Meadows to the Tank had heavy utilization. Clear Creek had moderate utilization. From Skull Meadows north to the Banjo and Wagon Tire no use to light use occurred on the upland vegetation; moderate to heavy use on the meadows and the areas near the spring sources. Along the fans on the west side of Granite Mtn., from the Cottonwood drift fence to the Fisk Ranch, utilization was light. From the Fisk Ranch south to Granite Point no use was found, Granite Basin was moderate with some areas of light and heavy use.

(c) August 1990 - Rest

Non-use 0, Light 83%, Moderate 1%, Heavy 16%. From Skull Meadows north utilization was light to slight along the western bench and the steep eastern slopes. Light use occurred in the Rock Creek area. There were two areas with moderate utilization, a high elevation wet meadow and a lower elevation meadow just north of Granite Basin. Heavy use occurred at the higher elevations along the top of Granite Mtn. and in Granite Basin on Basin Wildrye (ELCI2). Clear Creek Meadow to the Tank had light use. Low Sage (ARAR8), Wyoming Big Sage (ARTRW), and Lanceleaf Rabbitbrush (CHVIL4) were all hedged.

(d) November 1990 - Total Use

Non-use 0%, Light 34%, Moderate 12%, Heavy 54%. Overall use appeared to be moderate to heavy. Moderate use occurred in Squaw Valley, Wagon Tire Pass, The Banjo, and north of Rock Creek. Heavy use occurred in two areas under the LAWP powerline, at Granite Basin along the drift fence, and south of Hualapai Flat.

(f) November 1990 -Browse Studies

In November 1990 mountain browse species, snowberry and quaking aspen, were monitored by use pattern mapping. Snowberry had slight use and the aspen had no use where monitored. Plant vigor and overall health was good. The mountain browse areas monitored did not have livestock grazing in 1990 and the major concentrations of wild horses for this pasture are farther south and west on the Granite Range.

(e) July 1991 - Pre-livestock Turnout

Non-use 0%, Light 94%, Moderate 5%, Heavy 1%. Utilization from Skull Meadows to the north end of the pasture was slight to light with heavy use at the headwaters of Little Cottonwood Creek. From Skull Meadows south, light to moderate use occurred. There was moderate use in the dry meadows and light use on the steeper upland sites.

(4) Buffalo Hills Pasture

Use Class	8/88	9/89	9/90	11/90
Non-Use	0	268	0	0
Light	7,752	814	74,059	631
Moderate	7,840	34,844	3,637	4,829
Heavy	345	3,878	571	8,152
Total	15,937	39,804	78,267	13,612

(a) August 1988 - Post-livestock Use

Non-use 0%, Light 49%, Moderate 49%, Heavy 2%. The eastern portion of the pasture had light utilization and the western had moderate use.

(b) September 1989 - Rest

Non-use 1%, Light 2%, Moderate 88%, Heavy 9%. The Poodle Mtn. area had moderate to heavy use and the valley between Cherry Spring and Buck Spring had heavy use on Bluegrass (POA++) and Bottlebrush Squirreltail (SIHY). The was no use to slight use between Tin Spring and Black Buttes. Pauls Camp Canyon had moderate to heavy use on Bluebunch Wheatgrass (AGSP) and Cheat grass (BRTE). From Boulder Flat and White Heifer Springs to the highway, use was determined to be light to moderate with heavy use around water sources. Burnt and Button Mtns. had moderate use with heavy use near water sources and in the wet and dry meadows.

(c) September 1990 - Rest

Non-use 0%, Light 94%, Moderate 5%, Heavy 1%. Utilization was light over most the area. Burnt Mtn. appeared to have moderate use and the water sources had moderate to heavy use.

(d) November 1990 - Total Use

Overall use appeared to be moderate to heavy. Moderate use occurred from Boulder Flat, north to White Heifer Spring and south of Granite Spring. Heavy use occurred from Button Mtn. west to Burnt Mtn. and south of Granite Canyon.

(e) November 1990 - Browse Studies

This pasture was not grazed in 1990 but wild horses were present all year long.

The areas in which mountain browse was monitored also corresponds to the same degree of use on the grasses. In November 1990, the bitterbrush had light, heavy, and severe use. Much of the leader growth and the overall bitterbrush health was poor. The high number of wild horses increase or modify the forage utilization which forces wildlife species to use bitterbrush and less preferred forage species earlier in the winter season than normal. In November, the mule deer should be changing from other forage species to bitterbrush for the winter.

APPENDIX 7 WILD HORSE DISTRIBUTION FLIGHT DATA

A. Aerial Distribution Mapping (Maps available in D.O.)

Calico Pasture

September 1988 Census

The horses were concentrated at the higher elevations in the northern portion of the pasture from Mormon Dan Canyon, north to the pasture boundary with a large concentration around Division Peak.

July 1989 Census

The northern portion of the pasture in the higher elevations is where the horses were found. The highest concentration occurred around S. Donnelly Peak, Division Peak, and Harry Spring.

February 1990 Distribution

Again, the horses appear to prefer the northern areas of the pasture and were concentrated around Leadville Canyon, Donnelly Creek, McCarty Spring, and Harry Spring but were also found at lower elevations.

August 1990 Aerial Recon

All the horses were found from Cow Creek, north to Harry Spring at the higher elevations.

January 1991 Distribution

Horses were observed from the southern tip of the Calico Mtns. to Petrified Canyon and at Donnelly Flat mainly in the lower elevations.

July 1991 Distribution

The horses were found in the higher elevations from Cane Springs to the northern pasture boundary with a small concentration around Division Peak and Sheep Buttes.

March 1992 Distribution

The horses were found in the lower elevations from Mormon Dan Canyon to Petrified Canyon, at Donnelly Flat, south of Razor Canyon, and from Harry Spring to the northern pasture boundary.

May 1992 Distribution

Horses were found in the higher elevation areas in the vicinity of Division Peak and the head waters of Donnelly Creek. There were very few horses found in Donnelly Flat, a small number along the top of the Calico Hills, and there were no horses found from Razor Canyon south to Hualapai Flat.

July 1992 Distribution

The highest concentration of horses were found at higher elevations around Division Peak and the head waters of Donnelly Creek. Horses were also concentrated along the eastern side of Donnelly Flat along the toe slopes of the mountain. There were a few horses found in the low rolling hills from Razor Canyon south to Hualapai Flat, and in the mid elevations from the North Fork of Cow Creek south to South Donnelly Peak. There were no horses found in the Calico Hills.

October 1992 Census

Horses were concentrated on the south side of Division Peak and along the top of the mountain and mid slope from Division Peak south to South Donnelly Peak. There were also quite a few horses found in Donnelly Flat and the low rolling hills from Razor Canyon south to Hualapai Flat. Horses were found to be occupying all habitats within this area of the HMA.

Year	Number Observed	Aircraft
9/88*	358	Bell 47-S
7/89*	375	Bell 47-S
2/90	68	Cessna 210
1/91	76	Cessna 210
7/91	337	Maule M-5
3/92	256	Cessna 210
5/92	273	Maule M-5
7/92	358	Maule M-5
10/92*	365	Bell 47-S

Dolly Varden Pasture

September 1988 Census

During this flight, horses were concentrated around the three forks of Negro Creek, and east of the north fork to

Leadville Canyon in the higher elevations. There was also a large number of groups from Melody Mtn. to Heward Reservoir.

July 1989 Census

The horses were found at higher elevations concentrated from Wagon Tire Mtn. to Heward Reservoir, Rocky Basin to Melody Mtn., Scraper Spring to the north fork of Negro Creek, and at Potato Patch Spring.

February 1990 Distribution

Horses were scattered from Mahogany Troughs south east to Iverson Reservoir with a small concentration at Dolly Varden Basin at both high and low elevations.

January 1991 Distribution

The highest concentration of horses were found in the Melody Mountain to Mud Spring to Potatoe Patch Spring area, lower reaches of Negro Creek south to Red Mountain Creek and Wagon Tire Mountain. There were also some horses found in the Dolly Varden Basin and Crutcher Springs area.

July 1991 Distribution

Horses were found in the higher elevations with Wagon Tire Mtn. was the only area of high concentration.

March 1992 Distribution

Horses were distributed mainly in the low elevations from Warm Spring south east along Negro Creek. There was a small concentration at Right Hand Canyon, and from Red Mtn. Creek to the south fork of Negro Creek.

May 1992 Distribution

There were no horses found east of the area bounded by Red Mountain and Melody Mountain. Horses were concentrated on Wagon Tire Mountain in the headwaters of Wagon Tire Creek, Dolly Varden Basin, Rocky Basin and the headwaters of the North Fork of Negro Creek.

July 1992 Distribution

There were only 2 horses found between Melody Mountain and Right Hand Canyon, and there were no horses east of Melody Mountain or in the lower reaches of Negro Creek. There were also no horses found in the Crutcher Canyon, Dolly Varden Basin and Supply Camp Spring areas. Horses were concentrated from Heward Reservoir northwest to High Up Spring, Rocky

Basin, and the headwaters of Negro Creek from Potatoe Patch Spring to White Rock Spring.

October 1992 Census

There were no horses found west of Mud Spring and very few were observed on the flats from Wagon Tire Creek north to Negro Creek. Horses were concentrated at higher elevations in the vicinity of Wagon Tire Mountain, and from Melody Mountain north through the headwaters of Negro Creek to Corner Spring. Rocky Basin, Dolly Varden Basin and the Crutcher Canyon area had a small number of horses.

Year	Number Observed	Aircraft
9/88*	443	Bell 47-S
7/89*	469	Bell 47-S
2/90	190	Cessna 210
1/91	243	Cessna 210
7/91	428	Maule M-5
3/92	498	Cessna 210
5/92	451	Maule M-5
7/92	421	Maule M-5
10/92*	620	Bell 47-S

Buffalo Hills Pasture

July 1988 Census

The helicopter census in July 1988 showed that horses were concentrated from Stockade Canyon, north to Jenkins Spring in the northern portion of the pasture. In the southern area the horses were found from Boulder Flat, southeast to Wall Canyon and from Wall Canyon, west to Horse Canyon.

July 1989 Census

Horses were distributed throughout the pasture with high concentrations in the following areas: Burnt Mtn., south to Granite Spring, between Wrangler and Stockade Canyons, from Cherry Spring to Indian Rock Spring, and in the Poodle Mtn. and Boulder Flat area.

December 1989 Distribution

The horses were distributed evenly throughout the pasture at all elevations.

February 1990 Census

Horses were distributed evenly throughout the pasture with the highest concentration between Little Sawmill Canyon and Big Sawmill Canyon. They were found at the lower elevations.

January 1991 Distribution

Horses were found from Wrangler Canyon, north to Jenkins Spring and from Poodle Mtn. south to Five Springs Canyon, and at Antelope Spring.

August 1991 Distribution

The highest concentrations of horses were found from Black Butte to Wrangler Canyon, Five Springs Canyon to Button Mtn., and at White Heifer Spring.

March 1992 Distribution

During this distribution flight most of the horses were found in the northern portion of the pasture. They were found between Five Springs Canyon to Antelope Spring and from Wrangler Canyon to Jenkins Spring.

May 1992 Distribution

Horses were concentrated from Pauls Camp Spring north to the South Fork of Frog Creek along the mid slopes of the hills, and from Antelope Spring south to Five Springs Canyon along the higher hills.

July 1992 Distribution

Horses were distributed throughout the HMA being found primarily on the rolling hills adjacent to the various flats in the area. A large number of horses were found utilizing the southeastern portion of the HMA in the vicinity of Big Sawmill Canyon. There were no horses found in the lower elevations adjacent to the Smoke Creek Desert.

October 1992 Census

Horses were concentrated west of Boulder Flat from Stockade Canyon to White Heifer Spring, and east of Boulder Flat from Antelope Spring to Granite Spring. There were also a number of horses found on mid and upper slopes from Indian Rock Spring northwest to Big Sawmill Canyon. There were no horses found in the lower elevations adjacent to the Smoke Creek Desert.

Year	Number Observed	Aircraft
7/88*	602	Bell 47-S
7/89*	704	Bell 47-S
12/89	332	Cessna 210
2/90	207	Cessna 210
1/91	181	Cessna 210
7/91	326	Maule M-5
3/92	296	Cessna 210
5/92	279	Maule M-5
7/92	414	Maule M-5
10/92*	586	Bell 47-S

Granite Pasture

September 1988 Census

Horses were concentrated from Rock Creek to Granite Basin. They were found at the higher elevations.

July 1989 Census

During this census horses were distributed in the higher elevations from The Banjo to Granite Point with high concentrations in Skull Meadows and south of Granite Basin.

February 1990 Distribution

Horses were found mainly on the eastern side of the pasture, north of Granite Basin to Little Cottonwood Creek. The horses were distributed evenly throughout the low and high elevations.

January 1991 Distribution

The largest concentration of horses were found using the area between Highway 34 and the base of the mountain from the Cottonwood drift fence south to Granite Basin. There were smaller groups found in Miller Basin, The Banjo, Granite Basin, and at higher elevations south of Granite Peak.

July 1991 Distribution

The horses were concentrated along the east side of Granite Peak and south towards Granite Basin at higher elevations.

March 1992 Distribution

Horses were found from Granite Creek to Little Cottonwood

Creek and in Granite Basin along the lower elevations.

May 1992 Distribution

There were no horses found north of the line between Miller Basin and Little Cottonwood Creek, or in Granite Basin. Between Little Cottonwood Creek and Rock Creek horses were found near the top of the steep side slope. The highest concentration of horses were found at higher elevations from Skull Meadows south, and along the base/mid slope of the steep mountain side from Granite Creek to Granite Basin.

July 1992 Distribution

There were no horses found in Granite Basin or north of the Banjo, however a small number of horses were found in the vicinity of Miller Basin and the Banjo. Horses were concentrated along the steep slopes from Little Cottonwood Creek south to Rock Creek, and at higher elevations from Granite Peak south. A small group of wild horses were found on the Fly Ranch.

October 1992 Census

The highest concentration of horses were found on the steep eastern slope and flats from Little Cottonwood Creek south to Granite Creek, around the Granite Ranch, Granite Basin, and at higher elevations from The Tank to Granite Basin. There were a group of 19 horses found on the Cottonwood drift fence at Wagon Tire Pass that were trying to escape north to Wagon Tire Mountain however the gates were closed preventing the horses from moving north. It appears that these horses were part of the animals found around Heward Reservoir in May and that they had moved into the area through an open gate which was subsequently closed. It is highly probable that the horses will move back north when the gate is left open again.

Year	Number Observed	Aircraft
9/88*	181	Bell 47-S
7/89*	307	Bell 47-S
2/90	108	Cessna 210
1/91	192	Cessna 210
7/91	332	Maule M-5
3/92	225	Cessna 210
5/92	331	Maule M-5
7/92	294	Maule M-5
10/92*	530	Bell 47-S

* Census Flights

b) On the ground Distribution Mapping

On the ground distribution mapping has been conducted since 1989, however terrain and access does not allow for a thorough check of the allotment. In general horses were observed at lower elevations in the fall/winter months and at higher elevations during the spring/summer months.

APPENDIX 8 STOCKING LEVEL CALCULATIONS AND PROCEDURES

To determine stocking levels the Weighted Average Utilization and Desired Stocking Level calculations were used.

Weighted Average Utilization =

$$\frac{(\text{\# acres in Zone A} \times \text{midpoint of use class}) + (\text{\# acres in Zone B} \times \text{midpoint of use class})}{\text{Total \# of Acres}}$$

Desired Stocking Level =

$$\frac{\text{Actual Use}}{\text{Weighted Average Utilization}} = \frac{\text{Desired Actual Use}}{\text{Desired Average Utilization}}$$

The Desired Stocking Level calculation was used to determine the number of AUMs available for use by wild horses and livestock in each pasture that would lead to the achievement of allotment objectives. The desired end of grazing season (February 28) utilization for all pastures is 60% on upland perennial grasses and 50% on upland browse species.

After the total carrying capacity was determined for each pasture, the AUMs were allocated to livestock and wild horses using the following ratios recommended in the last allotment evaluation.

1988 Allotment Evaluation AUMs and Ratios

Pasture	Livestock	Wild Horses
Calico	2563 (59%)	1788 (41%)
Dolly Varden*	1596 (57%)	1200 (43%)
Buffalo Hills	2563 (44%)	3264 (56%)
Granite*	1596 (64%)	912 (36%)

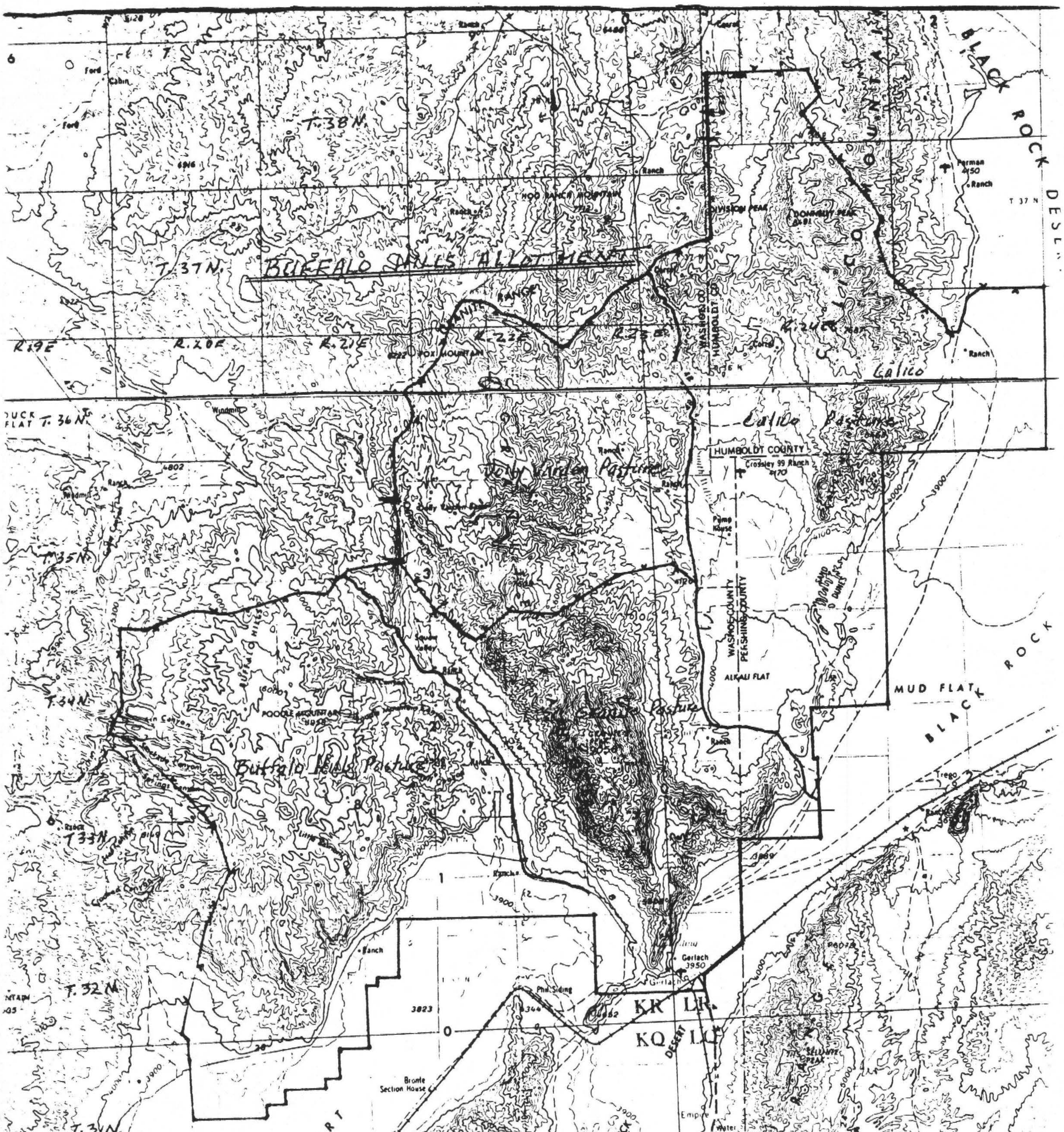
* to facilitate the management of the priority mule deer and bighorn sheep habitat in the Granite Range the AML for wild horses in the Granite Range Herd Management Area were divided so 76 head (912 AUMs) would be in the Granite pasture and 100 head (1200 AUMs) would be in the Dolly Varden pasture.

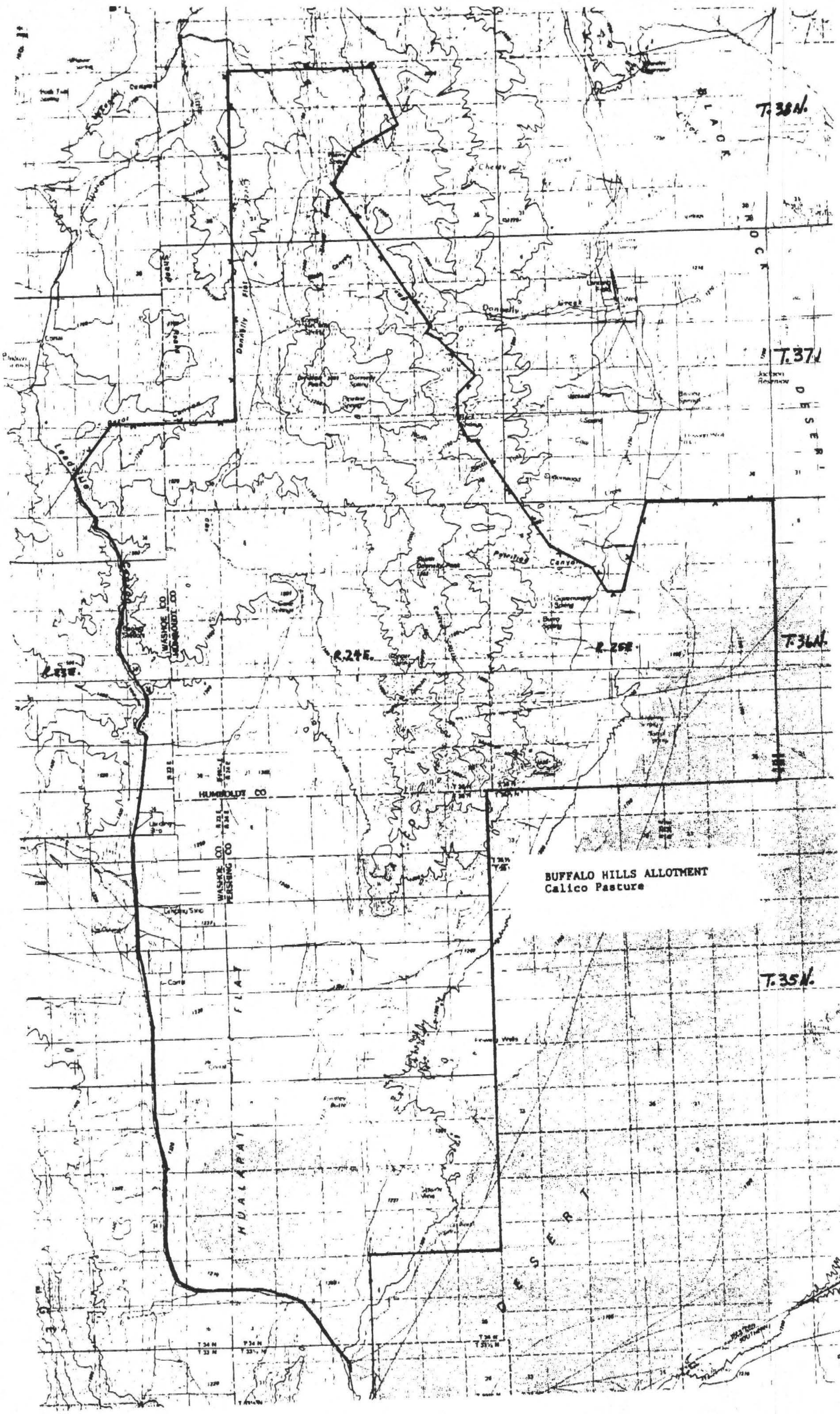
APPENDIX 9 LIVESTOCK/WILD HORSE AUM RATIOS

The ensuing table compares the livestock/wild horse AUM ratios established in the 1988 Allotment Evaluation to the allocated AUM ratios that are set in this document.

	1988	1992
PASTURE		
CALICO		
TOTAL AUMS	4166	3935
LVT AUMs	2458 (59%)	2226 (57%)
WH AUMs	1708 (41%)	1708 (43%)
DOLLY V.		
TOTAL AUMs	5074	4115
LVT AUMs	2892 (57%)	1933 (47%)
WH AUMs	2182 (43%)	2182 (53%)
BUFFALO H.		
TOTAL AUMs	6722	6327
LVT AUMs	2958 (44%)	2563 (40%)
WH AUMs	3764 (56%)	3768 (60%)
GRANITE		
TOTAL AUMs	2519	2503
LVT AUMs	1612 (64%)	1596 (64%)
WH AUMs	907 (36%)	912 (36%)

NOTE: Some numbers do not add to 100% because of rounding.


BUFFALO HILLS ALLOTMENT
T. 38 N.
T. 37 N.
T. 36 N.
T. 35 N.
T. 34 N.
T. 33 N.
T. 32 N.
T. 31 N.
R. 19 E
R. 20 E
R. 21 E
R. 22 E
R. 23 E
R. 24 E
Calico
Calico Pasture
Dolly Varden Pasture
Buffalo Hills Pasture
BLACK ROCK
BLACK ROCK DESERT
MUD FLAT
ALKALI FLAT
HUMBOLDT COUNTY
WASHOE COUNTY
PERSHING COUNTY
DIVISION PEAK
HOG RANCH MOUNTAIN
FOX MOUNTAIN
POODLE MOUNTAIN
GRANITE RANGE
Crossley 99 Ranch
Pump House
Gerlach
3950
Phil. Siding
Bronte Section House
Empire
Trego
Ranch
Windmill
KR
LR
KQ
LQ
DESERT
ROCK


T. 38 N.
T. 37 N.
T. 36 N.
T. 35 N.
R. 23 E.
R. 24 E.
R. 25 E.
WASHOE CO
HUMBOLDT CO
PERSHING CO
HUALAPAI FLAT
Donnelly
Petrified Canyon
Government Spring
BUFFALO HILLS ALLOTMENT
Calico Pasture


Crucial Mule Deer Habitat
BUFFALO HILLS ALLOTMENT
Dolly Varden Pasture
T.36N.
T.35N.
R.22E.
R.23E.
WASHOE CO
HUMBOLDT CO
Leadville
Buckhorn Peak 2223
Fox Mountain 2494
Red Mountain 2029
Wagon Tire Mtn 2327
Shovel Spring
Corner Spring
75 Dollar Spring
Cold Spring
White Rock Spring
Scraper Spring
Potatoe Patch Spring
Supply Camp Spring
Mud Spring
Dry Lake
Dolly Varden Spring
Crutcher Springs
Chicken Spring
Wagon Tire Pass
Tuerson Res
Cherry Canyon
Melody
Rocky Basin
Dolly Varden Basin
Grass Valley
Granite Peak
Landing Strip
Lookout Spring
Radio Facility
Warm Spring
Middle Fork
North Fork
South Fork
Negro Creek
Cherry Creek
Melody Canyon
Leadville Canyon
Squaw Valley
Howard Troughs
Clagins Station
4WD
2000
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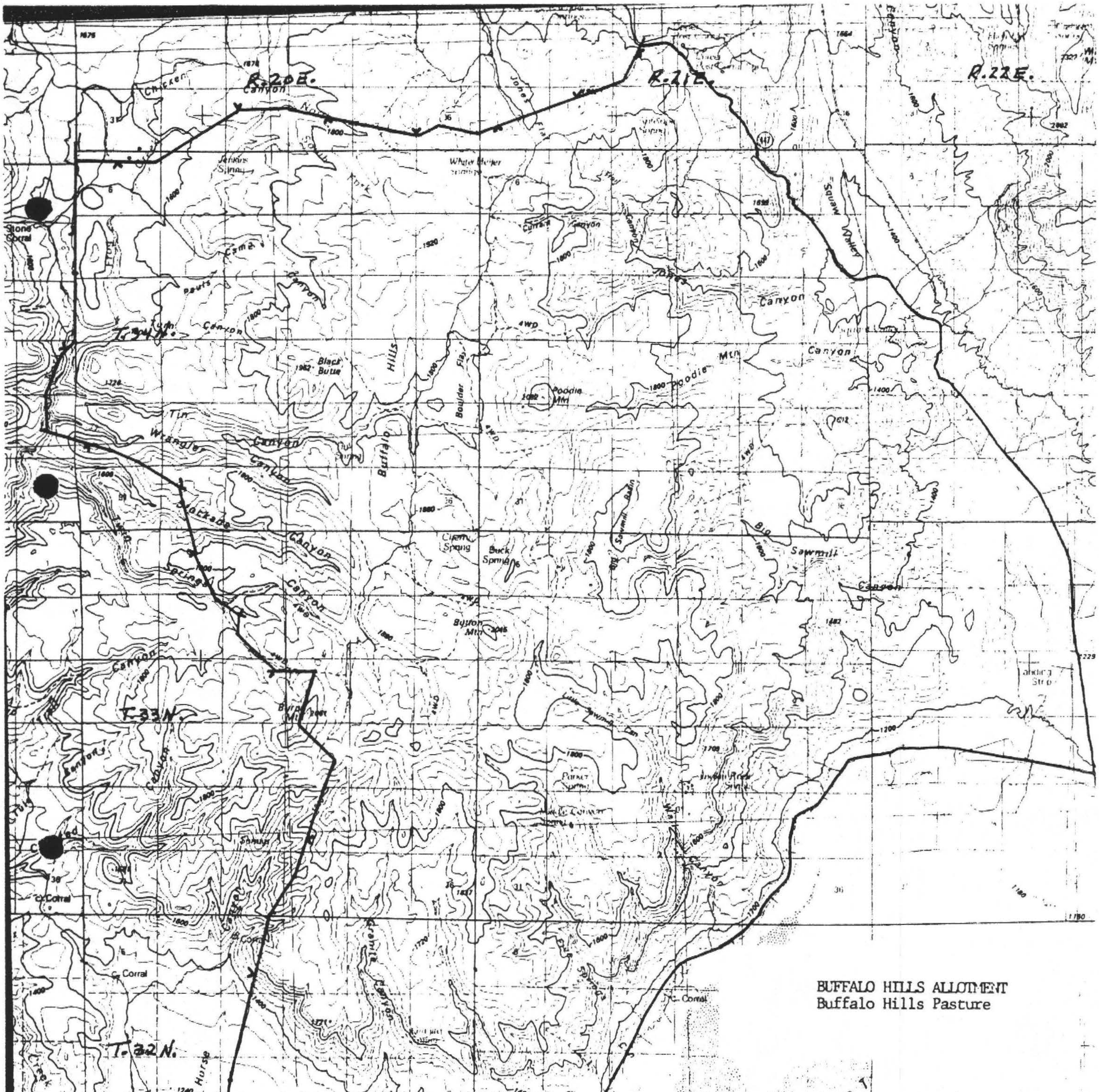
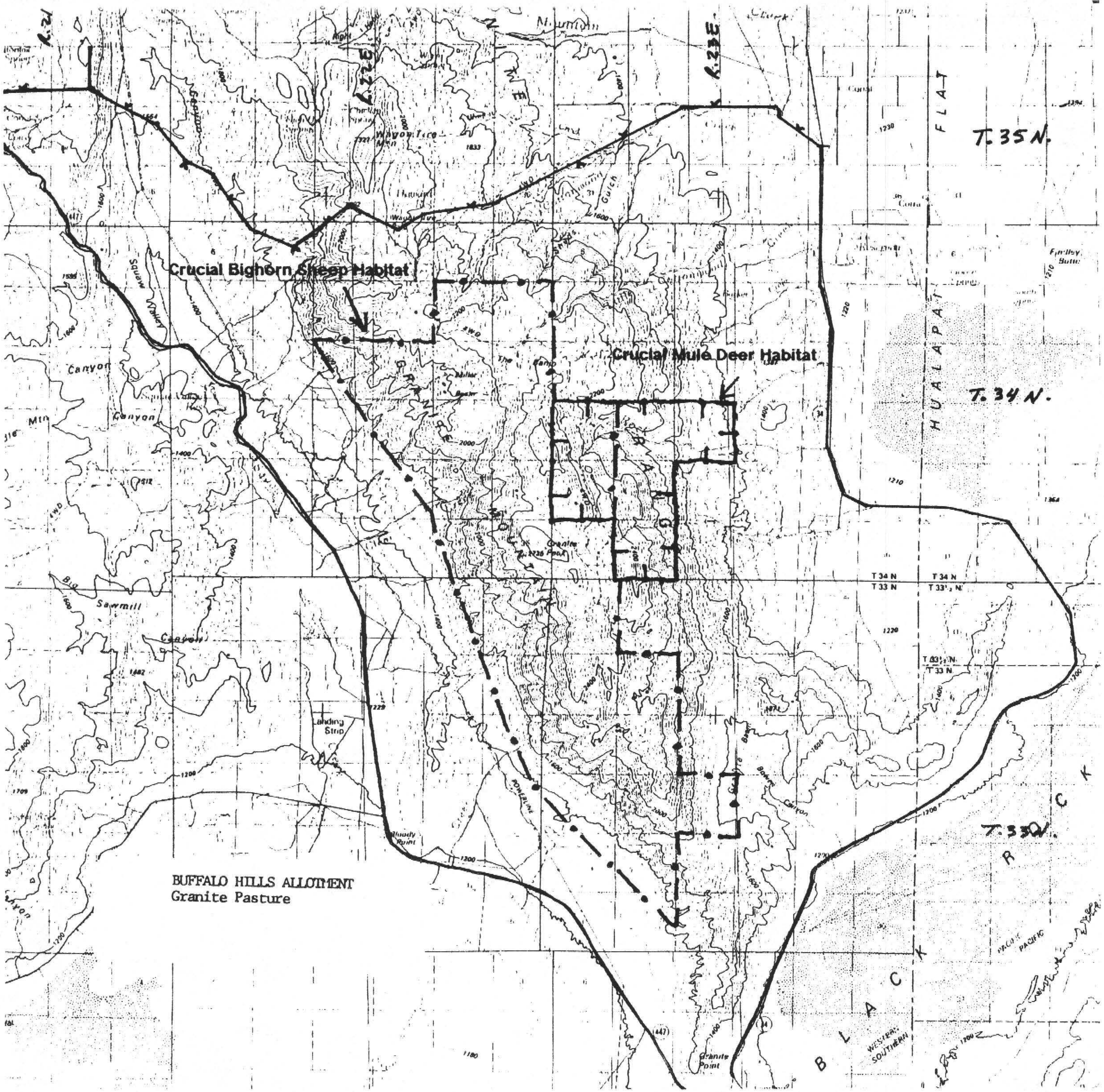
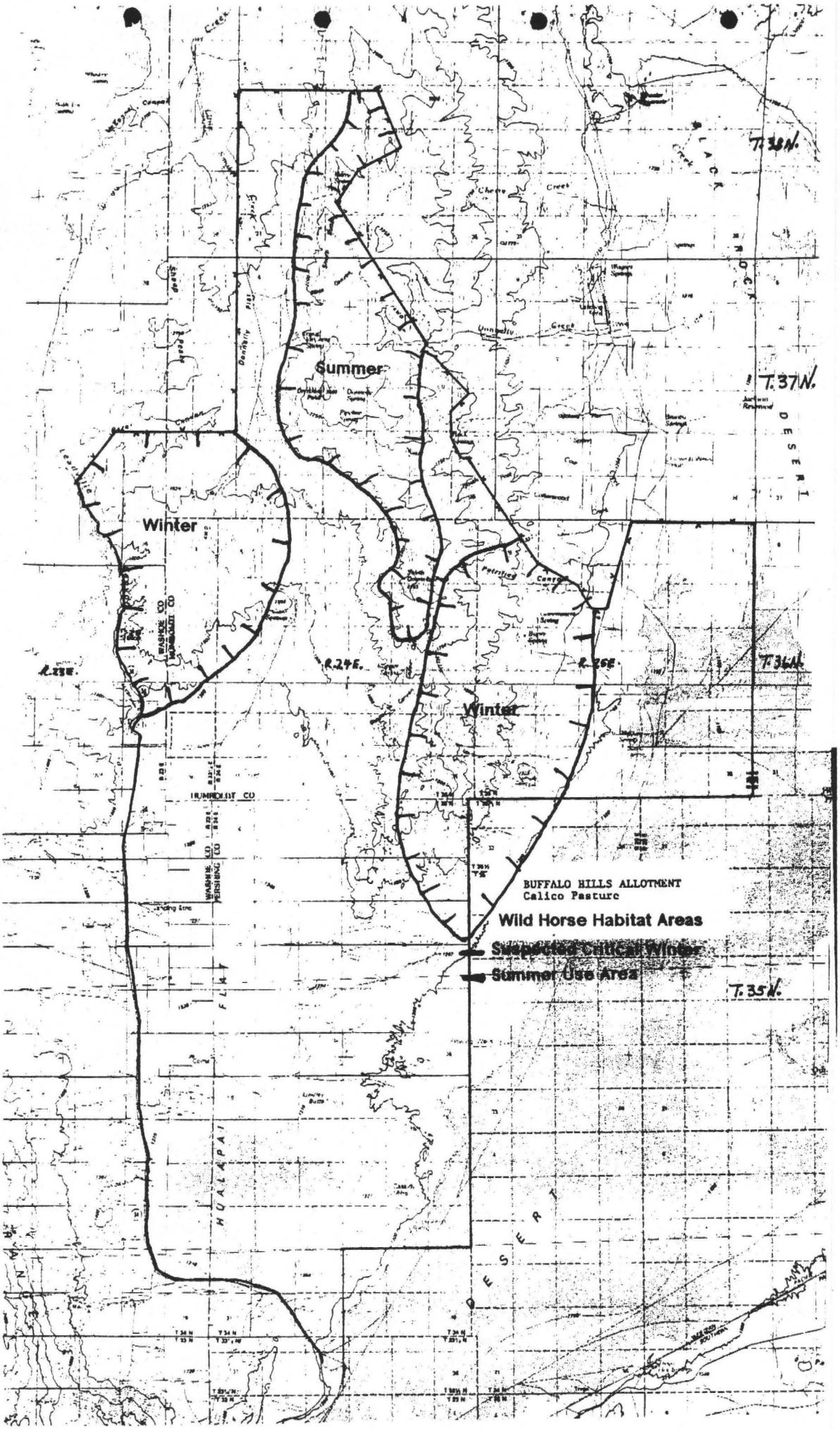
1600
1400
1200
1000
1500
1750
2084
1538
1309
1320
1833
2002
1917
1564

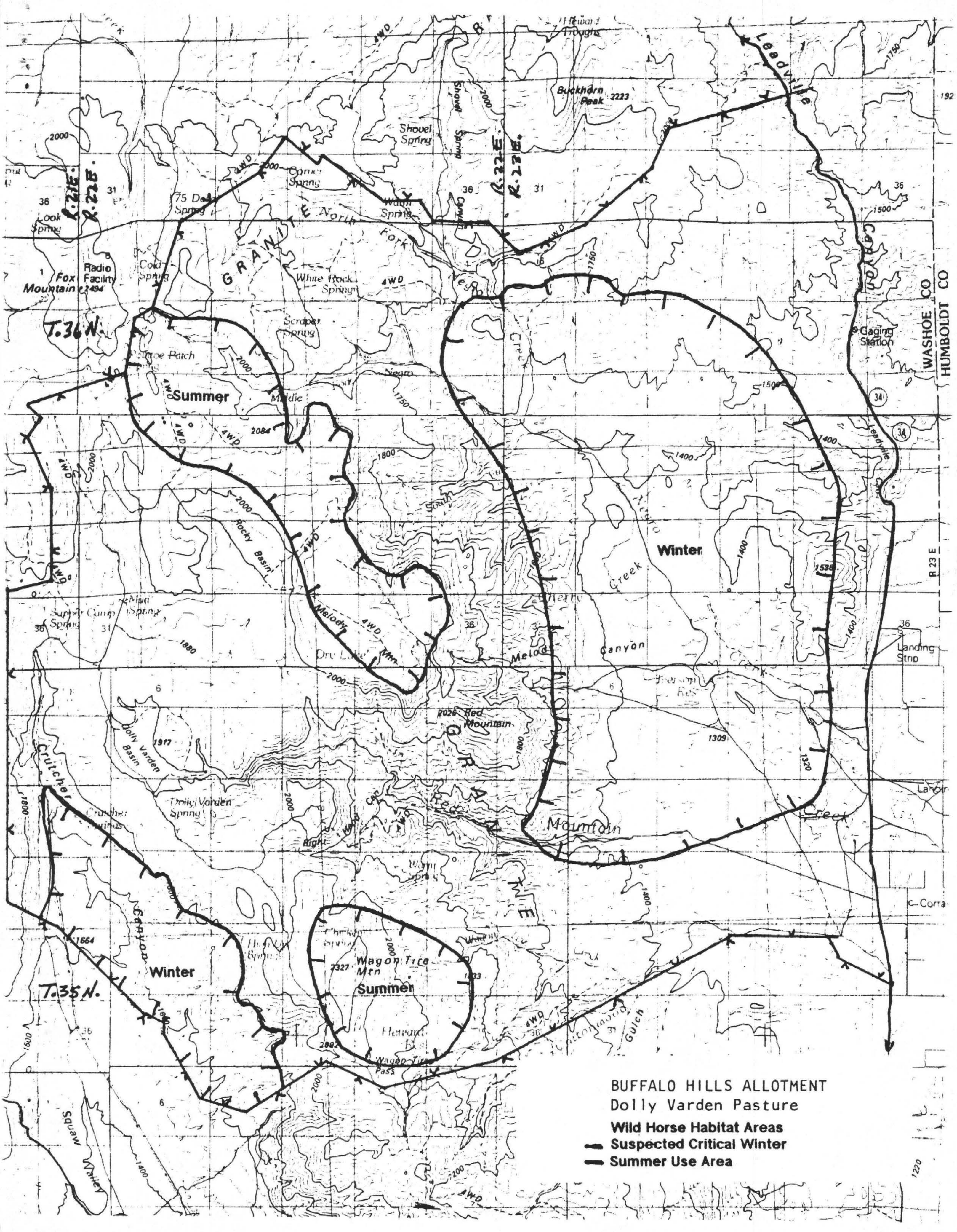


BUFFALO HILLS ALLOTMENT
Buffalo Hills Pasture

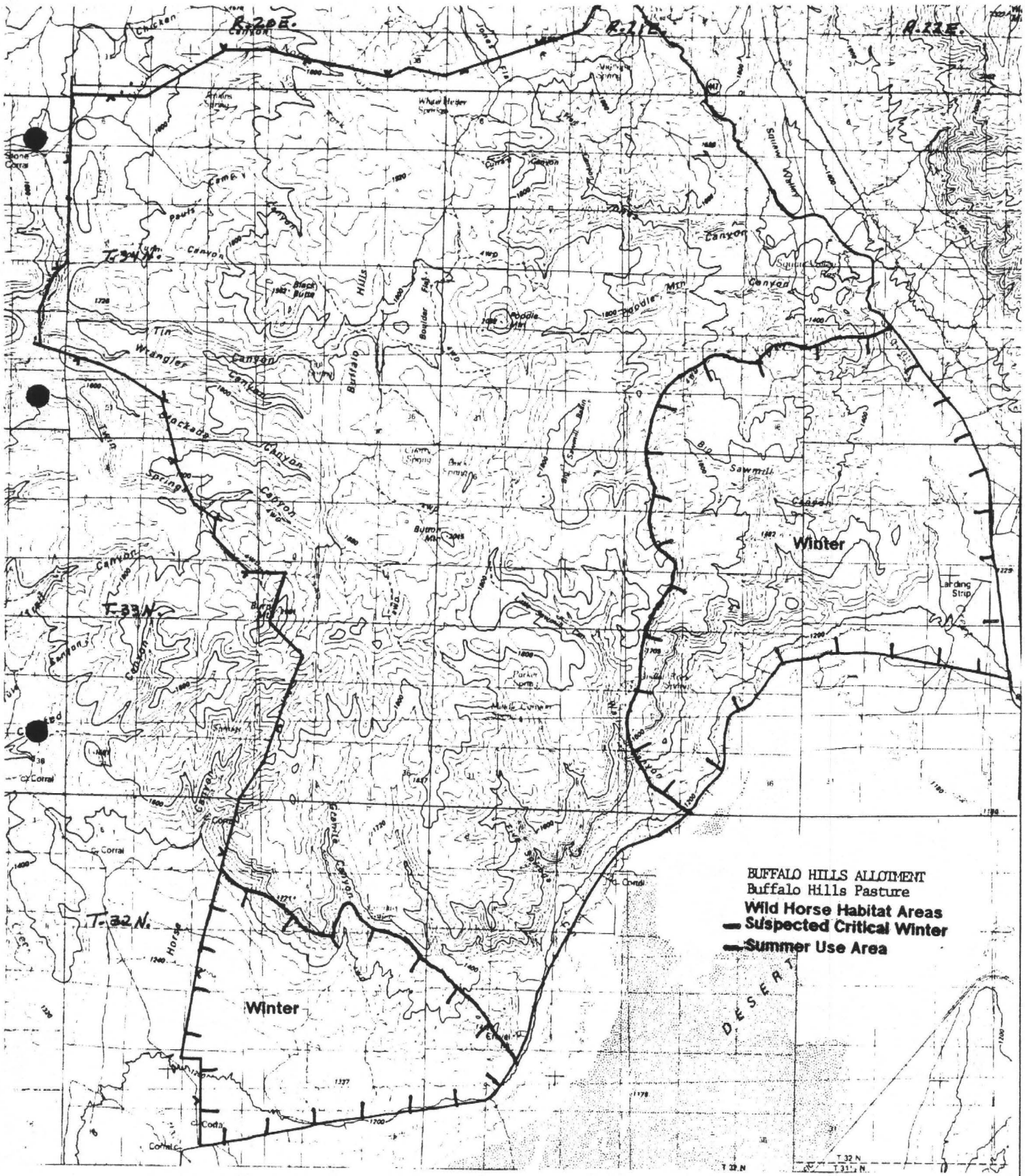


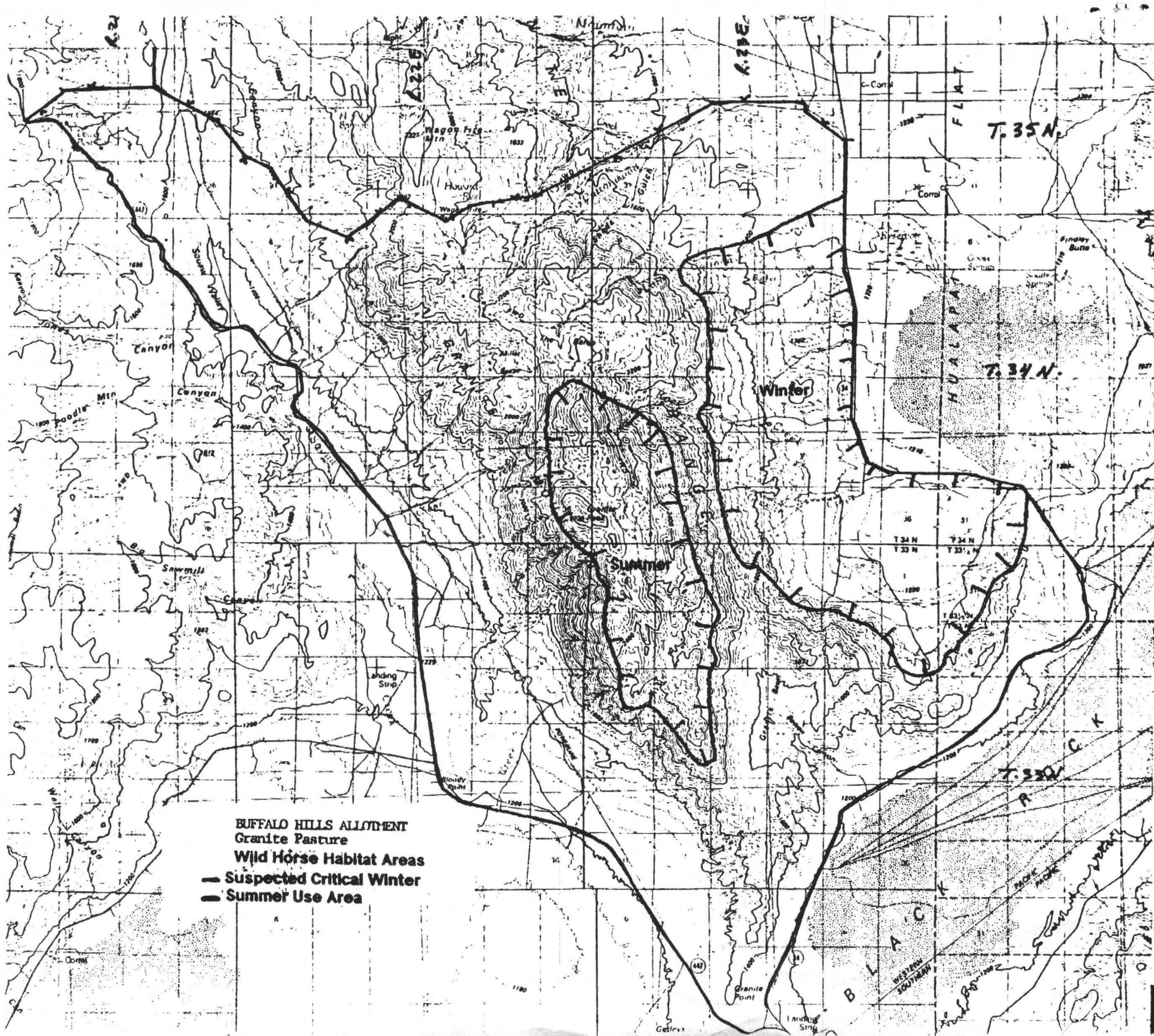
Crucial Bighorn Sheep Habitat
Crucial Mule Deer Habitat
T. 35 N.
T. 34 N.
T. 33 N.
R. 21
R. 22 E.
R. 23 E.
HUALAPAI
FLAT
BLACK ROCK
Granite Peak
Landing Strip
Bloody Point
Granite Point
Big Sawmill Canyon
BUFFALO HILLS ALLOTMENT
Granite Pasture


T.38N.
T.37N.
T.36N.
T.35N.
R.23E.
R.24E.
R.25E.
Summer
Winter
Winter
BUFFALO HILLS ALLOTMENT
Calico Pasture
Wild Horse Habitat Areas
Suspected Critical Winter
Summer Use Area
BLACK ROCK DESERT
HUALAPAI FLAT
HUMBOLDT CO
WASHOE CO
PERSHING CO



BUFFALO HILLS ALLOTMENT
Dolly Varden Pasture
Wild Horse Habitat Areas
Suspected Critical Winter
Summer Use Area
Summer
Winter
Winter
Summer
T.36N.
T.35N.
R.21E.
R.22E.
R.22E.
R.23E.
R 23 E
WASHOE CO
HUMBOLDT CO
Fox Mountain 2494
Radio Facility
Buckhorn Peak 2223
Shovel Spring
Corner Spring
75 Deg Spring
Warm Spring
Cold Spring
White Rock Spring
Scraper Spring
Rocky Basin
Melody Mtn
Red Mountain
Dolly Varden Basin
Dolly Varden Spring
Crutcher
Canyon
Wagon Tire Mtn
Wagon Tire Pass
Gaging Station
Landing Strip
Leadville
Cottonwood Gulch
Squaw Valley
Creek
Canyon
4WD


R.20E.
R.21E.
R.22E.
T.34N.
T.33N.
T.32N.
Winter
Winter
BUFFALO HILLS ALLOTMENT
Buffalo Hills Pasture
Wild Horse Habitat Areas
Suspected Critical Winter
Summer Use Area
DESERT



BUFFALO HILLS ALLOTMENT
Granite Pasture
Wild Horse Habitat Areas
Suspected Critical Winter
Summer Use Area
Winter
Summer
T. 35 N.
T. 34 N.
T. 33 N.
R. 22 E.
R. 23 E.
HUALAPAI
FLAT
BLACK ROCK
Canyon
Landing Strip
Bloody Point
Granite Point
Corral
Findley Butte
WESTERN PACIFIC

1-22-93

STATE OF NEVADA
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BOB MILLER
Governor

WILLIAM A. MOLINI
Director

January 22, 1993

Mr. Bud Cribley
Sonoma-Gerlach Resource Area
Bureau of Land Management
705 East Fourth Street
Winnemucca, Nevada 89445

RE: Protest - Notice of Proposed Full Force and Effect Decision - Buffalo Hills Allotment

Dear Bud:

The Nevada Department of Wildlife formally protests the Notice of Proposed Full Force and Effect Multiple Use Decision - Buffalo Hills Allotment - January 14, 1993. Our agency has a long term investment into the land use planning activities for this high priority allotment in the Sonoma-Gerlach Resource Area. As a part of the Sonoma-Gerlach Final Grazing Environmental Impact Statement and Management Framework Decisions, the Department provided data and comments concerning the welfare of fish and wildlife habitats. We continue our participation in planning through the Buffalo Hills Coordinated Resource Management Planning processes and the Fox Mountain Habitat Management Plan. Specific comments to the Buffalo Hills Allotment Evaluation and Livestock Agreement in 1988 further emphasized the need to protect and restore critical fish and wildlife habitats. We find the recent proposed decision in error for the following reasons:

LIVESTOCK MANAGEMENT DECISION

The Proposed Decision is contrary to the land use plan.

Management Framework Plan Decision WLA 1.3 states: Priority for HMP development should be on streams that have potential for habitat improvement as listed: 3. Red Mountain Creek; 6. Clear Creek; 7. Granite Creek; 19. Cottonwood Creek; 21. Rock Creek.

Management Framework Plan Decision WLA 1.4 states: "ensure that fish habitat factors are included as objectives of AMPs that contain fishable streams."

Management Framework Plan Decision WL.4a states: "The primary management objective for the following area is to provide crucial wildlife habitat for mule deer. Any domestic livestock use will be considered secondary and must be complementary to this primary use."

Management Framework Plan Decision WL 1.10 states: "Management objectives of activity plans will include specific objectives pertaining to improving and maintaining desired riparian and meadow habitat. In development of activity plans, meadows and riparian areas will be considered as critical areas."

These land use plan decisions were addressed in the Fox Mountain Habitat Management Plan signed on January 17, 1989. This cooperative agreement succeeded the Buffalo Hills Allotment Evaluation and Livestock Agreement signed November 8, 1988. Both of these documents set allowable use levels or short-term utilization limits for livestock on key vegetation species of critical fish and wildlife habitats. These limitations on vegetation are consistent with land use plan decisions and appropriate activity plans. These conditions were mutually agreed to and signed by the permittee and Department.

In addition to limiting livestock use of key vegetation on key fish and wildlife habitats, the Fox Mountain Habitat Management Plan scheduled livestock exclusion fences for fishery streams to be completed by 1993. The Livestock Agreement scheduled allotment evaluations/decisions for 1991 and 1993 to make further adjustment, if necessary, in livestock management to meet allotment specific objectives. Livestock exclusion fences were not constructed, allotment evaluations/decisions were not completed as scheduled and use pattern mapping data indicates resource damage has been allowed to continue.

Livestock use that was established in 1988 has been shown to cause damage to wetland and stream bank riparian vegetation. Monitoring data collected in 1989 and 1990, on the Dolly Varden and Calico Pastures, clearly show that riparian objectives were not met during years grazed by livestock, and were met during years of livestock rest. These data clearly define ungulate use and damage. Livestock has had greater adverse impact to riparian habitats than wild horses. The livestock decision (long-term and interim) re-authorizes stocking rates and season-of-use at levels known to cause damage to riparian systems. Terms and conditions of future permits do not include allowable use levels or proper utilization limits to ensure the protection and restoration of degraded riparian habitats. These actions are contrary to signed agreements between the affected interests.

The alteration of specific allotment objectives are adjustments that appear to be designed to maintain status quo management and which could perpetuate resource damage. Extending short and long-term objectives to 2017 and prolonging future allotment evaluations to 1999 is contrary to existing agreements, land use plan objectives and Bureau of Land Management policy and are unacceptable to our agency.

Prescribed season-of-use in the Dolly Varden Pasture is contrary to the phenology of bitterbrush (key species). This species is critical to mule deer and studies show livestock preference is greatest after July. Studies also indicate that wild horses do not utilize bitterbrush. Bitterbrush was identified as a key species for which allowable use levels were established. The allotment evaluation did not provide any monitoring data or analysis. Despite the lack of monitoring, MFP III Decision WL 4a. sets livestock use of critical areas as a "secondary use"; this decision makes livestock the primary use of this area.

The Proposed Decision will exceed the livestock carrying capacity for the Buffalo Hills Allotment.

Federal Regulation 43 CFR Part 4100.0.5, defines livestock carrying capacity: "... the maximum stocking rate possible without inducing damage to vegetation or related resources ..." Use pattern mapping data and conclusions found in the Final Buffalo Hills Allotment Re-Evaluation, that past livestock stocking rates and seasons-of-use have exceeded allowable use levels and short-term objectives for wetland and stream bank riparian. The Proposed Final Decision makes insignificant adjustment in stocking rates and season of use of livestock on pastures that monitoring data has shown to be damaging to riparian habitat. Livestock carrying capacity calculations in Appendix 8 did not take into account use pattern mapping data collected on key riparian management areas. Forage allocations for the desired stocking rates provide no forage for wildlife.

The Bureau must reduce active use which is "causing an unacceptable level or pattern of utilization or exceeds the livestock carrying capacity as determined through monitoring" 43 CFR 4110.3-2. The Department finds that the District has more than adequate information to require downward adjustment in livestock grazing, yet arbitrarily and capriciously continues grazing at a level which it knows will cause resource damage.

The Proposed Decision is contrary to Bureau of Land Management Policy.

The Decision is not timely. The land use plan set three and five year evaluation/decision schedules. National and state instructional memorandums further endorsed your land use plan schedule. These decisions were to begin no later than 1987. The first evaluation/agreement was not to be completed until 1988, to initiate the implementation of the land use plan. Contrary to the livestock agreement schedule, the re-evaluation is two years late. The Proposed Final Decision delays the next evaluation/decision until 1999.

Riparian habitat was not considered. The Bureau Riparian Area Management Policy of January 22, 1987, requires the District to give special attention to monitoring and evaluation of riparian systems. Management practices must be revised where site-specific objectives are not being met. Bureau of Land Management Riparian-Wetland Initiative for the 1990's require the Bureau to restore and maintain 75 percent of it's riparian systems by 1997. The State Director's Instruction Memorandum, No. NV 91 251, instructs districts to implement new grazing strategies that are compatible with obtainment of riparian and fishery objectives.

The Proposed Final Decision prolongs evaluations, cancels scheduled riparian protective fences, maintains livestock management practices known to cause damage of important riparian habitat, and disregards current Bureau policies.

WILD HORSE MANAGEMENT DECISION

Appropriate Management Levels were not established by carrying capacity calculations that considered wetland and stream bank riparian. Wild horse damage was well documented in the Buffalo Hills Pasture during 1988, 1989 and 1990. Despite the reduction from 781 to 414 wild horses in 1990, riparian objectives were not met. The Proposed Final Decision sets 314 head as the AML for the Buffalo Hills Pasture and reduces the short-term objective to 20 percent utilization of key species. The re-evaluation calculated carrying capacities based on ungulate use of upland grasses and divided available upland AUMs to a ratio of livestock and wild

horses that inhabited the allotment prior to 1982. In addition, the Livestock Management Decision authorizes livestock on this pasture (Interim and Long-Term) at levels known to cause damage to riparian systems.

WILDLIFE MANAGEMENT DECISION

Fish and wildlife habitat did not receive adequate monitoring or analysis in the Buffalo Hills Allotment Re-evaluation and Proposed Final Decision. Clearly defined, attainable and measurable objectives are found in the Fox Mountain Habitat Management Plan. Failure to recognize these essential elements in land use planning has resulted in the decision errors. Use of reasonable numbers cannot assess or evaluate the condition of critical wildlife habitat.

The Proposed Final Decision misuses Full Force and Effect. We can agree with the rationale to implement Full Force and Effect to stop unacceptable degradation of riparian areas; however, significant actions must be applied to stop resource damage. As pointed out in the Livestock and Wild Horse Decisions, riparian objectives and data must be considered and actions taken to stop resource damage. All adjustments in livestock management and wild horse numbers of the Proposed Final Decision will duplicate similar conditions observed since 1982 that degraded riparian habitat. As in the previous decision, the Bureau will monitor and address problems as they occur. This approach to multiple use has repeatedly failed since the inception of multiple use and sustained yield management mandates of FLPMA.

Sincerely,

WILLIAM A. MOLINI, DIRECTOR

Richard T. Heap, Jr.
Regional Manager
Region I

REL:rl\pp
CC: Habitat, Reno
Mike Dobel
Mark Warren