~~1/22/97~~

1/23/92

PAIUTE

In re the Appeal of	)
	)
Commission for the Preservation of Wild Horses, N2-92-3	)
and	)
Wild Horse Organized Assistance, N2-92-4	)
and	) AFFIDAVIT OF SCOTT R. BILLING
Nevada Department of Wildlife, N2-92-5	)
and	)
Natural Resources Defense Council/ Sierra Club, N2-92-6	)
and	)
American Horse Protection Association/ The Humane Society of the United States N2-92-7	)

COMES NOW SCOTT R. BILLING AND DEPOSES AND SAYS:

1. At all times mentioned herein I was, and am currently, employed by the United States Department of the Interior, Bureau of Land Management, as the Area Manager for the Paradise-Denio Resource Area of the Winnemucca District in Nevada. As such I have been delegated the authority to administer the Bureau of Land Management's programs for the public lands within the Paradise-Denio Resource Area, including the livestock and wild horse grazing management program on the Paiute Meadows allotment.

2. This affidavit is prepared to acknowledge my actions of placing the final Multiple Use Decision for the Paiute Meadows allotment in Full Force and Effect because of the resource deterioration occurring on the allotment.

EXHIBIT NO. 1

3. The conclusions of the Final Allotment Evaluation (AE) for the Paiute Meadows allotment indicate that the multiple-use objectives for the allotment are not being met because of the heavy and severe use of the vegetative resource. The AE (at p54) indicates that the area of heavy and severe use has increased during the monitoring period, 1987 thru 1990. With aerial census information about the wild horse populations and the authorized use information for the livestock operator, I have determined that the heavy and severe use of the vegetative resource on the south end of the allotment is mainly attributed to the wild horse populations because livestock have only been authorized on the north end of the allotment and the permittee has implemented herding practices to minimize natural drift of livestock to the south end in. Aerial mapping of location information for wild horses and authorized livestock use in the north end of the allotment indicate that both wild horses and livestock are contributing to the heavy and severe use of the vegetative resource in the north end of the allotment.

4. According to a Special Report titled "GRASS: The stockman's crop. How to harvest more of it" authored by Harland E. Dietz, Range Conservationist for the Soil Conservation Service, 1975, the effect of leaf defoliation on plant development has been studied many times. In general, there's agreement that grass production is substantially reduced when you remove more than half the leaf volume by grazing or mowing during the growing season.

Several other articles have been published regarding research conducted

on defoliation and it's effects on vigor and production over time, and how repeated heavy use over time can be detrimental to the vigor and production of forage plants. One such article is "Effects of Season and Intensity of Use on Desert Vegetation" by C. Wayne Cook, Utah Ag Experiment Station, Utah State University, Logan, Utah-Bulletin 483-reprinted March 1977. This article contains research conducted from 1956 to 1969 to determine effects of season and intensity of defoliation on the physiological and chemical response of forage species, and to determine the rate of recovery of plants in various states of lowered vigor. This research showed that 75% defoliation was too severe for all species during all periods, 50% defoliation was too severe for late spring and summer harvesting, and 60% defoliation was perhaps too severe for winter. Vigor measurements made the year after a treatment terminated showed all species were significantly affected by both season and intensity of defoliation.

The Nevada Rangeland Monitoring Handbook recommends a utilization level of 50% on a general basis including seasonal use-spring, summer, etc..

Heavy use is defined as 61 to 80 percent utilization of the plant species and severe use is defined as 81 to 100 percent utilization of the plant species.

5. If actions are not taken immediately to reduce the repeated heavy to severe defoliation of the vegetative resource on the Paiute Meadows allotment, the physiological requirements of the grass species will not

be met. This will result in the reduction of vigor and density to the grass species within the plant community on the Paiute Meadows allotment.

6. Through the AE process (appendixes 1-3), my staff has determined that the "thriving natural ecological balance" can be attained by authorizing 4950 AUM's of use on the allotment. The livestock permittee has agreed to continue taking 3477 AUMs of non-use for the next 3 years provided the excess wild horses are removed from the allotment. This non-use represents 44 percent of the permittees active preference. The permittee has also agreed to implement a deferred grazing system that will require him to move his livestock from designated use areas during certain times of the year. With 4350 AUMs of scheduled use by the permittee, the wild horse population would be reduced to 50 adult animals that would use 600 AUMs of forage. As documented on pg 47 of the Paiute Meadows allotment evaluation, "the 600 AUMs of wild horse use is based on Alternative 1 of the technical recommendations which bases the level of livestock and wild horse use on the proportions established in the Land Use Plan. The LUP proportion of 92% livestock use and 8% wild horse use would equate to the following use:

4950 x .92 = 4554 AUMs for livestock

4950 x .08 = 396 AUMs for wild horses

The 396 AUMs for horse use would allow for a year-round population of 33 wild horses. Reducing the herd size below 50 adult animals may jeopardize the genetic viability of the herd; therefore wild horse numbers will be adjusted to 50 adult animals using 600 AUMs of forage."

7. The use on the Paiute Meadows allotment must be reduced from the current demand in 1991 of 10,446 AUMs to 4950 AUMs for the 1992 grazing year or the resource deterioration will continue on the allotment. If the horses are not gathered during January or February of 1992, the next gather window is December of 1992 or January and February of 1993 because of gather conditions in the Herd Management Area. The gather window is established as December, January, and February for the following reasons:

    1. Gathers must end at the end of February as the foaling season begins in March.

    2. Gathers are conducted late in the fall season when there is moisture in the ground or snow on the ground to help protect the animals from becoming sore footed during the gather process as the area is very rocky and the ground is hardened by the dry conditions before late fall moisture.

8. My analysis of the most recent allotment evaluation (attached hereto as Exhibit A), indicates that an emergency situation is occurring on the Paiute Meadows allotment, because continued over-obligation of the vegetative resource will lead to the deterioration of that resource. The over-obligation of the vegetative resource will continue even if the livestock are completely removed from the allotment as a population flight over the area during 12/26-28/91 indicates that there are over 700 wild horses on or adjacent to the allotment. 700 horses will consume over 8400 AUMs of forage which is over the 4950 AUMs of forage that can be consumed while meeting our allotment objectives.

The Use Pattern Maps (attached hereto as Exhibit B) show the amount of heavy and severe use that is occurring. Use Pattern Map 1 was prepared using monitoring data collected as the livestock were being removed from the allotment in late October of 1990 and represents forage use on the allotment by both livestock and wild horses. Use Pattern Map 2 was prepared using monitoring data collected prior to livestock returning to the allotment for gazing in the spring of 1991. The growth in the areas of heavy and severe use between the fall of 1990 and the spring of 1991 is solely attributed to wild horse use.

The Bureau of Land Management will not be able to implement the grazing system to benefit riparian area recovery until the population of wild horses is reduced.

9. The statements made in the Affidavit of Scott R. Billing dated January 23 , 1992 are accurate and correct as written.

Scott R Billing

Scott R. Billing

Subscribed and sworn to before me this

23rd day of January, 1992.

Martha P. Smith

NOTARY PUBLIC

MARTHA P. SMITH
Notary Public - State of Nevada
Appointed in Humboldt County
MY APPOINTMENT EXPIRES FEB. 14, 1994

PLAN CONFORMANCE and NEPA COMPLIANCE RECORD

BLM Office Winnemucca District, Paradise-Denio Resource Area
Lease/Serial/Case File No. Paiute Meadows Allotment

Proposed Action Title/Type: Area Manager's Multiple Use Decision
Location of Proposed Action: Paiute Meadows Allotment
Description of Proposed Action: Reduction of adjudicated carrying capacity for livestock and establishment of an Appropriate Management Level (AML) for Wild Horses to achieve a thriving natural ecological balance and establishment and implementation of a deferred grazing system for livestock.

Permittee: Daniel Russell

PART I: PLAN CONFORMANCE REVIEW. This proposed action is subject to the following land use plan:
Name of Plan: Management Framework Plan III (MFP III)
Approved: July 09, 1982
The proposed action has been reviewed for conformance with this plan (43 CFR 1610.5, BLM MS 1617.3).

Abbie Jossie, Range Conservationist
Name of Reviewer

Remarks: This proposed action is in conformance with the following applicable MFP III decisions from the MFP III Land Use Plan:
RM 1.1 Part 7, RM 1.11
WH&B 1.1 Part 1, WH&B 1.3
W 1.1
WL 1.2, WL 1.3, WL 1.4, WL 1.5, WL 1.11, WL 1.21, WL 1.28
WLA 1.4, WLA 1.5, WLA 1.6

PART II: NEPA REVIEW. This proposed action is addressed in the following existing BLM EA/EIS:
Name of Document: Paradise-Denio Grazing Environmental Impact Statement
Date Approved: September 18, 1981
This EA/EIS has been reviewed against the following criteria to determine if it covers the proposed action:

yes 1. The proposed action is a feature of, or essentially the same as, the alternative selected and analyzed in the existing document.
yes 2. A reasonable range of alternatives was analyzed in the existing document.
yes 3. There has been no significant change in circumstances or significant new information germane to the proposed action.
yes 4. The methodology/analytical approach previously used is appropriate for the proposed action.
yes 5. The direct and indirect impacts of the proposed action are not significantly different than those identified in the existing document.
yes 6. The proposed action would not change the previous analysis of cumulative impacts.
yes 7. Public involvement in the previous analysis provides appropriate coverage for the proposed action.

EXHIBIT NO. A

Remarks:

The Paradise-Denio Grazing Environmental Impact Statement (EIS) analyzed the impacts of grazing on public lands. The impacts were analyzed through alternatives of a proposed action (which called for intensified grazing management), no livestock grazing, no action, maximizing livestock grazing, and livestock reduction/maximizing Wild Horse and Burro use.

The allotment evaluation for the Paiute Meadows Allotment analyzed the impacts of grazing by livestock and wild horses in conjunction with meeting the allotment specific objectives. From this analysis a management action was developed adjusting the amount of use by livestock and wild horses while intensifying the grazing management by implementing a deferred grazing system.

As documented by the Record of Decision for the Paradise-Denio Grazing EIS, our plan consists of the integration of the Proposed Action and the Livestock Reduction/Maximizing Wild Horses and Burros alternatives. The selected management action compliments the Land Use Plan decision by adjusting livestock and implementing a grazing system that will enhance the vegetative recovery in the uplands, in riparian areas and in aquatic habitats.

In addition to the public involvement process during the development of the EIS, consultation has continued during the allotment evaluation process and is identified in the Consultation section of the Final Paiute Meadows Allotment Evaluation on page 36.

PART III. DECISION. I have reviewed this plan conformance and NEPA compliance record and have determined that the proposed project is in conformance with the approved Paradise-Denio Land Use Plan and that no further environmental analysis is required. The proposed grazing decision can be issued implementing the proposed actions.

Reviewed by: _____ 21 November 91
Environmental Coordinator — Date

_____ 11/22/91
Area Manager — Date

November 22, 1991

PAIUTE MEADOWS FINAL
ALLOTMENT EVALUATION SUMMARY

I. INTRODUCTION

A. Paiute Meadows Allotment (00057)

B. Permittee - Daniel H. Russell

C. Evaluation Period - 10/14/83 to present

D. Selective Management Category I

II. INITIAL STOCKING LEVEL

A. Livestock Use

1. Grazing Preference (AUMs)

a.	Total Preference	- 9,932
b.	Suspended Preference	- 2,105
c.	Active Preference	- 7,827
d.	Not Scheduled (Nonuse)	- 3,477
e.	Scheduled Use	- 4,350

The authorized grazing use for the Paiute Meadows Allotment during 1990 was adjusted to 4,350 AUMs in conjunction with the transfer of grazing preference to Dan Russell dated 01/05/90.

2. Season of Use - 05/01-11/05

During 1990 the season of use was also adjusted in conjunction with the transfer of grazing preference to Dan Russell dated 01/05/90.

3. Kind and Class of Livestock - Cattle, Cow/Calf

4. Percent Federal - 97%

5. Grazing System

During 1990 in conjunction with the transfer of grazing preference to Dan Russell dated 01/05/90, grazing use was authorized north of Paiute Creek with herding practices designed to control drift of livestock south of Paiute Creek. For the years 1988-1989 cattle were also turned out north of Paiute Creek, controlling drift south of Paiute Creek. Prior to 1990 there has not been a stable livestock operation on this allotment since 1981. Grazing use has not been at full active preference during the period 1983-1990. The active preference for the allotment has been 7,827 AUMs since at least 1983. The permittee has turned out in the spring and gathered in the fall. During the period 1983-1990 licensed livestock cattle use has varied as follows:

1983	No use
1984	6,283 AUMs
1985	4,896 AUMs
1986	No use
1987	No use
1988	1,143 AUMs
1989	2,342 AUMs
1990	4,350 AUMs

B. Wild Horse and Burro Use

The Black Rock East Herd Management Area (HMA) encompasses a portion of the allotment. The identified level of use in the Paradise-Denio Land Use Plan is 59 wild horses and 0 burros. In accordance with the June 1989 Interior Board of Land Appeals (IBLA) ruling, adjustments in wild horses will be made based on monitoring data, similar to adjustments for livestock.

C. Wildlife Use

1. Reasonable Numbers by big game species

Mule Deer	Pronghorn Antelope	Bighorn Sheep
1,838 AUMs	307 AUMs	180 AUMs (when introduced)

2. Wildlife Use Areas within the allotment:

Black Rock DY-13	2,134 acres
Black Rock DW-10	41,678 acres
Black Rock DS-6	45,856 acres
Black Rock PS-15	45,965 acres
Black Rock PY-14	35,274 acres
Leonard Creek PW-17 (Concentration)	2,043 acres
Paiute Creek PW-16 (Concentration)	31,466 acres
Black Rock BY-15 (Potential)	69,939 acres

These measurements correspond to the wildlife use areas as of the URA update of 1986-1988. Since then, in consultation with NDOW, the boundaries have been redrawn to reconcile discrepancies at the S-G/P-D Resource Area Boundary along the crest of the Black Rock Range.

3. Sage Grouse

Two sage grouse strutting grounds have been identified in the Paiute Meadows allotment, one at the south end and one at the east end. One additional strutting ground is identified adjacent to the allotment in the Bartlett Creek drainage. However, several brooding areas are identified scattered throughout the allotment which would indicate that additional strutting grounds are present. Two winter use areas for sage grouse have also been identified, one each near the Paiute Creek and Bartlett Creek drainages.

III. ALLOTMENT PROFILE

A. Description

The Paiute Meadows Allotment is located in the western portion of Humboldt County. The allotment is approximately 40 air miles south, southwest of Denio, Nevada and encompasses the east side of the Black Rock Range. The allotment ranges in elevation from 4,000' to 8,631'. The lower elevations are dominated by shadscale and greasewood vegetation types. As elevation increases vegetation changes to sagebrush; mountain browse; aspen and mountain mahogany vegetation types.

B. Acreage

1. Allotment Acres

a.	Public acres	177,096 acres
b.	Private acres	5,170 acres
c.	Allotment Total	182,266 acres

C. Objectives

1. Land Use Plan Objectives

a. Objective RM-1

To provide forage on a sustained yield basis through natural regeneration. Reverse downward deterioration

of public grazing lands by improving 1,000,000 acres in poor condition to fair condition, and 400,000 acres in fair condition to good condition within 30 years.

b. Objective RM-2

Increase existing allocatable livestock forage by artificial methods from the present 103,721 AUMs to approximately 193,472 AUMs (89,751 AUM increase) within 30 years.

c. Objective WLA-1

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

d. Objective WL-1

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

e. Objective W-1

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

f. Objective W-2

Provision of adequate water to support public land uses.

g. Objective W-3

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

h. Objective WH/B-1

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

2. Rangeland Program Summary Objectives

a. Livestock Management Objectives

1) Increase available forage for livestock to sustain an active preference of 7,827 AUMs.

2) Improve range condition from poor to fair on 161,158 acres and fair to good on 15,938 acres.

3) Develop a livestock grazing plan that will alleviate the following problems:

a) Inadequate livestock distribution.
b) Excessive stocking rate.
c) Improper season of use.
d) Livestock Drift

b. Wildlife Management Objectives

1) Manage rangeland habitat and forage condition to support reasonable numbers of wildlife demand as follows:

Deer	1,838 AUMs
Antelope	307 AUMs
Bighorn Sheep (when introduced)	180 AUMs

2) Improve condition of deteriorating upland meadows.

3) Protect sage grouse breeding complexes.

4) Improve and maintain the condition of aquatic habitat and riparian zones having the potential to support a sport fishery on Battle, Bartlett, and Paiute Creeks.

c. Wild Horse Management Objective

1) Graze 59 (708 AUMs) wild horses in the Black Rock Range - East Herd Use Area.

3. Allotment Objectives

The allotment specific objectives tie the Land Use Plan and RPS Objectives together into quantified objectives for this allotment.

a. Short Term

1) Utilization of key streambank riparian plant species shall not exceed 30% on Paiute, Battle and Bartlett Creeks. [1]

2) Utilization of key plant species in wetland riparian habitats shall not exceed 50%. [1]

3) Utilization of key plant species in upland habitats shall not exceed 50%. [1]

4) Utilization of crested wheatgrass shall not exceed 50%. [1]

b. Long Term

1) Manage, maintain, or improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 1,838 AUMs for mule deer, 307 AUMs for pronghorn, and 180 AUMs for bighorn sheep. (WL-1, W-3, RPS b)

a) Improve to or maintain 2,134 acres in Black Rock DY-13, 41,678 acres in Black Rock DW-10, and 45,856 acres in Black Rock DS-6 in good or excellent mule deer habitat condition.

b) Improve or maintain 45,965 acres in Black Rock PS-15 in good pronghorn habitat condition. Improve to or maintain 35,274 acres in Black Rock PY-14, 2,623 acres in Leonard Creek PW-17, and 31,466 acres in Paiute Creek PW-16 in fair or good pronghorn habitat condition.

c) Improve to or maintain 69,939 acres in Black Rock BY-15 in good to excellent bighorn sheep habitat condition.

2) Manage, maintain, or improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with an initial stocking level of 7,827 AUMs. (RM-1 a, RPS a)

3) Improve range condition from poor to fair on

161,158 acres and from fair to good on 15,938 acres. [2] (RM-1, RM-2, RPS a.2)

4) Maintain and improve the free-roaming behavior of wild horses by protecting and enhancing their home ranges. (WH/B-1)

   a) Manage, maintain, or improve public rangeland conditions to provide an initial level of 708 AUMs of forage on a sustained yield basis for 59 wild horses and maintain a thriving natural ecological balance. (WH/B-1, RPS c)

   b) Maintain and improve wild horse habitat by assuring free access to water. (WH/B-1, RPS C.)

5) Improve to or maintain 86 acres of ceanothus habitat types in good condition. [2] (WL-1, RPS b.1)

6) Improve to or maintain 345 acres of mahogany habitat types in good condition. [2] (WL-1, RPS b.1)

7) Improve to or maintain 188 acres of aspen habitat types in good condition. [2] (WL-1, RPS b.1)

8) Improve to or maintain 529 acres of riparian and meadow habitat types in good condition. [2] (WL-1, W-3, RPS b 4.)

9) Improve to or maintain 15 acres of serviceberry, 82 acres of bitterbrush, 55 acres of ephedra, and 112 acres of winterfat vegetation types in good condition. [2]

10) Improve to and maintain stream habitat conditions from 43% on Paiute Creek, 58% on Battle Creek, and 50% on Bartlett Creek to an overall optimum of 60% or above. (WLA-1, RPS b.4)

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

11) Protect sage grouse strutting grounds and brooding areas. Maintain a minimum of 30% cover of sagebrush for nesting and winter use. (WL-1, RPS b.3)

12) Improve to and maintain the water quality of Paiute, Battle and Bartlett Creeks to the State criteria set for the following beneficial uses: livestock drinking water, cold water aquatic life, wading (water contact recreation), and wildlife propagation. (WL-1)

13) Improve to or maintain the 1000 acre Paiute seeding in good condition. (5-10 acres per AUM) (RM-2)

[1] The utilization levels will be used to evaluate and adjust management practices over a period of time.

[2] Ecological status will be used to redefine/quantify these objectives where applicable.

D. Key Species Monitored

1. Upland Habitat

Symbol	Scientific Name	Common Name
STTH2	Stipa thurberiana	Thurber's needlegrass
FEID	Festuca idahoensis	Idaho Fescue
STCO3	Stipa columbiana	Columbia needlegrass
POSE	Poa secunda	Sandberg's bluegrass
ORHY	Oryzopsis hymenoides	Indian ricegrass
ELCI2	Elymus cinereus	basin wildrye
AGSP	Agropyron spicatum	bluebunch wheatgrass
ATCO	Atriplex confertifolia	shadscale
BASA3	Balsamorhiza sagittata	arrowleaf balsamroot

Symbol	Scientific Name	Common Name
CRAC2	Crepis acuminata	tapertip hawksbeard
AMAL2	Amelanchier alnifolia	serviceberry
ARSP	Artemisia spinescens	bud sagebrush
PUTR2	Purshia tridentata	antelope bitterbrush
SYOR	Symphoricarpos oreophilus	snowberry
EULA5	Eurotia lanata	winterfat
LUPIN	Lupinus	lupine
SIHY	Sitanion hystrix	bottlebrush squirreltail
EPHED	Ephedra	ephedra

2. Riparian Habitat

Symbol	Scientific Name	Common Name
AGIN2	Agropyron intermedium	intermediate wheatgrass
CAREX	Carex spp.	sedge
POA++	Poa spp.	bluegrass
JUNCUS	Juncus spp.	rush
POTR5	Populus tremuloides	quaking aspen
ROWO	Rosa woodsii	woods rose
SALIX	Salix spp.	willow

IV. MANAGEMENT EVALUATION

A. Purpose

The purpose of this monitoring evaluation is to assess if current management practices are meeting the allotment specific and LUP objectives and to identify management changes needed to meet objectives.

B. Summary of Studies Data

1. Actual Use

a. Livestock

Year	AUMs Used
1983	0
1984	6,283
1985	4,896
1986	0
1987	0
1988	1,143
1989	2,342
1990	4,350

b. Wildlife (Existing Numbers)

The P-D EIS of 1982 indicated that forage use was 1,869 AUMs for mule deer and 204 AUMs for pronghorn on this allotment for the period 1971-1975. The 1986 forage use was determined to be 2,552 AUMs for mule deer and 615 AUMs by pronghorn. Survey methods to determine forage use differed between the two time periods, so data is not comparable. In general population trends for big game animals has increased on the Black Rock Range in the last 10 years.

c. Wild Horses

1) Census Data

Records indicate that the Black Rock East HMA has been censused ten times since 1974. Census counts were done by helicopter. Census data collected for the period 1974-1990 is as follows:

Year	Date	# of Wild Horses
1974	Oct. 9	123
1975	Feb. 10	92
1977	April 4-5	282
1979	Feb. 6	261
1979	Sept. 17	471
1980	July 24-25	46
1986	June 12	1075
1987	Oct. 6, 8	666
1989	July 17-18	651
1990	Feb. 12-14	508

The 1987, 1989 and 1990 census indicated wild horses were found north and south of Paiute Creek as follows:

Census Date	Paiute South	Paiute North	Total
1987 (October 6, 7)	448	218	666
1989 (July 17, 18)	408	243	651
1990 (February 12-14)	264	244	508

2) Wild Horse Gathers

Three wild horse gathers have been completed on the Black Rock East and West HMA's since the winter of 1979-1980. The number of wild horses removed during each gather is as follows:

Year	Black Rock East	Black Rock West	Total
1979/1980	81	944	1,025
1986	193 horses removed from both (HMAs)		193
1987	445*	259	704

* 245 horses were removed from south of Paiute Creek
200 horses were removed from north of Paiute Creek

3) Actual Use

Forage (AUMs) consumed by wild horses in the Black Rock East (HMA) for the years 1987-1990 indicates more forage was consumed south of Paiute Creek.

Black Rock East (HMA)
Forage Consumption

	South of Paiute Creek		North of Paiute Creek		
Year	# of Wild Horses	Actual Use (AUMs)	# of Wild Horses	Actual Use (AUMs)	HMA Total (AUMs)
1987	448	4,928	218	2,398	7,326
1987*	203	203	18	18	221
1988	203	2,436	18	216	2,452
1989	203	1,328	18	118	1,446
1989**	408	2,227	243	1,326	3,553
1990	408	604	243	360	964
1990***	264	2,778	244	2,567	5,345
		14,504 AUMs		7,003 AUMs	21,507 AUMs

* Horse numbers change 12/01/87 due to gather 12/87 to 01/88.
** Horse numbers increase to reflect census on 07/18/89.
*** Horse numbers decrease to reflect census on 02/14/90.
Refer to Appendix for further Actual Use detail.
Appendices Revised 10/03/91.

2. Climatological Data

Climatological Data (NOAA 1983-1989):

Leonard Creek Ranch Station
Precipitation (inches)

Year	Growing Season	Annual Total
1983	6.94 M	17.24 M
1984	3.00 M	8.50 M
1985	2.48	6.82 M
1986	4.85 M	9.60 M
1987	5.42	9.30
1988	2.94	8.11
1989	3.98	7.48
1990	4.67	7.19

Growing season March - August
M = Partial or incomplete data

The Leonard Creek Station is 5 miles northeast of the Paiute Meadows Allotment at 4,300' elevation. The Paiute Meadows Allotment ranges in elevation from 4,000' to 8,631'.

A Remote Automated Weather Systems (RAWS) meteorological station (Dry Canyon) was installed in June of 1986 approximately nine miles north of Soldier Meadows Ranch on the west side of the Black Rock Range at an elevation of 4,900'. This station is approximately ten air miles from the Paiute Meadows Allotment.

Dry Canyon RAWS Data
Precipitation (Inches)

Year	Annual Total
1986	1.2
1987	8.7
1988	5.8
1989	5.6
1990	3.9

3. Utilization Data

a. Use Pattern Mapping (UPM)

Use Pattern Mapping (UPM) has been conducted for four (4) years over the period 1987, 1988, 1989 and 1990. During this period, UPM data indicates that the highest levels of utilization have consistently occurred south of Paiute Creek.

Refer to UPMs in the study file.

For the years 1988, 1989, 1990, cattle were authorized north of Paiute Creek only with some drift south of Paiute Creek.

1) North of Paiute Creek

a) 1987 (Spring/Summer Treatment)
Wild horse use only.

Heavy grazing use covered approximately 2% of the north area and was associated with the lower end of Paiute Creek.

b) 1988 (Spring/Summer Treatment)
Wild horse use only.

Heavy grazing use covered approximately 1% of the north area and was indicated near Burnt Springs and Butte Creek.

A small area of moderate use was recorded along Bartlett Creek. Battle Creek was not mapped in 1988.

c) 1988/1989 (Yearlong Treatment)
Wild horse and cattle use

Heavy grazing use covered approximately 1% of the north area and was indicated near the upper end of Paiute Creek.

Battle Creek and Bartlett Creeks were not mapped.

d) 1989 (Spring/Summer Treatment)
Wild horse use only.

Severe grazing use covered less than 1% of the north area. No heavy use was recorded. Slight to light utilization of streambank riparian vegetation occurred along Paiute and Battle Creeks. Bartlett Creek was not mapped in 1989.

e) 1989/1990 (Yearlong Treatment)
Wild horse and cattle use.

Heavy grazing use covered approximately 19% of the north area. Severe grazing use was not recorded.

Slight to light utilization of streambank riparian vegetation occurred along Paiute Creek. Light use was recorded along Bartlett Creek and light to moderate use along Battle Creek.

f) 1990 (Spring/Summer Treatment)
Wild horse and cattle use.

Heavy grazing use covered approximately 49% of the north area. Severe grazing use covered less than 1% of the north area. Heavy use of streambank riparian vegetation occurred along the north and south forks of Battle Creek. Severe grazing use of streambank riparian vegetation occurred along Paiute Creek, Battle Creek and Bartlett Creek.

2) South of Paiute Creek

a) 1987(Spring/Summer Treatment)
Wild horse use only.

Heavy grazing use covered approximately 10% of the south area and was indicated primarily near developed water sources to include Opal Spring and Sheep Spring.

Severe grazing use covered approximately 11% of the south area and was indicated primarily near Indian and Pidgeon Springs.

b) 1988 (Spring/Summer Treatment)
Wild horse use only.

Heavy grazing use covered approximately 2% of the south area.

Severe use covered approximately 1% of the south area primarily near the seeding.

c) 1989 (Yearlong Treatment)
Wild horse use only.

Heavy use covered approximately 12% of the south area.

Severe use covered approximately 16% of the south area and was indicated near Indian Cave and Pidgeon Springs.

d) 1989 (Spring/Summer Treatment)
Wild horse use only.

Heavy grazing use occurred on approximately 2% of the south area and was primarily near Horse, Cherry and Pidgeon Springs.

Severe use was not recorded.

e) 1989/1990 (Yearlong Treatment)
Wild horse use only.

Heavy grazing use covered approximately 39% of the south area. The heavy use was located in three different areas. The first area was around the paiute seeding, the second was west of Elephant Mountain, and the last area was south of Pidgeon Springs.

Severe grazing use covered approximately 18% of the south area. The severe use occurred between Cain Springs and Pidgeon Springs.

f) 1990 (Spring/Summer Treatment)
Wild horse use only.

Heavy grazing use covered approximately 42% of the south area. Severe grazing use covered approximately 16% of the south area primarily on the Paiute Seeding. Severe grazing use was also recorded near some water sources to include Trough Spring, Cancer Spring, Indian Spring, White Rock Spring.

3) Paiute Seeding

The following information is a description of the grazing use patterns by year and use periods for the Paiute Seeding.

a) 1987 (Spring/Summer)

Heavy grazing use covered approximately 100% of the seeded area.

b) 1988 (Spring/Summer)
Heavy grazing use covered approximately 62% of the seeded area.

Severe grazing use covered approximately 38% of the seeded area.

c) 1989 UPM

Severe grazing use covered approximately 100% of the seeded area.

b. Utilization Data

Four key areas were established during the spring of 1990.

Key Area	Location
Big Mountain (057-01)	T.39N., R.26E., Sec. 6, SE¼, South of Paiute Creek
Battle Ck. #1 (057-02)	T.41N., R.26E., Sec. 25, NW¼, North of Paiute Creek
Battle Ck. #2 (057-03)	T.41N., R.26E., Sec. 13, SE¼, North of Paiute Creek
Emigrant (057-04)	T.38N., R.27E., Sec. 30, NE¼, South of Paiute Creek

Utilization data as per the Key Forage Plant Method was collected during the initial establishment of these key areas and again during the fall along with UPM. The utilization data conducted during initial establishment in July was slight to light (1-40%) at all four key areas. The fall utilization averaged slight use at one key area, moderate use at two key areas, and heavy use at one key area.

c. The Quadrat Frequency Trend study method was initiated at the four key areas during the spring of 1990. Additional data is needed to quantify a change or trend at each key area.

Trend data was collected in 1979 at the Paiute Seeding Exclosure. No further data has been collected at this location. More data is needed to quantify a change or trend.

The Paradise-Denio EIS identifies observed trend as downward. (Refer to PD EIS Appendix G. Table 6-1 and Chapter II, 209 PD EIS)

5. Range Survey Data

a. A phase one watershed inventory was conducted in portions of the Paradise-Denio Resource Area from 1971-1974. Livestock forage condition was determined based upon data extrapolation and computations from

this inventory. This data extrapolation resulted in the following condition classifications for the Paiute Meadows Allotment:

Good	Fair	Poor
0	15,938	161,158

Appendix G, Pg-28 of the P-D EIS provides more discussion on origin of livestock forage condition.

b. In 1978 a range survey was conducted using the Ocular Reconnaissance Method to provide baseline data for analysis purposes in the Paradise-Denio EIS. The survey, along with suitability criteria indicated that 1,403 AUMs were available in 1978 for livestock and wild horse use.

6. Ecological Status Inventory

The order 3 soil survey field work has been completed on this allotment. The Ecological Status Inventory has not been completed on the allotment.

Ecological status was collected at four key areas during the spring 1990. The ecological status is as follows:

Key Area	Ecological Status
Big Mountain (057-01)	Mid Seral (39%)
Battle Ck. #1 (057-02)	Mid Seral (42%)
Battle Ck. #2 (057-03)	Mid Seral (33%)
Emigrant (057-04)	Mid Seral (49%)

7. Wildlife Habitat Inventory

a. Priority Species: Mule deer, sage grouse, pronghorn, bighorn sheep and trout.

b. Paiute, Battle and Bartlett Creeks are designated as potential recovery habitat for the threatened Lahontan cutthroat trout.

c. Other species: chukar, Hungarian partridge and Valley quail.

d. Special habitat features

1) A special habitat features inventory was conducted in 1977 and 1978. This inventory identified the location and acres of special habitats, listed observed plant and wildlife species, and documented ocular observations of the condition and utilization of these habitats. This information was analyzed in the Paradise-Denio EIS.

2) Special Habitat acreage calculations are approximate figures that will be field checked as time permits.

Riparian habitat	529 acres
Aspen	108 acres
Curlleaf mountain mahogany	345 acres
Ceanothus	86 acres
Serviceberry	15 acres
Bitterbrush	82 acres
Winterfat	112 acres
Ephedra	55 acres

e. Habitat Evaluation

A habitat evaluation has not been conducted on this allotment.

8. Riparian/Fisheries Habitat

a. Stream Survey

Paiute Creek was surveyed in 1976 at 51% of optimum and in 1988 at 43%. Battle Creek was also surveyed in 1976 and was rated at 59% of optimum; Battle Creek rated 58% in 1988. Bartlett Creek was 54% of optimum when surveyed in 1976 and 50% of optimum in 1988.

Summaries of the stream survey findings follow:

1) Bartlett Creek

The pool-riffle ratio index was 78% of optimum in 1976, with riffles being dominant. Quality pools were seldom observed. In 1988, pools were even scarcer, with a pool-riffle ratio index of 12%, and no quality pools.

The stream bottom had an improved proportion of desirable materials: 64% in 1976 versus 76% in 1988. There was also a slight reduction in sedimentation: 22% sand and silt in 1976 versus 18% in 1988. However, there was also a shift in the proportions of the coarser rock substrate materials, resulting in a reduction of spawning gravels from 48% to 26%.

Bank cover and stability were 50% and 61% of optimum, respectively, in 1976. This had improved to 76% and 86% in 1988. The degree of ungulate damage, however, had increased from 50% in 1976 to 86% in 1988.

On the portions of Bartlett Creek which were surveyed in 1976, 56% was shaded. This percentage was not determined during the 1988 stream survey.

In 1976, the water was relatively clear at the upper stations, but became increasingly turbid downstream (30 Jackson Turbidity Units (JTUs) at S-1). Turbidity was not measured in 1988.

The habitat was 54% of optimum in 1976, with the main limiting factors being the lack of quality pools and the lack of bank cover. In 1988, the habitat condition index was 50%. While bank cover had improved considerably, the continued occurrence of high levels of damage to the streambanks had prevented channel evolution processes from generating pool structure.

2) Battle Creek

The stream survey of Battle Creek in 1976 found that pools constituted 39% of the stream (pool/riffle ratio index equal to 78%), but also found that few of these were quality pools. This dropped pool quality index for the stream to 41% of optimum. In 1988, only 24% of the stream was in pools, and the pool quality index had dropped to 35%.

The stream bottom materials of Battle Creek in 1976 included 59% desirable materials and 28% sediments. Spawning gravels made up 37% of the bottom materials. In 1988 the bottom materials were 89% desirable materials and 15% sediments. Spawning gravels had decreased to 25% of the bottom materials.

Bank cover and stability of Battle Creek were 52% and 64% of optimum, respectively, in 1976. Ungulate damage ranged from 10% to 50%. In 1988, bank cover was 50% and bank stability was 71%. Bank damage was rated at 91%. The long periods of livestock use on this portion of the allotment have contributed to the increased bank damage that was observed between 1976 and 1988.

Only 34% of the stream was shaded in 1976. The peak water temperature recorded during the two day survey in July was 64°F. Neither the percentage shaded, nor water temperature were determined in 1988. During the summer of 1990, a recording thermograph placed in Battle Creek indicated a peak temperature of 67.8°F.

The habitat in Battle Creek was 59% of optimum in 1976. In 1988, the habitat condition index was 58%. The lack of pools and pool quality were the chief limiting factors. The bank damage has prevented channel evolution from generating and maintaining increased pool and quality pool structure. The time spent along the creek is a function of the high numbers of large herbivores present on the allotment. This is due mostly to cattle and wild horses which represent the majority of the forage demand. The horse population on the Black Rock Range has increased to levels where they are impacting the vegetation resources in their preferred use areas, including riparian communities. Cattle represent both an increased forage demand and also a disproportionate demand on riparian zones during summer use periods due to their preference for the greener forage, shade, short distance to water (and avoidance of walking long distances during periods when the ambient heat environment is not in the comfort zone for them).

3) Paiute Creek

The pool-riffle ratio index of Paiute Creek was near the optimum at 92%, but the small extent of quality pools reduced the pool quality rating to 26% of optimum in 1976. By the time of the 1988 stream survey, the proportion of the stream in

pools at the five stations surveyed that year had decreased to 0%.

The stream bottom of Paiute Creek in 1976 was 41% desirable materials and 30% sediments. Spawning gravels made up 36% of the stream bottom. In 1988, desirable materials comprised 98% of the bottom materials. Sedimentation was 9%. Spawning gravels were reduced to 31%.

Much of the banks were deeply eroded, reflected as ungulate damage ratings of 50% to 90% throughout the four stations surveyed in 1976. Bank cover and stability were 39% and 58%, respectively. In 1988, bank damage was rated at 100%; severe bank erosion and accelerated erosion and sloughing occurred over virtually all of the surveyed portions of the stream channel. Bank cover and stability were 53% and 63%.

Only 37% of the stream was shaded in 1976. The creek averaged 0.16 feet deep, with a flow of 1.03 cfs. These factors resulted in a maximum water temperature of 80°F. The percentage shading and water temperature were not determined in 1988, however the depth averaged 0.20 feet and, as stated above, bank cover still did not meet the objective.

In 1976, the habitat condition index for Paiute Creek was 50%. Warm water temperatures, a scarcity of quality pools, and poor benthic composition were the primary limiting factors. The habitat condition declined to 43% of optimum in 1988. The lack of pools and the degree of damage to the streambanks, which counteracts channel development toward providing better pool structure, were still the most critical factors in the poor habitat conditions. This is due to the growth of the wild horse population of the Black Rock Range and their use of Paiute Creek whereas the riparian conflicts on Battle and Bartlett Creeks tend to be the result of the livestock management on other parts of the allotment.

Paiute Meadows Allotment Stream Survey Data

Paiute Creek Stream Survey Data

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation (% Opt.)	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temp. (°F)
(Objective Levels)		>60	<10	>60	>60	<70
Paiute Creek (all stations)						
8/3/76	BLM	51	30	58	58	80
7/13/88	BLM	43	9	63	63	--

Battle Creek Stream Survey Data

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation (% Opt.)	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temp. (°F)
(Objective Levels)		>60	<10	>60	>60	<70
Battle Creek (all stations						
8/4/76	BLM	59	28	52	64	64
7/18/88	BLM	58	15	50	71	--

Bartlett Creek Stream Survey Data

Date of Survey	Survey Agency	Percent of Optimum	Percent Sedimentation (% Opt.)	Bank Cover (% Opt.)	Bank Stability (% Opt.)	Water Temp. (°F)
(Objective Levels)		>60	<10	>60	>60	<70
Bartlett Creek (all stations)						
8/2/76	BLM	54	22	50	61	63
7/11/88	BLM	50	18	76	86	--

9. Wild Horse and Burro Habitat

Population Data

Utilization data for the Black Rock East HMA as indicated by census data shows that forage utilization and populations are consistently greater south of Paiute Creek compared to north of Paiute Creek. For the period 1987, 1988, 1989,

1990 forage consumed by horses south of Paiute Creek was 16,212 AUMs or 4053 AUMs avg/year and north of Paiute Creek 8,748 AUMs or 2,187 AUMs avg/year.

UPM data collected from 1987 to 1990 also indicates that the highest levels of utilization have occurred south of Paiute Creek. Use patterns indicate that the southeast portion of the HMA from Lone Spring and White Rock Spring south is the recognized winter use area. Horses are scattered over the allotment the remainder of the year.

Census data for 1987, 1989, 1990 does not indicate a steady increase or decrease in population but rather erratic change both in the Black Rock East HMA and south and north of Paiute Creek.

Data indicates that in 1980 the wild horse population on the HMA as observed by census was 46 animals. The 1986 census indicated a population increase to 1,075 animals. The number indicates a high probability of wild horses moving within the Black Rock Range between both the West and East HMAs.

Census data does indicate horses are expanding further out into the Black Rock West and East HMAs. Horses are moving east of the Black Rock East HMA and south out of both HMA's. Horses are also moving north beyond Rough Canyon and Summit Lake Mountain in the East and West HMAs respectively.

In accordance with the June 1989 IBLA Ruling, adjustments for wild horses will be made based on monitoring data.

10. Water Quality

Available data - Lab water quality analysis was done in 1976 and 1979 on Bartlett Creek and Paiute Creek. Stream survey water quality analysis with a Hach Kit was done in 1976 on Battle, Bartlett, and Paiute Creeks.

Battle Creek - Temperatures are consistently too high for cold water aquatic life and fecal coliform and turbidity may also be problems, but more data is needed. TDS was low (1976).

11. Other Information

Normal maintenance on most range improvements has not been conducted leaving them in poor condition.

V. CONCLUSIONS

A. Short Term Objectives

Refer to Section III C.3 for Short and Long Term Objectives.

1. Use pattern mapping completed during 1990 indicates this objective is not being met on Paiute Creek, Battle and Bartlett Creeks.

2. Use pattern mapping completed during 1990 indicates this objective is not being met.

3. Use pattern mapping collected from 1987-1990 indicates this objective is not being met. During this period the highest levels of utilization have been south of Paiute Creek, which has been made by wild horses; however, use greater than 50% has occurred north of Paiute Creek also.

4. Use pattern mapping indicates this objective is not being met for all years 1987, 1988, 1989 and 1990.

B. Long Term Objectives

1. Baseline and ESI information has not been collected to evaluate progress in attaining this objective. Current demand for mule deer is 2,552 AUMs, 615 AUMs for antelope and 0 AUMs for bighorn. Existing populations are above reasonable numbers for mule deer and pronghorn antelope.

2. Baseline data has been collected during the initial year of establishment during 1990; however, additional data is needed to evaluate the progress towards achievement of this objective. Analysis of the short-term upland habitat objectives primarily south of Paiute Creek is an indication that progress towards achievement of this objective is not being made in this area of the allotment.

3. Baseline and ESI data has not been collected to evaluate the progress towards achievement of this objective. This objective will be redefined/quantified with ecological status condition as information becomes available.

4. a. Baseline data has been collected during the initial year of establishment during 1990, however additional data is needed to evaluate the progress towards achievement of this objective, analysis of the short-

term upland habitat objectives primarily south of Paiute Creek indicates utilization in the uplands is not being met. Use Pattern Mapping data indicates that the country south of Paiute Creek has received the highest levels of utilization.

b. This objective is being met.

5. Baseline and ESI information has not been collected to evaluate the progress towards achievement of good condition in ceonothus vegetation types.

6. Baseline and ESI information has not been collected to evaluate the progress towards achievement of good condition in mahogany vegetation types.

7. Baseline and ESI information has not been collected to evaluate the progress towards achievement of good condition in aspen vegetation types.

8. Baseline and ESI information has not been collected to evaluate the achievement of this objective. Analysis of short term objectives is an indication that progress is not occurring on 52 acres of riparian and meadow habitat but may be occurring on the other 477 acres of riparian and meadow habitats.

9. Baseline and ESI information has not been collected to evaluate the achievement of good condition in serviceberry, bitterbrush, ephedra and winterfat vegetation types. Monitoring of age and form class structure in 1990 was satisfactory.

10. Comparison of stream survey data from 1976 with that from 1988 indicates that habitat conditions during that period declined on Bartlett Creek and Paiute Creek, and that no significant progress was made on Battle Creek. Analysis of use pattern maps since 1988 in relation to the short term objectives for the riverine riparian vegetation indicates that, as of this date (April 1991), some progress is being made along Battle and Bartlett Creeks, but that Paiute Creek continues to be impacted by wild horses and livestock.

11. Baseline information and habitat condition has not been collected to evaluate the progress towards achievement of this objective. No vegetation treatments to reduce sagebrush have occurred during the evaluation period.

12. Baseline data has not been collected to evaluate the

progress towards achievement of this objective.

13. Baseline and trend information has not been collected to evaluate the achievement of this objective. However, analysis of short term objectives indicates that progress is not being made towards this objective due to heavy and severe utilization by wild horses.

VI. TECHNICAL RECOMMENDATIONS

A. Technical

1. Adjust the numbers of wild horses and the active grazing preference for livestock on the Paiute Meadows Allotment to a stocking level of 3,942 AUMs which will provide for a thriving natural ecological balance and allow for multiple use objectives to be met. See Appendix I for stocking level calculations. Analysis of data does not indicate the need for an adjustment in wildlife populations.

* See Appendices.

Alternative 1. The level of livestock and wild horse use will be adjusted to conform with proportions established in the Land Use Plan (LUP).

Implement an adjustment based on the stocking level of 3,942 AUMs. The LUP proportion is 92% livestock, 8% wild horses. This equates to 3,627 AUMs for cattle and 315 AUMs for wild horses. Reducing herd size below 50 head may jeopardize the genetic viability of the herd; therefore wild horse numbers would be adjusted to 50 animals and 600 AUMs.

Table 1. Land Use Plan Proportional Stocking Level (AUMs)

Available Forage (AUMs)	Cattle	Wild Horses
3,942	3,342	600

Alternative 2. The level of livestock and wild horse use will be based on actual use percentages.

Adjust stocking rates for livestock and wild horses on actual use percentages during 1987-1990. Implement a proportionate share adjustment based on the calculated stocking level of 3,942 AUMs. The calculated average actual use is 5298 AUMs wild horses and 1,876 AUMs livestock as follows:

Table 2. Stocking Levels by Actual Use Percentages

User	AUMs	Proportions	Stocking Rate (AUMs)
Wild horses	5,298	74 x 3942 =	2917
Livestock	1,876	26% x 3942 =	1,025
Total	7,174 AUMs		3,942 AUMs

Wild horse and livestock actual use was averaged for the period 1987-1990.

See Appendix II for Actual Use Calculations.

Alternative 3. The level of livestock and wild horse use will be based on current use and active preference percentages. Adjust the stocking rates based on the current demand for forage within the allotment. This is calculated by using the current forage demand for wild horses and the active preference for the allotment.

Table 3. Current Forage Demand and Over-allocation of Forage

User	AUMs	% of Demand
Wild Horses	6,292 (1990 pop. levels)	45%
Livestock	7,827 (Active Preference)	55%
	14,119 Total AUMs Forage Demand	

14,119
-3,942 (Available Forage)
10,177 AUMs to be reduced

Table 5. Adjustments by Actual Use Proportional Share

User	%	AUMs Above Carrying Capacity	Proportional Reduction
Wild Horses	45%	10,177	4580 (AUMs)*
Livestock	55%	10,177	5597 (AUMs)*

* The adjustment or reduction of 10,177 AUMs will bring forage demand to the level of available forage. The following represents the stocking levels that would allow the multiple use objectives to be met.

Use	Desired Stocking Level
Wild Horses	1712 AUMs (6,292 - 4,580)
Livestock	2230 AUMs (7,827 - 5,597)
	3942 AUMs Carrying Capacity

2. Change Season-of-Use

Alternative a. Grazing use within the Paiute Meadows Allotment will be changed to eliminate use during the hot season. The season-of-use will be 11/01-06/01 each year. Livestock will be removed from the public lands for the period 06/02-10/30 each year. Grazing use will occur over the allotment with stocking levels not exceeding stocking rates for the north Paiute and south Paiute use areas. This season-of use will allow complete rest during the summer period and allow for a regrowth period for riparian vegetation.

Alternative b. Change the season-of-use to summer-fall-winter and implement a Deferred Rest Grazing System. The season-of-use will be 05/01-03/15 each year. Livestock will be removed from the public lands during the spring period (03/15-05/01). Stocking levels will not exceed stocking rates for the north Paiute and south Paiute use areas.

The objective of the deferred rest grazing system would be to reduce grazing pressure during the summer period. This grazing system will reduce grazing pressure for two consecutive years north of Paiute Creek and one year south of Paiute Creek. Under the Deferred Rest Grazing System, the Paiute Meadows Allotment would be divided into three use areas. The use areas would be:

1) Winter Use Area: This area would include all the lower foothills and lower country along the entire eastern portion of the allotment.

2) South Paiute Use Area: This use area would be the southern portion of the allotment specifically from Paiute Creek south including the higher country and foothills not used for winter use.

3) North Paiute Use Area: This use area would be the northern portion of the allotment specifically from Paiute Creek north including the higher country and foothills not used for winter use.

The following grazing system would be implemented

within the Paiute Meadows Allotment with respect to the above designated use areas:

Table - 6 Deferred Rest Grazing System

Grazing Years 1 and 2

Use Area	Period-of-Use
North Paiute	
early summer use area	05/01-08/15
winter use area	11/01-02/28
	03/01-03/15
South Paiute	
late summer use area	08/16-10/30
winter use area	11/01-02/28
	03/01-03/15

Grazing Year 3

Use Area	Period-of-Use
North Paiute	
late summer use area	08/16-10/30
winter use area	11/01-02/28
	03/01-03/15
South Paiute	
early summer use area	05/01-08/15
winter use area	11/01-02/28
	03/01-03/15

3. Range Improvement Projects

a. In order to facilitate the grazing system and improve distribution of grazing distribution of grazing animals, several waters should be developed or reconstructed.

1) Develop a pipeline on Burnt Springs
2) Repair Paiute Windmill
3) Repair Emigrant Well
4) Develop a spring at T.41N., R.27E., Sec. 20 SW¼
5) Several existing projects require reconstruction

b. Maintain the Paiute Seeding fence

c. Maintain/Reconstruct Range improvements as per conditions of the Cooperative Agreement, Permit and/or Assignment of Range Improvements.

4. Wild Horse Management

a. Develop a Herd Management Area Plan and consider combining the Black Rock Range West and East HMAs or construct a fence between the Black Rock Range East and West HMAs.

b. Protect wild horses from unauthorized capture, harassment, and destruction.

c. Reevaluate the Draft Paradise-Denio Grazing E.I.S., Wild horse and Burro Use Area and Map for the Black Rock Range East.

B. Monitoring Needs

1. Continue to implement the rangeland monitoring program on the Paiute Meadows Allotment.

2. Continue to identify key areas and collect baseline data on upland sites.

3. Establish additional monitoring sites on riparian areas.

4. Initiate Wildlife Habitat Inventory and Riparian/Fisheries Habitat Studies.

5. Develop ecological site descriptions for riparian areas and determine ecological status for wet meadows and stream riparian areas.

Determine desired seral stages for key areas where ecological condition has been determined.

Redefine/quantify long term objective (3) with ecological status condition as information becomes available.

6. Re-evaluate ecological condition on all key areas particularly where statistically significant changes in frequency of key species have occurred.

7. Continue with intensive wild horse habitat monitoring

studies. Collect data to determine population estimates, trend, characteristics and dynamics.

8. Reevaluate the Paiute Meadows allotment in 1997.

VII. Consultation

A. Consultation of this evaluation is listed chronologically as follows:

7/3/91 evaluation sent to permittee and affected interests for review and comment.

7/15/91 meeting with permittees consultant and attorney to discuss allotment evaluation

7/26/91 written comments on draft evaluation received from permittee

8/13/91 written comments on draft evaluation received from Nevada Department of Wildlife

10/2/91 written comments received from NRDC/Sierra Club

11/01/91 meeting with permittee to discuss managment alternatives and potential agreement

11/12/91 meeting with permittee's consultant discussing carrying capacity and potential agreement

11/14/91 meeting with permittee's attorney and consultant to discuss carrying capacity and proposed agreement

B. Summary of Comments and Responses

1. Comment: Key areas for the allotment do not appear to correspond with the long term wildlife objectives of the allotment.

Response: Only a partial establishment of key areas has been completed to date for the Paiute Meadows allotment. It is recognized that additional key areas must be established to completely represent the various multiple uses of the allotment.

2. Comment: Observations indicate severe and heavy use in the Sheep Creek and Deer Creek drainage are directly affecting the production of deer, antelope and sage grouse. Department [NDOW]

mule deer data suggest that the poor conditions summer and winter ranges are causing excessive fawn mortalities during the winter months.

Response: Specific data pertaining to wildlife populations and fawn mortality has not been received by the Bureau to be analyzed or considered in this allotment evaluation. Absence of this specific data prohibits the Bureau from changing management recommendations regarding wildlife habitats.

3. Comment: Data indicates the current and past wild horse use is a major factor in the condition of riparian habitat on this allotment. Serious overuse of riparian zones was occurring prior to 1988 when the District re-authorized livestock use. It is alarming that despite this knowledge, the District authorized 4,350 AUMs of livestock use on this allotment in 1990.

Response: Livestock use was not "re-authorized" in 1988. The active grazing preference for the Paiute Meadows allotment is 7,827 and was available for use in 1988 upon approval of grazing applications from qualified applicants. In 1990 an application for transfer of grazing preference and an application for the grazing permit was received. In consideration of these applications in light of the monitoring data available at that time it was determined that 4,350 AUMs of grazing use was available for livestock in the North Paiute Use Area only.

4. Comment: Appendix 1 determines a stocking rate under the assumption of meeting 50% utilization on upland grass species. Analysis cannot support these stocking rates and seasons of use to meet 30% utilization on streambank riparian, 50% utilization of wetland meadows or 50% utilization of key mountain browse.

Response: Appendix 1 does not determine a stocking rate based on meeting 50% utilization on upland grass species alone. The methodology used represents a weighted average of the heavy and severe use zones as determined through use pattern mapping. These areas are the problem areas that do not allow for the achievement of multiple use objectives. The weighted average utilization figure was then applied to the desired stocking rate formula to achieve a 50% utilization objective. This applies to upland grass species, wetland riparian and/or browse. The utilization figure of 30% was not used as the majority of the data collected to date does not indicate a problem with achieving this objective. Only one year of data out of four indicates that this objective has not been achieved.

5. Comment: Since monitoring studies are not conducted to address the specific long term objectives for big game and sage

grouse, data does not exist to allow for remedial actions to eliminate or reduce conflicts between livestock and wildlife.

Response: This is a misunderstanding of the basic concepts of range management. Multiple use objectives are developed to guide the management of the public lands and have been written in the form of short and long term objectives. Short term objectives are written to provide for an analysis of monitoring data such as forage utilization (including use pattern mapping) and actual grazing use made (livestock, wild horses and/or wildlife). The analysis of short term data provides an indication of progress being made towards long term objectives and is correlated and applicable to all resource uses including wildlife and livestock and allows for the determination of any necessary changes to those levels of use. It is not BLM policy to postpone the evaluation of multiple use objectives in lieu of collecting sufficient long term monitoring data to make conclusions as to current management of the public lands.

6. Comment: Develop an interim management decision to reduce cattle until horses are removed to appropriate management levels.

Response: A multiple use decision will be issued identifying any necessary changes to current management levels and will prescribe any necessary terms and conditions to be applied to those levels of use in order to achieve multiple use objectives. Any changes required will be commensurate with the monitoring data available and the degree of change necessary as indicated by that data.

7. Comment: Delineate key areas for utilization and trend studies that address the specific long term objectives of this allotment for sage grouse, antelope and mule deer. Schedule the monitoring activities.

Response: The future establishment of key areas will be completed as workloads and funding permit. The scheduling of monitoring workloads is done on a yearly basis in line with available funding for that fiscal year.

8. Comment: The permittee has not agreed to voluntary non-use after completion of the allotment evaluation.

Response: Voluntary Non-use is one option that may be utilized to assist in achieving allotment specific management objectives. If an adjustment in management is necessary to achieve objectives, the Bureau has other options available to implement the changes in management.

9. Comment: The document containing the land use plan objectives

should be referenced/identified in the final allotment evaluation.

Response: The land use plan objectives are found in the MFP III planning document. The MFP III decisions are derived from these objectives.

10. Comment: The allotment [specific] objectives should be stricken from the AE as they do not conform to any regulatory process for development of allotment specific objectives that provides public input.

Response: The allotment specific objectives were derived from the LUP objectives which were general in nature. Quantification of the LUP objectives was necessary to evaluate the grazing management on the individual allotments. The allotment specific objectives are Bureau objectives for the management of the resources. The Bureau is mandated the responsibility for the management of the public lands under it's jurisdiction. It does not require a regulatory authority to develop resource management objectives by which to measure management. Instruction Memorandum 86-706 does state "...management objectives should be written so data from short term studies, such as actual use, utilization and climate can be used to determine if objectives are being met." The short term objectives were developed to determine progress towards long term objectives and thereby towards LUP objectives.

11. Comment: The permittee and the public have not had opportunity to participate in the development of the allotment specific objectives.

Response: Consultation in the allotment evaluation process has been ongoing in the Paradise-Denio Resource Area since early 1988. Participation was provided to the general public and affected interests in the evaluation process through the following:

April 1988 public meetings were held in Denio, Orovada, Paradise Valley and Winnemucca to discuss the upcoming allotment evaluation process. A copy of the format for the evaluations was presented which included a provision for short and long term objectives.

August 1988 a draft Paiute Meadows allotment evaluation was provided to the permittee. The short and long term objectives used to evaluate the current grazing management were presented and analyzed in this document.

September 1989 a letter was sent to all permittees and affected interests from the general RPS mailing list to notify them of an upcoming public meeting to discuss the

evaluation process.

September 1989 a public meeting was held and discussion of the evaluation process occurred.

January-April 1990 the grazing permit was transferred to the current permittee. Several meetings and correspondence regarding the allotment evaluation process occurred between the permittee and his representative and the BLM during this period.

12. Comment: Long term monitoring should be the primary criteria for evaluating range management success. Frequency objectives should be established.

Response: The Nevada Rangeland Monitoring Handbook and IM 86-706 both give guidance for use of short term monitoring data in evaluating progress towards long term objectives. Frequency objectives are generally established for specific key areas. The key area objectives for trend (long term monitoring) will be established as the process continues.

13. Comment: Since there are no active fisheries within the allotment the stream condition and water quality objectives should be revised to reflect the current use in the allotment (ie; irrigation and livestock).

Response: Stream Survey data for Bartlett, Battle and Paiute Creeks indicate that currently there are rainbow trout within Bartlett Creek, and that as recent as 1967 there were fish found within Paiute Creek. All three streams are within the historic geographic distribution of the Lahontan cutthroat trout and have been identified by NDOW, USFWS and the BLM as potential recovery streams for the threatened fish. The NDOW Draft Lahontan Cutthroat Trout Fishery Management Plan for the Quinn River Drainage Basin identifies all three streams as having high potential for rapid recovery. It further identifies the North Fork of Battle Creek as having the highest potential on the east side of the Black Rock Range.

Water quality standards must be met by Federal Law. The Clean Water Act of 1972 dictates that the state in which the water is located will establish the water quality standards. Compliance with these water quality standards has been the policy of the Winnemucca District as established with the 1982 Management Framework Plan/Land Use Plan. The standards are set for both point and non-point source pollution, not for beneficial use.

14. Comment: Actual use calculations should reflect the higher forage intake of wild horses.

Response: The Bureau does not employ conversion ratios for AUMs utilized on public lands. Current procedures employ a strict 1:1 ratio for cows:horses, cow:cow/calf, cow:steer. This applies to both wild and domestic horses.

15. Comment: An AMP should be completed for this allotment.

Response: AMPs are revised or developed as time and funding permit. At the present time an AMP is not scheduled for development for this allotment.

16. Comment: There are no proposals for direct protection of riparian areas.

Response: The selected management action is designed to achieve the allotment specific objectives for the riparian areas-in particular the streambank riparian vegetation. The carrying capacity of the allotment has been adjusted to a level that has been determined will achieve both the short and long term objectives over time. Changes in the season-of-use and the grazing management of the allotment will also assist in achieving these objectives. Prior to the removal of the excess horses, livestock grazing may only be authorized in the North Paiute Use Area. This will reduce the current over obligation of the forage resource in the interim. Fencing of the riparian areas was not selected as a management action at this time as current project development workloads prohibit the addition of extensive riparian protection fencing. The selected management action and the interim management action are designed to achieve the short and long term objectives without any additional fencing of riparian areas.

17. Comment: New projects are entirely unwarranted.

Response: See Response to #16. No new projects are included in the selected management action. Reconstruction of the Paiute Seeding fence is scheduled for 1993. An Environmental Assessment will be completed analyzing the feasibility of a boundary fence for the West side of the allotment.

18. Comment: What criteria is used for selection of an alternative for the proposed decision.

Response: The selected management action is selected after the consultation, coordination and cooperation has been completed for the draft evaluation. The selected management action was chosen

after review off all the alternatives presented in the draft evaluation and any other alternatives submitted during the consultation phase. A rationale is presented in the Selected Management Action section of the Final Paiute Meadows Allotment Evaluation. This rationale describes the changes that will be made in grazing management and what these changes are expected to achieve. Achievement of the allotment specific objectives is the primary goal of the Bureau, therefore the selected management is that which will achieve a thriving ecological balance for the vegetative resource on the public lands within the Paiute Meadows Allotment as determined through evaluation of the monitoring data.

19. Comment: How did the Bureau determine the minimum number of horses (50) for a "viable" population.

Response: Research has been done on feral horse populations in regards to inbreeding and effective populations. Some of this research indicates that with a population of less than 50 individuals, the herd runs a risk of significantly losing it's genetic diversity after as few as five generations. In the case of feral horses, this can be as soon as five years. ('Effective population size estimates and inbreeding in feral horses: a preliminary assessment': Berg, W.J.. Equine Veterinary Science Vol.6, No. 5).

20. Comment: How did you determine 'thriving ecological balance'?

Response: W.O. Instruction Memorandum No. 90-491 defines 'thriving natural ecological balance' as: The condition of the public range that exists when management objectives in approved land use and activity plans have been achieved that will: (1) sustain healthy populations of wild horses and burros, wildlife, and livestock on public land and (2) protect the desired plant community from deterioration.

The Paradise-Denio Resource Area, through evaluation of the monitoring data collected through 1990 on the Paiute Meadows allotment, determined that the short and long term objectives were not being met. Adjusting the stocking rate to the carrying capacity as determined through the evaluation of the monitoring data was necessary. The proportion of livestock:wild horses was determined through the land use planning process and is identified in the evaluation on page 31 as 92:8. The LUP identifies the population for monitoring in the Black Rock Range East HMA as 59 horses. This equates to 708 AUMs annually. This is 8% of the total AUMs for livestock and wild horses. Active Preference for livestock in the LUP was 7827 AUMs.

The carrying capacity of the Paiute Meadows allotment has been

determined to be 4950 AUMs. Using the LUP proportions would distribute the AUMs as follows:

Livestock	4554 AUMs
Wild Horses	396 AUMs

In order to maintain genetic viability the wild horse population will be reduced to 50 adult horses, and no less. This equates to 600 AUMs annually. Therefore, the proportion of livestock and wild horses will be adjusted to 88:12.

VIII. Selected Management Actions

1. Reduce livestock and wild horse use to a combined level of 4,950 AUMs. The respective adjustments to livestock and wild horses are as follows:

A. Livestock

1. Adjust livestock authorized active grazing preference to 4,350 AUMs.

From:

	Preference			
Total	Suspended	Active	Not Scheduled	Active Use
9932	2105	7827	3477	4350

To:

	Preference			
Total	Suspended	Active	Not Scheduled	Active Use
9932	2105	7827	3477	4350

2. Implement a deferred rotation grazing system as follows:

Year 1 and 2

North Paiute

446 Cattle	04/15 to 07/15	1348 AUMs
243 Cattle	10/16 to 02/28	1088 AUMs
		2436 AUMs

South Paiute

446 Cattle	07/16 to 10/15	1348 AUMs
126 Cattle	10/16 to 02/28	566 AUMs
		1914 AUMs

Total 4350 AUMs

Use of the Paiute Seeding will be deferred until after seedripe during Year 1 and 2. Grazing use by livestock will be authorized in the seeding from July 15 through October 15. The utilization objective for the Paiute Seeding will be 50% of the standing crop during the first two years following reconstruction of the seeding boundary fence.

Year 3

South Paiute

446 Cattle	04/15 to 07/15	1348 AUMs
126 Cattle	10/16 to 02/28	566 AUMs
		1914 AUMs

North Paiute

446 Cattle	07/16 to 10/15	1348 AUMs
243 Cattle	10/16 to 02/28	1088 AUMs
		2436 AUMs

Total AUMs 4350 AUMs

Use of the Paiute Seeding will be authorized for 04/15 to 07/15, concurrently with the South Paiute Use Area, with a utilization objective of 60% of the standing crop if the long term objective for good condition has been met. In the event it has not, the utilization objective will remain 50%.

Designated Areas of Use:

The areas of use are unfenced, with some natural barriers preventing livestock drift. To the extent that livestock drift may occur, the Bureau retains the authority to initiate trespass action if all reasonable alternatives have not been utilized to prevent the drift.

1) Winter Use Area:

This area would include all the lower foothills and lower country along the entire eastern portion of the allotment and fall below 1750 meters in elevation.

2) South Paiute Use Area:

This use area would be the southern portion of the allotment specifically from Paiute Creek

south including the higher country above 1750 meters in elevation.

3) North Paiute Use Area:

This use area would be the northern portion of the allotment specifically from Paiute Creek north including the higher country above 1750 meters in elevation.

The attached map titled Paiute Meadows Allotment Use Areas outlines the livestock use areas as described above.

3. Terms and Conditions:

Grazing use will be in accordance with this Livestock Use Agreement.

Flexibility in turnout, movement between use areas, and removal dates will be allowed if approved in advance by BLM and if consistent with management objectives.

Salt and/or mineral blocks shall not be placed within one quarter (¼) mile of springs, streams, meadows, riparian habitats or aspen stands.

The permittee is required to perform normal maintenance on the range improvements to which he has been assigned maintenance responsibility.

The permittee will be required to do the necessary riding to keep livestock in the proper use area during the proper time periods.

4. Voluntary Non-Use

Voluntary Non-Use may be applied for by Daniel H. Russell to the extent of any Animal Unit Months of forage harvested annually by wild and free roaming horses in excess of 600 AUMs, based upon the post-gather census, but in no event shall such voluntary non-use application be for more than 300 AUMs.

Daniel H. Russell may apply for activation of the voluntary non-use in the event that forage is temporarily available.

B. Wild Horses

Adjust wild horses to an Appropriate Management Level (AML) of 50 adult wild horses within the Black Rock Range East HMA. All wild horses 10 years of age and older will be allowed to remain on the allotment until such time as the BLM can find a suitable range for them. The Active Use for livestock will be reduced accordingly to maintain the stocking level at the carrying capacity for the allotment.

C. Wildlife

Adjustment to the wildlife population levels is not warranted. Wildlife populations will remain at current levels.

2. Reconstruct the Paiute Seeding Fence and defer use in the seeding until after seedripe for two (2) years. The reconstruction should coincide with the removal of wild horses so that the seeding can receive the growing season rest without pressure from the wild horses. Materials will be provided by the BLM and the labor for construction will be provided by the permittee. Conduct vegetation production studies during the growing season following fence construction to assist in determining a stocking rate for the seeding. The seeding will be used after seedripe in Years 1 and 2, and in Year 3 will be used concurrently with the South Paiute use area.

3. Complete an Environmental Assessment for the proposed boundary fence for the west boundary of the Paiute Meadows Allotment as submitted by the permittee.

4. Monitoring
   a) Develop a Monitoring Plan for the Paiute Meadows Allotment.
   b) Continue monitoring the Paiute Meadows Allotment in accordance with the NRMH and BLM Manual procedures.
   c) Complete the Ecological Status Inventory on the Paiute Meadows Allotment by 1997.
   d) Initiate Wildlife Habitat Inventory and Riparian/Fisheries Habitat Studies.
   e) Redefine/quantify long term objective (3) with ecological status condition as information becomes available.
   f) Continue with intensive wild horse habitat and monitoring studies. Collect data to determine population estimates, population trend, population characteristics, population dynamics, and population analysis.

5. Objectives

The allotment specific objectives for the Paiute Meadows Allotment

shall be:

A. Short Term

Utilization of key streambank riparian plant species on Paiute, Battle and Bartlett Creeks shall average 30% on woody species over a period of time as indicated by utilization data collected at the end of the grazing period and 50% on herbaceous species as indicated by utilization data collected at the end of the growing season. [1]

Utilization of key plant species in wetland riparian habitats shall average 50% over a period of time as indicated by utilization data collected at the end of the growing season. [1]

Utilization of key plant species in upland habitats shall average 50% over a period of time as indicated by utilization data collected at the end of the growing season. [1]

Utilization of crested wheatgrass shall average 50% until the completion of the Paiute Seeding fence reconstruction at which time utilization shall average 60% over a period of time as indicated by utilization data collected at the end of the growing season. [1]

B. Long Term

Manage, maintain, or improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 1,838 AUMs for mule deer, 307 AUMs for pronghorn, and 180 AUMs for bighorn sheep.

1) Improve to or maintain 2,134 acres in Black Rock DY-13, 41,678 acres in Black Rock DW-10, and 45,856 acres in Black Rock DS-6 in good or excellent mule deer habitat condition.

2) Improve or maintain 45,965 acres in Black Rock PS-15 in good pronghorn habitat condition. Improve to or maintain 35,274 acres in Black Rock PY-14, 2,623 acres in Leonard Creek PW-17, and 31,466 acres in Paiute Creek PW-16 in fair or good pronghorn habitat condition.

3) Improve to or maintain 69,939 acres in Black Rock BY-15 in good to excellent bighorn sheep habitat condition.

Manage, maintain, or improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with a stocking level of 7,827 AUMs.

Improve range condition from poor to fair on 161,158 acres and from fair to good on 15,938 acres. [2]

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

1) Manage, maintain, or improve public rangeland conditions to provide 600 AUMs of forage on a sustained yield basis for 50 (AML) wild horses to maintain a thriving natural ecological balance.

2) Maintain and improve wild horse habitat by assuring free access to water.

Improve to or maintain 86 acres of ceanothus habitat types in good condition. [2]

Improve to or maintain 345 acres of mahogany habitat types in good condition. [2]

Improve to or maintain 188 acres of aspen habitat types in good condition. [2]

Improve to or maintain 529 acres of riparian and meadow habitat types in good condition. [2]

Improve to or maintain 15 acres of serviceberry, 82 acres of bitterbrush, 55 acres of ephedra, and 112 acres of winterfat vegetation types in good condition. [2]

Improve to and maintain stream habitat conditions from 43% on Paiute Creek, 58% on Battle Creek, and 50% on Bartlett Creek to an overall optimum of 60% or above.

1) Streambank cover 60% or above.
2) Streambank stability 60% or above.
3) Maximum summer water temperatures below 70° F.
4) Sedimentation below 10%.

Protect sage grouse strutting grounds and brooding areas. Maintain the big sagebrush sites within two miles of active strutting grounds in mid to late seral stage with a minimum of 30% shrub composition by weight.

Improve to and maintain the water quality of Paiute, Battle

and Bartlett Creeks to the State criteria set for the following beneficial uses: livestock drinking water, cold water aquatic life, wading (water contact recreation), and wildlife propagation.

Improve to or maintain the 1000 acre Paiute seeding in good condition. (5-10 acres per AUM)

Footnotes:

[1] The utilization levels will be used to evaluate and adjust management practices over a period of time.

[2] Ecological status will be used to redefine/quantify these objectives where applicable.

IX. Rationale

Current and past grazing use by livestock and wild horses is not meeting allotment objectives. In the South Paiute use area the conflict has been solely with wild horses and in the North Paiute use area it has been a combination of livestock and wild horses. Monitoring data does not indicate a negative impact from current populations of wildlife.

Through the allotment evaluation process, the BLM, using available monitoring data, calculated an allotment carrying capacity of 3942 AUMs. During the review of the allotment evaluation, Western Range Service (WRS), a range consulting service for the permittee, submitted to the BLM their calculation for carrying capacity based on the interpretation of their monitoring data. Their calculation of carrying capacity ranged from 5000 to 7000 AUMs.

In a subsequent consultation meeting between the BLM and WRS (11/12/1991) discussion centered on the methods for calculating the carrying capacity.

WRS indicated that the BLM method of calculation was producing a conservative estimate of carrying capacity because the calculation had partially been based on the 1987 and 1988 data which only showed wild horse use in one use area of the allotment. WRS also indicated that the BLM method only addressed reducing the heavy and severe use areas to moderate use and did not account for forage that would be available in the areas of light and slight use that would be used with the implementation of the proposed grazing system.

In our analysis of the WRS methods for calculating the carrying capacity, we note that they have used a straight average of the utilization levels at specific locations throughout the North and South use areas of the allotment and have not taken into consideration the

actual proportion of acreage that each utilization zone represents. It also appears that they have not taken into consideration areas that may not be accessible to livestock.

Both methods used for calculating the carrying capacity have merit.

If the permittee's scheduled use is maintained at 4350 AUMs and the wild horse use is maintained at 600 AUMs, this reduces the actual demand for forage from 10,642 AUMs to 4950 AUMs which is a 53.5% reduction in actual use. The 4950 AUMs also approaches an average of our calculated carrying capacity and that of WRS.

In making a final determination of carrying capacity for this allotment, a review of the climatological data and personal interview with permittees adjacent to the Paiute Meadows allotment indicates that rainfall during the growing season of the past several years has been less than average. This has probably contributed to some of the heavy and severe use that has been detected during our monitoring studies.

Also of consideration in the determination of the carrying capacity is the implementation of the grazing system which requires the permittee to ride and move the livestock from one use area to another instead of turning the livestock out for season long use in the same area (North Paiute). The implementation of the grazing system to provide better distribution will reduce the heavy and severe use and improve distribution throughout the allotment and meet management objectives.

After reviewing the information, I conclude that the BLM calculations will produce a conservative estimate of the carrying capacity and that the WRS calculations would produce a maximum carrying capacity that may not be compatible with the meeting of our specific allotment objectives.

Therefore, I am selecting 4950 AUMs as the carrying capacity to achieve a thriving, natural ecological balance for the vegetative resource on the Paiute Meadows allotment. The use on the allotment will be monitored and another evaluation of monitoring will be completed after the 1994 grazing season.

The 600 AUMs of wild horse use is based on Alternative 1 of the technical recommendations which bases the level of livestock and wild horse use on the proportions established in the Land Use Plan. The LUP proportion of 92% livestock use and 8% wild horse use would equate to the following use:

4950 x .92 = 4554 AUMs for livestock
4950 x .08 = 396 AUMs for wild horses

The 396 AUMs for horse use would allow for a year-round population of 33 wild horses. Reducing the herd size below 50 adult animals may jeopardize the genetic viability of the herd; therefore wild horse numbers will be adjusted to 50 adult animals using 600 AUMs of forage.

In our gather of excess wild horses, all wild horses that are 10 years of age and older will be allowed to stay on the allotment until the BLM can find a suitable range for them. Forage being used by the wild horses over the 600 AUMs stated above will be deducted from the livestock scheduled use so that a carrying capacity of 4950 AUMs can be maintained. This follows BLM policy and regulation as described in WO Instruction Memo 91-216 and 43 CFR 4100.

The adjustment to carrying capacity is for livestock and wild horses only, and does not affect the current population for wildlife. This adjustment recognizes that the majority of the forage use during the years of data collection has been from wild horses. The level of 50 animals will maintain a viable herd which will be self sustaining.

The selected grazing practices, which are a modification of technical recommendation A2, alternative b, for livestock will assist in the achievement of resources objectives. This alternative was modified to allow for earlier use and to remove the livestock from the use area earlier in the hot part of the grazing season. The selection of this grazing system is also based on the permittee riding and keeping the livestock in the identified use areas described in section A2, alternative b, of the technical recommendations. The early season use by livestock until July 16 in years 1 and 2 will promote better distribution patterns by livestock with green forage being available thereby reducing conflicts with riparian areas and streams and also allowing for a regrowth period for riparian areas. This treatment will also allow for two years of complete growing season rest for the South Paiute use area which has received the majority of overutilization of forage. The winter use areas for both the North and South areas will receive total growing season rest every year which will again allow for improvement of the range resources with the emphasis for improvement being placed on the South area. In year 3 the North Paiute use area will receive growing season rest aiding in the maintenance and/or improvement of the vegetative resource. These grazing practices recognize that the majority of the riparian areas and the aquatic habitats are located in the North Paiute use area.

Corridor fencing of the riparian habitats was not considered as these fences would interfere with the wild and free roaming nature of the wild horses. If riding is not effective in keeping the livestock in the proper use areas such that the riparian and aquatic habitats will be improved or maintained at the objective levels, then further reduction in livestock use may be necessary.

The reconstruction of the Paiute Seeding fence, along with the scheduled rest, will assist in the improvement of the vegetative resource and reduce any possible conflicts between livestock, wild horses and wildlife.

The combination of adjusting the stocking rate for the allotment to alleviate conflicts with over obligation of forage and the identified grazing practices will allow for a carrying capacity of livestock and wild horses of 4950 AUMs and meet the phenological requirements of key species.

The range improvements recommended for development and reconstruction (other than Paiute Seeding) have not been scheduled at this time due to an excessive workload currently existing in the range improvement program for the resource area. The selected actions will allow for the achievement of resource objectives. The development of these range improvements will be considered in ensuing fiscal years as other projects are completed and as funding becomes available.

The recommendations for wild horse management are not identified in the selected action section as they are standard operating procedures for the wild horse program. The recommendations are recognized as being essential towards the management of wild horses in the Black Rock Range East HMA.

The recommendations for monitoring needs are also standard BLM procedures in the accomplishment of a monitoring program and are recognized as necessary for a complete monitoring program for the Paiute Meadows allotment and will be accomplished as monitoring progresses on the allotment. These actions are directly affected/controlled by available funding, manpower and priorities. Prior to the completion of all identified items evaluations of habitats and resource uses will be made on the best available data at the time.

The allotment specific objectives have been modified for the short term utilization objectives and the long term objective for sage grouse habitat. The short term objectives have been modified to indicate that the desired utilization level will be evaluated as an average over a period of time. It is expected that utilization levels will vary over the years due to climatic changes and environmental fluctuations but the average should not exceed the stated objective level. The short term objectives also contain a time at which the utilization data will be collected which will be after the growing season except for woody species in streambank habitats. This is to reflect any regrowth of herbaceous species on riparian areas recognizing that a major function of these species is for protection of streambanks and meadows during high water times of the year. Woody species along streams are essential for the shading and bank stability thereby requiring a lower utilization level and monitoring data collected at the end of the grazing periods.

The sage grouse habitat objective has been modified to better reflect the intent of the objective which is to protect strutting grounds and brooding areas. The 30% composition of shrubs within two miles of strutting grounds is to identify a habitat need for sage grouse when

considering any vegetative treatments, range improvements or any action which may alter or disturb these areas.

X. Future Monitoring and Grazing Adjustments

The Paradise-Denio Resource Area will continue to monitor all existing studies and establish additional studies as identified above. This monitoring data will continue to be collected in the future to provide the necessary information for subsequent evaluation. These evaluations are necessary to determine if the allotment specific objectives are being met under the existing and/or new grazing management strategies. In addition, these subsequent evaluations will determine if adjustments are required to meet the established allotment specific objectives.

The Paiute Meadows allotment is scheduled to be re-evaluated in 1995.

XI. NEPA Review

The selected management action for grazing in the Paiute Meadows Allotment conforms with the environmental analysis of grazing impacts described in the Final Paradise-Denio Environmental Impact Statement dated September 18, 1981.

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

Stocking Level Calculations Paiute Meadows Allotment.

1. Stocking Level Calculation Procedures

Monitoring data indicates that wild horses have contributed to over utilization in the allotment. Target utilization levels were exceeded south of Paiute Creek where the use was by wild horses. Use levels north of Paiute Creek resulted from livestock and wild horses. The total amount of actual use made by livestock and wild horses was determined north and south of Paiute Creek for each year.

The stocking level for the allotment was determined using the following Actual Use/Utilization formula.

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

The stocking level was determined for the area north of Paiute Creek and south of Paiute Creek for each year data was available and then computing the average mean for those figures.

Stocking rates were calculated as follows:

South of Paiute Creek - The average calculated stocking rate is 1708 AUMs. This was based on the four years of use pattern mapping data and the desired yearlong utilization level of 50%.

North of Paiute Creek - The average calculated stocking rate is 2234 AUMs. This was based on the four years of use pattern mapping data and the desired yearlong utilization level of 50%.

Wild horse census data and cattle licensed use were used to calculate stocking levels. Wildlife AUMs were not calculated. Utilization was determined from use pattern mapping using the Average/Weighted Average Utilization formula for those areas where forage was utilized heavy and/or severe. These figures were then used to determine the amount of reduction from the present demand necessary to achieve management objectives. The procedures for doing the calculations are outlined as follows:

1) Planimeter Use Pattern Map by utilization category for each year.

2) Figure acreage by utilization category for north of Paiute

Creek and for south of Paiute Creek.

3) Using Weighted Average Utilization Formula, determine percent utilization level on acreage for heavy and severe use areas only. (As identified in the Nevada Rangeland Monitoring Handbook, 1984)

4) The Average/Weighted Average Utilization figure was entered into the Actual Use/Utilization Formula and a stocking level was determined.

5) Actual Use AUMs include cattle and wild horses only.

In the determination of a stocking rate both wild horse and livestock actual use were correlated to the dates of data collection. In some years data was collected in the fall of the year and then again at the end of winter. In these cases the data collected following the winter season (spring) was used to determine a stocking rate as it represents the entire grazing year. In 1987 data was collected in the fall only, in which case actual use was correlated to the dates of data collection and a stocking rate determined from the available data.

2. Actual Use Calculations

A. 1987

South Paiute	North Paiute
448 H - 03/01/87-08/08/87 - 2,371 AUMs	218 H - 03/01/87-08/08/87 - 1,154 AUMs

UPM completed August 8, 1987 and measures use 03/01-08/08
No cattle use
Census conducted Oct. 6-8, 1987, numbers are based on census.
Wild Horse gather conducted December 1987-January 1988.*

B. 1988 *

South Paiute	North Paiute
203 H - 03/01/88-02/28/89 - 2,436 AUMs	18 H - 03/01/88-02/28/89 - 216 AUMs
	595 C - 10/17/88-01/01/89 - 1,143 AUMs
	1,359 AUMs

UPM completed 04/06/89 and measures use for 03/01/88-02/28/89.
Cattle use 1,143 AUMs

C. 1989

South Paiute		North Paiute	
203 H - 03/01/89-07/17/89 -	928 AUMs	18 H - 03/01/89-07/17/89 -	82 AUMs
408 H - 07/18/89-02/14/90 -	2,844 AUMs	243 H - 07/18/89-02/14/90 -	1,694 AUMs
264 H - 02/15/90-02/28/90 -	122 AUMs	244 H - 02/15/90-02/28/90 -	112 AUMs
	3,894 AUMs	131-701 C - 10/26/89-02/28/90 -	2,342 AUMs
			4,230 AUMs

UPM completed 04/04/90 and measures use for 03/01/89-02/28/90. On 07/18/89 a census was done and on 02/14/90 a census was again conducted.
Cattle use - 2,342 AUMs

D. 1990

South Paiute		North Paiute	
264 H - 03/01/90-02/28/91 -	3,168 AUMs	244 H - 03/01/90-02/28/91 -	2,928 AUMs
		700 C - 05/03/90-10/31/90 -	4,017 AUMs
			6,943 AUMs

UPM completed 04/17/91 and measures use from 03/01/90-02/28/91. Wild horse numbers are based on the 02/14/90 census date.
Cattle use - 4,017 AUMs.

3. Weighted Average Utilization Calculations

Paiute Meadows Allotment (South Paiute) Heavy and Severe Use Zone Acreage

Grazing Year	Total Acres Mapped	Use Zone	Total Acres Per Zone
1987	25,949	Heavy	6,465
		Severe	6,820
1988	23,047	Heavy	4,910
		Severe	9,340
1989	46,437	Heavy	23,965
		Severe	10,763
1990	59,178	Heavy	25,359
		Severe	6,850

Paiute Meadows Allotment (North Paiute) Heavy and Severe Use Zone Acreage

Grazing Year	Total Acres Mapped	Use Zone	Total Acres Per Zone
1987	10,227	Heavy	2,298
		Severe	0
1988	42,754	Heavy	6,227
		Severe	74
1989	53,974	Heavy	21,175
		Severe	0
1990	81,956	Heavy	46,934
		Severe	72

Note- The above tables display data for full grazing year (beginning 03/01 and ending 02/28) as indicated by use pattern mapping conducted in the spring. The exception to this 1987 when use pattern mapping was conducted in the fall only, and not in the following spring.

1987

North Paiute

$$\frac{2{,}298 \text{ Ac.} \times 70\%}{2{,}298 \text{ Ac}} = 70\%$$

South Paiute

$$\frac{(6{,}820 \text{ Ac.} \times 90\%) + (6{,}465 \text{ Ac.} \times 70\%)}{13{,}285 \text{ Ac}} = 80\%$$

1988

North Paiute

$$\frac{(6{,}227 \text{ Ac.} \times 70\%) + (74 \text{ Ac} \times 90\%)}{6{,}301 \text{ Ac}} = 70\%$$

South Paiute

$$\frac{(9{,}340 \text{ Ac.} \times 90\%) + (4{,}910 \text{ Ac.} \times 70\%)}{14{,}250 \text{ Ac}} = 83\%$$

1989

North Paiute

$$\frac{(21{,}175 \text{ Ac.} \times 70\%) + (0 \text{ Ac} \times 90\%)}{21{,}175 \text{ Ac}} = 70\%$$

South Paiute

$$\frac{(23{,}965 \text{ Ac.} \times 70\%)\ (10{,}763 \text{ Ac.} \times 90\%)}{34{,}728 \text{ Ac}} = 76\%$$

1990

North Paiute

$$\frac{(46{,}934 \text{ Ac.} \times 70\%) + (72 \text{ Ac} \times 90\%)}{47{,}006 \text{ Ac}} = 70\%$$

South Paiute

$$\frac{(25{,}359 \text{ Ac.} \times 70\%) + (6{,}850 \text{ Ac.} \times 90\%}{32{,}209 \text{ Ac}} = 74\%$$

4. Stocking Level Calculations*

	South Paiute	North Paiute
1987	2,371 AUMs x 50% = 1,482 AUMs 80%	1,154 AUMs x 50% = 824 AUMs 70%
1988	2,436 AUMs x 50% = 1,467 AUMs 83%	1,359 AUMs x 50% = 971 AUMs 70%
1989	3,894 AUMs x 50% = 2,562 AUMs 76%	4,230 AUMs x 50% = 3,021 AUMs 70%
1990	3,168 AUMs x 50% = 2,141 AUMs 74%	6,943 AUMs x 50% = 4,959 AUMs 70%
	6, 830 AUMs	8,934 AUMs

6,830 ÷ 4 = 1,708 AUMs Avg. South Paiute
8,934 ÷ 4 = 2,234 AUMs Avg. North Paiute
3,942 AUMs Total

*Note:
The calculations have been revised from those presented in the Appendix section of the Draft Allotment Evaluation. Final review determined that the dates presented for the wild horse gather of December 1988-January 1989 were incorrect. The referenced gather actually took place in December 1987-January 1988. This significantly affected the Actual Use figures used in the calculations which resulted in the lower figures.

APPENDIX 2

The following indicates the actual use by livestock and wild horses for grazing years 1987-1990. These actual use figures were used in the development of recommendations to adjust livestock and wild horse forage demand to available forage levels. The years 1987-1990 were used as these are the years of data collection and also the years of recent wild horse census.

Wild horse Actual Use - 1987-1990 (revised 10/3/91)*

	South Paiute			North Paiute		
Year	# of Wild Horses	Period	AUMs	# of Wild Horses	Period	AUMs
1987	448 H	03/01-11/30	4,050	218 H	03/01-11/30	1,971
	203 H	12/01-02/28	601	18 H	12/01-02/28	53
1988	203 H	03/01-02/28	2,436	18 H	03/01-02/28	216
1989	203 H	03/01-07/18	934	18 H	03/01-07/18	83
	408 H	07/19-02/14	2,830	243 H	07/19-02/14	1,686
	264 H	02/15-02/28	122	244 H	02/15-02/28	112
1990	264 H	03/01-02/28	3,168	244 H	03/01-02/28	2,928

South Paiute	North Paiute
1987 - 4,651 AUMs	1987 - 2,024 AUMs
1988 - 2,436 AUMs	1988 - 216 AUMs
1989 - 3,886 AUMs	1989 - 1,881 AUMs
1990 - 3,168 AUMs	1990 - 2,928 AUMs
14,141 AUMs	7,089 AUMs

The actual use (AUMs) were determined by utilizing the AUMs/BAS computer program calculation. This program calculates AUMs based on the grazing years.

14,141 AUMs Actual Use South Paiute
7,089 AUMs Actual Use North Paiute
21,230 AUMs Total

The total actual use figure of 21,230 AUMs was then divided by 4 years to determine an actual use average as follows;

21,230 AUMs ÷ 4 = 5,308 AUMs Avg. (4 years) wild horses.

A census was conducted during Oct. 6-8, 1987. This number was carried back to the beginning of the calendar year.

During Dec. 1987 and Jan. 1988 horses were gathered which reduced numbers beginning 12/87. *

A census was completed on 07/18/89 which increased numbers.

A census was again completed on 02/14/90 which decreased numbers.

Livestock Actual Use

1987	No Use
1988	1,143 AUMs
1989	2,342 AUMs
1990	4,017 AUMs
Total	7,502 AUMs

7,502 AUMs ÷ 4 yrs = 1,876 AUMs Avg. Livestock Use

*Note:
The calculations have been revised from those presented in the Appendix section of the Draft Allotment Evaluation. Final review determined that the dates presented for the wild horse gather of December 1988-January 1989 were incorrect. The referenced gather actually took place in December 1987-January 1988. This significantly affected the Actual Use figures used in the calculations which resulted in the lower figures.

APPENDIX 3

Western Range Service's confirmation of monitoring data discussion held with the Paradise-Denio staff on November 12, 1991.

MEMORANDUM

TO: Scott Billing, Paradise-Denio Area Manager
Abbie Jossie, Range Conservationist

FROM: Derek Bailey, Western Range Service

SUBJECT: Short Term Stocking Rate Estimates for the Paiute Meadows Allotment

DATE: November 22, 1991

BACKGROUND

Daniel H. Russell, permittee, requested Western Range Service to present range studies data collected in the Paiute Meadows Allotment to Scott Billings and his staff and to discuss our analyses of the data with them. On November 12, 1991, Al Steninger and Derek Bailey, Western Range Service, met with Scott Billings, Abbie Jossie and Dave Stockdale in the BLM office in Winnemucca, Nevada. The following is a summary of our perception of the issue, as well as the information and analysis presented to BLM staff November 12, 1991.

THE ISSUE

The Paiute Meadows allotment, "Allotment", administered by the Paradise-Denio Resource Area of the Winnemucca District, Bureau of Land Management, "BLM", has had highly variable annual grazing levels over the last decade due to widely fluctuating populations of wild and free roaming horses, "Wild Horses," as well as livestock actual use. Rangeland monitoring data is limited. In recent years utilization data has been gathered and frequency trend studies have been established, but have not yet been re-read to gather trend information. Actual use data for wild horses relies upon BLM census counts. Actual use data for livestock relies upon BLM licensing data and permittee reports to BLM of the actual cattle numbers and dates of use which occurred during the current reporting years.

Since the transfer of the Allotment livestock grazing preference in 1989 to Daniel H. Russell, "Russell", authorized livestock grazing has been stabilized at a fixed authorized use level of 4350 Animal Unit Months, "AUMs," which is about 44% below Russell active grazing preference of 7827 AUMs. Actual livestock use has been near that level. Wild horse population counts since 1987 have varied from 666 to 508 head and are presently at a level

reported by BLM be 508 head, or over 8 tim . greater than the Paradise-Denio Management Framework Plan leve. of 59 head.

In the draft Paiute Meadows Allotment Evaluation, "Allotment Evaluation" dated October 2, 1991, BLM determined from monitoring data that a wild horse appropriate management level of 50 head would result in a thriving natural ecological balance.

It is the mutual desire of BLM and Russell to stabilize cattle numbers at a reasonably stable level, for an interim period of years after wild horses have been reduced down to or near the appropriate management level of 50 head. During such interim period the livestock grazing level should be at or reasonably below an appropriate short term stocking level, so that a livestock grazing system can be initiated and evaluated and additional monitoring studies can be conducted. At the end of the interim period long term carrying capacity may then be determined from an expanded base of more reliable studies data evaluated by appropriate long term analysis techniques.

To accomplish this mutual goal the following questions arise:

1) What is the appropriate short term stocking rate, based upon available data?

2) How long in years is the short term stocking rate applicable?

3) How long should the interim period be?

4) What livestock grazing management system should be employed?

5) When would wild horses be gathered to reach the appropriate management level population?

Most answers are available. An interim period of 3 years would allow a full cycle of the grazing system recommended in the Allotment Evaluation to be completed. A wild horse gather prior to the 1992 grazing season would allow the interim period to begin before the 1992 growing season. Russell and BLM are in agreement with respect to the above described questions and answers.

The remaining questions to which we address our following response are: 1) What interim Cattle stocking level would be appropriate?; and 2) What is the short term stocking level, if the term is 3 years.

To answer these question we must recommend a short term (3 year) stocking rate which we believe will be at or below a level which will be compatible with existing resource conditions and the terms of the interim program. In the absence of relatively stable

grazing levels during the last decade, the absence of vegetative trend data, a sustained drought in the general region for perhaps 7 of the last 10 years and only a few years of utilization data, a short term stocking rate analysis is the determination we believe to be appropriate.

The available data source is limited to actual use and utilization collected for only a few recent years. The task is to forecast near-term future stocking rates from estimates of stocking rates which would have been appropriate. In this regard, the appropriate stocking rate would have been that level of actual grazing use upon the forage which was actually produced during the year of sampling which would have resulted in an observed utilization level that was equal to the desired utilization level. These estimates of the actual use that would have occurred if observed utilization levels equaled desired utilization levels can be used to forecast stocking rates for the next few years (short term).

Two categories of utilization data are available. The first category is utilization data gathered at vegetation study sites which are representative of the Allotment and provide good information for determining a reliable range for a short term stocking rate. The second category is use pattern mapping which provides information concerning the distribution of grazing pressure and which indicates areas of grazing use above desired levels.

With respect to an appropriate short term stocking rate, we applied two approaches which are later presented in detail in the body of this report. The first approach includes yearlong data on an Allotment-wide basis. We concluded that appropriate annual stocking rates would have been approximately 6750 AUMs in 1989 and 7225 AUMs in 1990, or an average of about 7000 AUMs. In our second approach we looked at 1990 fall data in an attempt to estimate what would have been an appropriate yearlong stocking rate in 1990, for the Allotment and within the North and South areas. This approach indicated that the 1990 appropriate stocking rate would have been about 8400 AUMs. The first two approaches produced a range of stocking rates between 6750 AUMs and 8400 AUMs.

Our third approach considered the current distribution of grazing occurrence that was attributable to the two principal grazing animal categories, horses and cattle. Available data indicates that approximately 60% of the current grazing occurrence is attributable to Horses.

From our three approaches we have concluded that:

1. A conservative short term stocking rate appropriate for the 3 year interim program, would be at least 6700 AUMs, but not greater than 7000 AUMs;

2. The 1[illegible] stocking level would have [illegible]n reduced by over 50% i[illegible] wild horses had been pres[illegible] at the Allotment Evaluation recommended level of 50 head; and,

3. If cattle use were to continue at the current level of 4350 AUMs during the interim period concurrent with a wild horse population of 50 head (600 AUMs), the combined stocking level of 4950 AUMs would be 26% below our most conservative estimate (6700 AUMs) of an appropriate short term stocking rate.

4. Distribution problems should be resolved by the combination of three factors: A significant reduction in unmanaged yearlong grazing by wild horses; An interim stocking rate below the appropriate short term stocking rate; and, Implementation of the Allotment Evaluation's Livestock grazing management system.

GENERAL ANALYSIS APPROACH

Carrying capacity is defined as the "maximum stocking rate possible which is consistent with maintaining or improving vegetation or related resources ..." (A Glossary of Terms Used in Range Management, Society for Range Management, 1989). To determine the carrying capacity of an enclosure, the total available useable forage must be determined. Forage located in steep or rough topography or located long distances from water should not be included in determining the estimate of capacity since these areas are usually not used by livestock. Therefore, vegetation study sites or key areas should be located in representative locations where the herbivores graze. Areas with available forage must be sampled and the results averaged.

An appropriate method for estimating short term stocking levels, interim carrying capacity, is based on actual grazing use in Animal Unit Months (AUMs) and the associated forage utilization levels. Such a short term stocking rate is estimated via a calculation involving actual use, observed utilization and desired utilization. If observed utilization is below desired utilization, the calculation will result in an estimate of an appropriate stocking rate for the subject year which would have been above actual use. If observed utilization is above desired utilization, the calculation will result in an estimate of an appropriate stocking rate for the subject year which would have been below actual use.

To determine carrying capacity, long term stocking rate, addressed by the definition (above) for carrying capacity, the currently available data is inadequate. A measure of vegetative changes over time, its trend, and climatic data are also needed in an analysis which includes utilization and actual use data. We consider the long term stocking rate in a BLM grazing allotment to

be the active grazing preference. A change in active preference would be a change in the long term stocking rate of carrying capacity.

DATA SOURCE

Utilization data was collected at key areas by Western Range Service (WRS) during the fall after cattle were removed from the allotment and during the spring as the forage began to grow. The purpose of the fall utilization studies was to estimate use after cattle were removed from the allotment for the current grazing year. The spring utilization studies were conducted to determine total use of forage produced during the previous growing season.

Western Range Service established 6 vegetation study sites (key areas) in the Paiute Meadows allotment during April 1990. Utilization was estimated at these sites during April 1990, November 1990 and April 1991. During November 1990 and April 1991, Western Range Service collected data at BLM key areas and BLM utilization cage locations as well as at Western Range Service study sites. The April 1990 and 1991 readings provided an estimate of total forage use during the 1989 and 1990 grazing years, respectively.

Western Range Service vegetation study sites were located in areas believed to be representative of the Allotment. To check if the vegetation study sites were representative, additional utilization observations were collected in April 1990 at randomly selected locations along roads in the allotment. The average of utilization levels at the key areas was slightly heavier than the average of utilization levels at the randomly selected locations. The similarity in utilization levels among the vegetation study sites and the random locations indicates that the location of study sites is not biased and that they are representative of the Allotment.

Utilization levels at the key areas (WRS only in April 1990 and WRS and BLM in November 1990 and April 1991) were averaged for each sampling period to determine an appropriate short term stocking level. For consistency purposes, forage utilization at each study site was classified into 1 of the following 6 utilization categories: no use (0%), slight (1-20%), light (21-40%), moderate (41-60%), heavy (61-80%) and severe (81-100%). Midpoints of the categories were used to calculate averages.

Livestock actual use information was obtained from the Allotment Evaluation. Wild horse actual use was determined from BLM census information, also presented in the Allotment Evaluation. For simplification in this presentation, the forage consumed by a horse for one month was defined as 1 AUM. However, the actual forage consumed by horses in a month is greater than 1 AUM, approximately 1.2 to 1.3 AUMs.

ANALYSIS APPROACH 1
INTERIM STOCKING RATE BASED ON YEARLONG DATA

The first approach used the actual use of livestock and wild horses for an entire year. Utilization information was collected in April 1990 (1989 grazing year) and April 1991 (1990 grazing year). Utilization information from study sites throughout the allotment were averaged and used to calculate the stocking rate which would have been appropriate for the grazing year analyzed.

1989 GRAZING YEAR:

Actual use:

Wild horses	5767
Livestock	2342
Total	8109

Utilization:

Average utilization for the 1989 grazing year (April 1990 reading) at the 6 study sites examined by Western Range Service was 60%.

Stocking Rate Calculation:

$$\text{Actual Use} \times \frac{\text{Desired Utilization *}}{\text{Observed Utilization}} = \text{Appropriate Stocking Rate}$$

* BLM's desired utilization objective was 50% (from the BLM Allotment Evaluation).

$$8109 \text{ AUMs} \times \frac{50\%}{60} = 6758 \text{ AUMs}$$

Appropriate 1989 Stocking Rate Estimate = 6758 AUMs

1990 GRAZING YEAR:

Actual use:

Wild horses	6096
Livestock	4017
Total	10113

Utilization:

The average utilization for the 1990 grazing year (April 1991 reading) at study sites examined by Western Range Service was 70%.

Stocking Rate Calculation:

$$10113 \text{ AUMs} \times \frac{50\%}{70\%} = 7224 \text{ AUMs}$$

Appropriate 1990 Stocking Rate Estimate = 7224 AUMs

ANALYSIS APPROACH 2
AREA STOCKING RATE BASED ON FALL UTILIZATION DATA, LIVESTOCK ACTUAL USE AND BLM HORSE CENSUSES

This approach used only November 1990 utilization data and livestock actual use and BLM wild horse census inventory data. North and south use areas are considered independently. The south area generally receives roughly 61% of the wild horse use based on BLM censuses conducted in 1987, 1989 and 1990. Correspondingly, the north area receives approximately 39% of the wild horse use. There were 508 horses in the Paiute allotment in 1990 according to the BLM wild horse census. Livestock use was restricted to the north area and was reported to be 4017 AUMs.

North area:

Actual use:

A total of 198 (508 X 0.39) horses would be expected to have been in the North area since it receives 39% of the use. The November utilization readings corresponded to approximately 7 months of use (April to November).

Wild horses:	508 head X 0.39 X 7 months =	1387 AUMs
Livestock:		4017 AUMs
Total		5404 AUMs

Utilization:

The average of the 10 WRS estimates at BLM and WRS study sites in the North area during November 1990 was 42%.

Appropriat Stocking Rate Calculation:

$$5404 \text{ AUMs} \times \frac{50\%}{42\%} = 6433 \text{ AUMs}$$

North Area Appropriate 1990 Stocking Rate Estimate = 6433 AUMs

South area:

Actual use:

A total of 310 (508 X 0.61) horses would be expected to have been in the South area since it received 61% of the use. The November utilization readings corresponded to approximately 7 months of use (April to November).

Wild horses:	508 horses X 0.61 X 7 months =	2169 AUMs
Livestock:		0 AUMs
Total		2169 AUMs

Utilization:

The average utilization determined by WRS at a total of 9 BLM and WRS study sites in the south area was 54% in November 1990.

Appropriate Stocking Rate Calculation:

$$2169 \text{ AUMs} \times \frac{50\%}{54\%} = 2008 \text{ AUMs}$$

South Area Appropriate 1990 Stocking Rate Estimate = 2008 AUMs

Both South and North Areas:

Appropriate 1990 Stocking Rate Estimates:

North area =	6433 AUMs
South area =	2008 AUMs
Total	8442 AUMs

ANALYSIS APPROACH 3
CURRENT DISTRIBUTION OF GRAZING OCCURRENCE BETWEEN HORSES AND CATTLE

The increase in utilization from November 1990 to April 1991 was attributable only to wild horses. Utilization in the South area increased by 27 percentage points from November (54%) to April (81%). In the North area utilization increased by 18 percentage points from November (42%) to April (60%).

Utilization in the Paiute Meadows allotment would drop dramatically if wild horses were reduced from current levels to a population of 50 head recommended by BLM in the Allotment Evaluation. Using an animal equivalent of 1.0 for wild horses the distribution of actual use between wild horses and livestock for the 1990 grazing year is given in the table below:

1990 GRAZING YEAR ACTUAL USE DISTRIBUTION

	South	North	Total	Distribution
Horses	3719	2377	6096 AUMs	60%
Livestock	0	4017	4017 AUMs	40%
Total	3719	6394	10113 AUMs	100%

In the 1990 grazing year, wild horses were responsible for approximately 2/3 of the forage disappearance in the entire Paiute Meadows allotment based on livestock actual use reports, BLM wild horse censuses and an animal unit equivalent of 1.2 to 1.3 for wild horses. If wild horses had been reduced down to a population of 50 head as recommended in the BLM Allotment Evaluation, the stocking pressure during the 1990 grazing year would have been reduced by 59%, assuming an Animal Unit equivalent of 1.25 for wild horses.

COMPARISON WITH BLM ALLOTMENT EVALUATION INTERIM STOCKING RATE ESTIMATES

Western Range Service interim stocking rate estimates were higher than carrying capacities presented in the BLM draft Allotment Evaluation for Paiute Meadows Allotment dated October 2, 1991. Western Range Service estimated the appropriate stocking rates for Paiute Meadows were 6758 and 7224 AUMs during the 1989 and 1990 grazing years, respectively, using yearlong data. An appropriate 1990 stocking rate of 8442 AUMs was estimated using only fall 1990 data. BLM carrying capacity estimates in the draft Allotment Evaluation were lower and ranged from 2306 AUMs in 1987 to 7100 AUMs in 1990.

The primary reason for the differences between the respective estimates of WRS and BLM was that BLM only considered utilization data in the heavy or severe categories during their carrying capacity calculations. Therefore, the observed utilization used in the carrying capacity calculations was never less than 70% regardless of the extent (acreage) of heavy and severe use. The observed utilization levels used by BLM in their calculations (observations in the moderate, light, slight and no use categories were not included in BLM calculations) were highest when the wild horse and livestock actual use were the lowest (1987) and lowest when actual use was the highest (1990). This is exactly opposite of what was expected. For the carrying capacity calculations (used in this analysis and in the BLM Allotment Evaluation) to be valid, utilization and actual use should be correlated. As actual use increases, utilization should increase. Likewise, as actual use decreases, utilization should decrease. Ignoring utilization observations in the no use, slight, light and moderate categories prevents any relationship between actual use and utilization from being expressed. Additional studies and analyses of carrying capacity should also consider additional data, such as trend and climatic factors.

Western Range Service used average utilization data collected in areas representative of allotment where grazing took place. Observed utilization levels used in the WRS analyses corresponded to the actual use that occurred. The actual use in was higher in 1990 than in 1989 (grazing years) and the corresponding observed utilization levels were higher in April 1991 than in April 1990.

The interim stocking rate estimate of Western Range Service and the carrying capacity estimate of BLM were similar for the 1990 grazing year (7224 vs 7100 AUMs). In April 1991, heavy and severe use areas (determined by BLM) included much of the area grazed by livestock and wild horses. Therefore, the BLM observed utilization levels used in their calculations was representative of conditions in the allotment as was the WRS average observed utilization levels. The BLM's observed utilization levels which were used in their calculations for the 1990 grazing year was approximately 72% and Western Range Service average observed utilization levels used in this analysis was 70%.

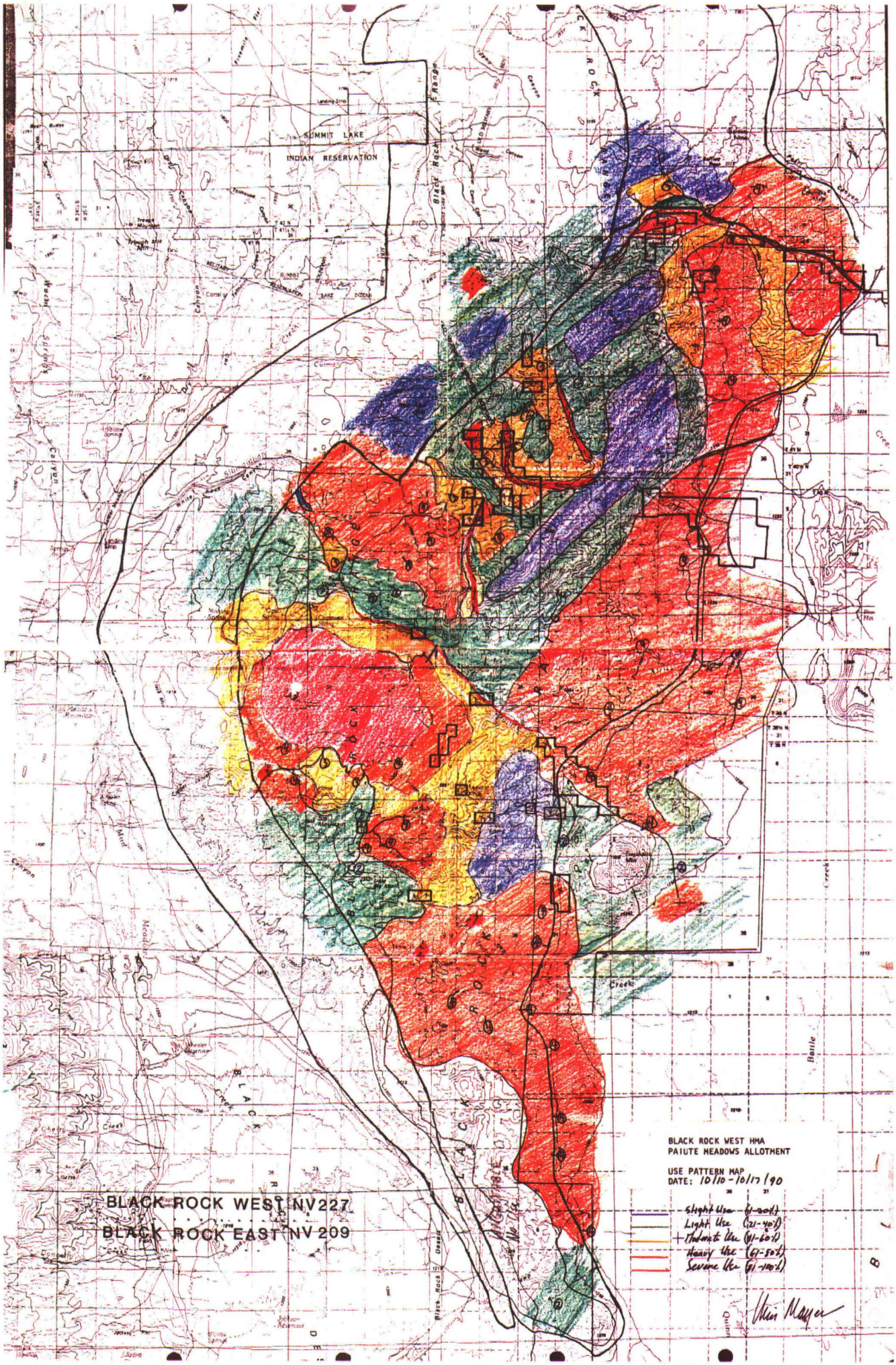
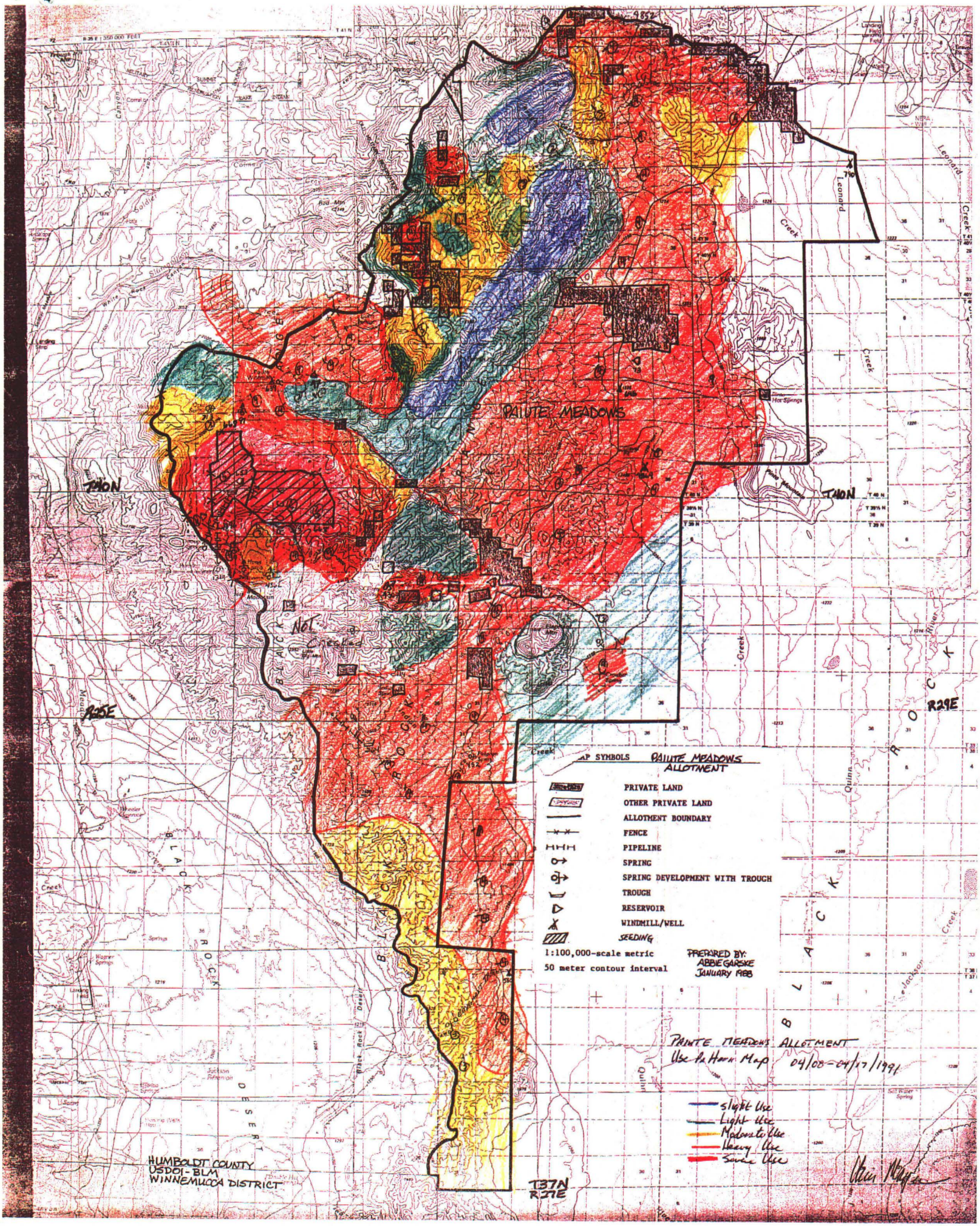

SUMMIT LAKE
INDIAN RESERVATION
BLACK ROCK WEST NV227
BLACK ROCK EAST NV209
BLACK ROCK WEST HMA
PAIUTE MEADOWS ALLOTMENT
USE PATTERN MAP
DATE: 10/10-10/17/90
Slight Use (0-20%)
Light Use (21-40%)
Moderate Use (41-60%)
Heavy Use (61-80%)
Severe Use (81-100%)

EXHIBIT NO. B


PAIUTE MEADOWS
T40N
R35E
R29E
T37N
R37E
MAP SYMBOLS
PAIUTE MEADOWS ALLOTMENT
PRIVATE LAND
OTHER PRIVATE LAND
ALLOTMENT BOUNDARY
FENCE
PIPELINE
SPRING
SPRING DEVELOPMENT WITH TROUGH
TROUGH
RESERVOIR
WINDMILL/WELL
SEEDING
1:100,000-scale metric
50 meter contour interval
PREPARED BY:
ABBIE GARSKE
JANUARY 1988
PAIUTE MEADOWS ALLOTMENT
Use Pattern Map 04/08-04/17/1991
slight Use
Light Use
Moderate Use
Heavy Use
Severe Use
HUMBOLDT COUNTY
USDOI-BLM
WINNEMUCCA DISTRICT