1994

LITTLE OWYHEE DESERT - SNOWSTORM MOUNTAINS

WILD HORSE

HERD MANAGEMENT AREA PLAN

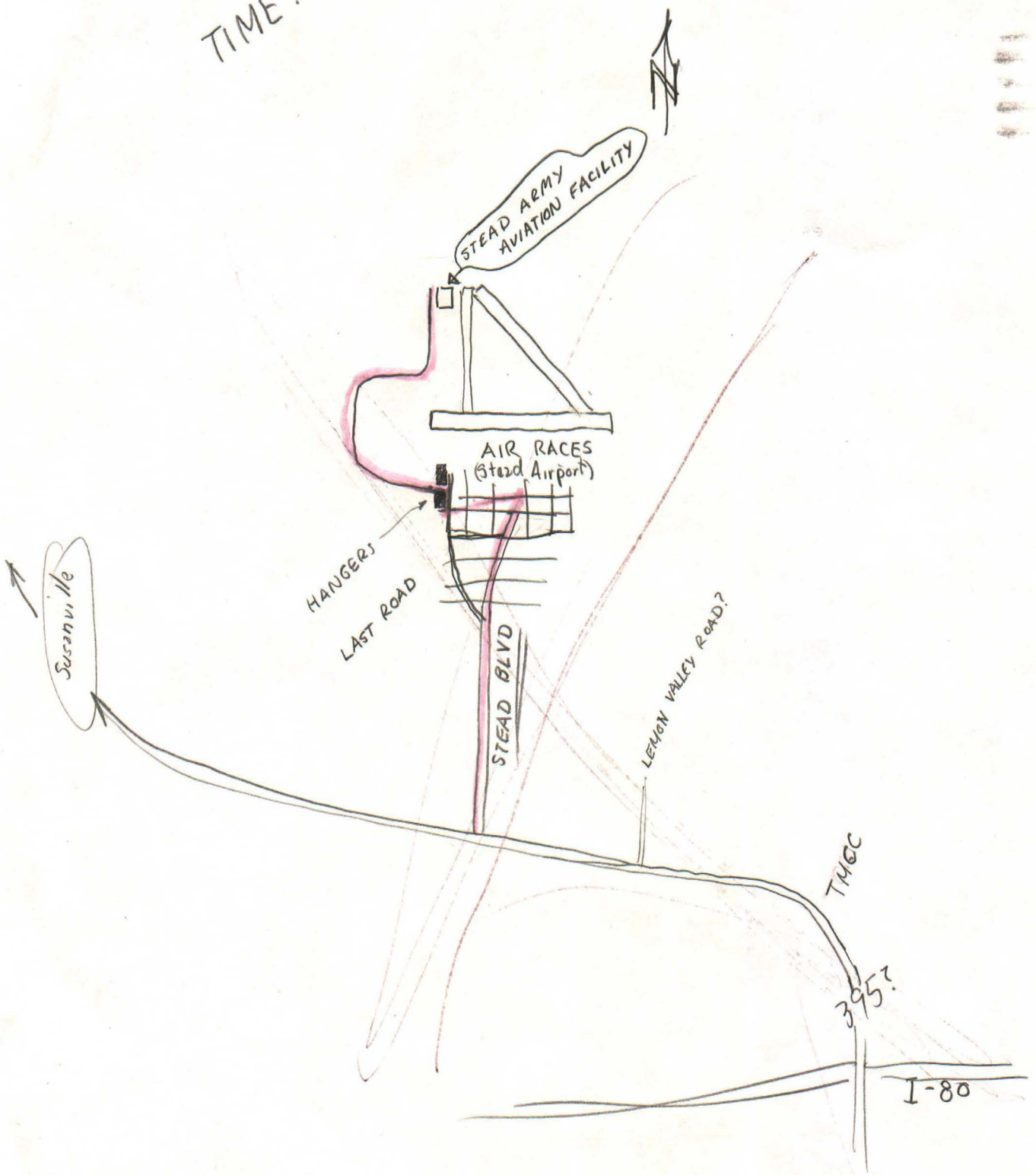
Paradise-Denio Resource Area

Winnemucca District

1994

Will you draw me a map for SAT NAV.?

TIME?



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Little Owyhee Desert and Snowstorm Mountains
Wild Horse Herd Management Area Plan

I. Introduction and Background Information

A. Location and Setting

This activity plan (HMAP) is developed to set forth management goals and objectives for two Herd Management Areas (HMA) -- the Little Owyhee Desert HMA (NV200) and Snowstorm Mountains HMA (NV201). Wild, free-roaming horses will be managed to achieve and maintain a thriving ecological balance on public lands (BLM). This document is a revision of the original HMAP approved August 6, 1987.

The geographical center of the HMAs is located approximately 40 air miles northeast of Winnemucca, Nevada and 20 miles northeast of Paradise Valley, Nevada.

Prominent landmarks/features found within or near the HMAs are the North and South Forks of the Little Humboldt River, portions of the Snowstorm Mountains, the Santa Rosa Mountains, and the Little Owyhee River.

The area is in the Paradise Planning Unit of the Paradise-Denio Resource Area. The area consists of approximately 560,258 acres, of which about 95 percent is public (BLM) land. The east one-third of the area lies within the Elko BLM District, but all renewable resources occurring within this area are administered by the Winnemucca District.

The Little Owyhee Desert HMA is located within the Little Owyhee Allotment, and consists of the three spring pastures of that allotment: Fairbanks, Twin Valley Springs and Lake Creek Pastures. The Snowstorm Mountains HMA is in the Bullhead Allotment, and consists of the First Creek Basin, Castle Ridge, Snowstorm Flat, Kinney, Kelly Burn and a portion of the Dry Hills pastures within that allotment.

Refer to Appendix A maps for location of the HMAs.

B. Relation to Planning Documents

An Allotment Management Plan (AMP) for the Little Owyhee Allotment was signed in 1969 and revised in 1972. An AMP for the Bullhead Allotment was signed in 1985. Both plans contain elements that conflict with wild horse use. Refer to discussion on Constraints on page 9 for information on the impacts of these AMPs on wild horses.

The Paradise-Denio Unit Resource Analysis (URA) was completed in 1979. The URA described the physical resources of the HMAs, the

conditions/problems of the wild horse population, and presented (in tabular form) the estimated population for both HMAs. The primary condition/problems which were described were: fences that cause problems and injure horses; improper distribution of water sources; no specific use levels (AUMs) for wild horses; existence of wilderness study areas that could be potential problems (specifics were not addressed); and degradation of some riparian areas caused by over-utilization of forage. At the time the URA was prepared, it was estimated that there were 565 wild horses in the Snowstorm Mountain HMA, and 2,324 in the Little Owyhee HMA. (1979)

A Coordinated Resource Management and Planning (CRMP) Plan was developed and approved for both allotments in 1982.

The Paradise-Denio land use plan (Management Framework Plan - Step III) was approved on July 7, 1982. This decision document established an Appropriate Management Level (AML) of 200 adult wild horses in the Little Owyhee Desert HMA and 50 adults in the Snowstorm Mountains HMA. Also of significance, the land use plan did not reserve any forage (AUMs) for wild horses. The decision was to make future adjustments in grazing use levels based upon monitoring.

(BLA?)

In June 1992, the BLM Washington Office issued "Strategic Plan for Management of Wild Horses and Burros on Public Lands" (hereafter Strategic Plan). This document calls for control of wild horse numbers through selective removals and fertility control. In Nevada, the plan calls for reaching appropriate management levels in 6 years by two removals (following an initial gather) at 3 year intervals, beginning in FY 93. During each gather, only animals 0-5 years of age will be removed from the range. Fertility control will be practiced on 50% of mares aged 4-9. The method of fertility control will be immunocontraception injections.

C. Resource Information

1. Wild Horse and Burro Use History

a. Removal/inventory data

There are no burros in either HMA.

Since 1971, there have been seven BLM authorized removals:

Calendar Year	No. Horses Gathered	HMA Removed From
1977	1065	Little Owyhee Desert
1981	51	Little Owyhee Desert
	479	Snowstorm Mountains
1983	342	Little Owyhee Desert
	426	Snowstorm Mountains
1984	487	Little Owyhee Desert
	199	Snowstorm Mountains
1985	726	Little Owyhee Desert
	258	Snowstorm Mountains
1992	691	Little Owyhee Desert
1993-94	421	Little Owyhee Desert
TOTAL REMOVED =	5145	

Past removals have removed approximately 55% females and 45% males. Prior to 1992, horses were indiscriminately removed from all age classes. The 1992 gather removed only animals ≤ 9 years.Beginning with the 1993-94 gather, age classes removed will be based on policy constraints. At present, only animals ≤ age 5 will be removed from an HMA (≤ age 9 from areas outside an HMA), unless written permission to the contrary is obtained from the National Wild Horse and Burro Program Office. All older animals must be returned to the range. For age, sex and color data from removals, see Appendix C.

The following table represents all known BLM flights conducted in the HMAs. Counts are of total numbers of animals (adults and foals) and in the case of Little Owyhee include small numbers of horses counted in the summer pastures of the Little Owyhee allotment which are outside the HMA boundaries.

Census flights (helicopter):

Date	Little Owyhee Desert	Snowstorm Mtns	Total
6/74	1353	-	1353
2/75	-	282	282
3/77	1834	565	2399
6/79	1143	573	1716
2/80	889	682	1571
10/80	1480	545	2025
9/84	833	234	1067
9/86	359	117	476
7/89	819	108	927
2/90	811	-	811
7/92	1393	-	1393
11/93	-	297	297

Distribution flights (fixed wing):

3/72	372	-	372
5/72	799	-	799
1/73	522	-	522
9/74	-	372	372
6/75	1398	-	1398
7/76	1870	550	2420
8/78	844	153	997
1/82	793	182	975
9/82	1104	515	1619
1/88	104	-	104
2/88	172	-	172
3/89	304	-	304
1/91	823	-	823
7/91	856	135	991
3/92	1280	185	1465
5/92	1138	169	1307
7/92	-	139	139
9/92	-	159	159
1/93	380	40	420
5/93	603	-	603
10/93	785	311	1096

According to the Paradise-Denio URA, there were 37 horses in the Little Owyhee area in 1951, from which the present numbers came. No indication was given of the method of inventory, or any other documentation. This translates into an 18% annual rate of increase from 1951 to 1977 (the date of the first BLM removal).

Date of 1974 census (June) is estimated based on information contained in 1975 census report.

The purpose of the winter 1988 Little Owyhee flights was to relocate horses released into the HMA from other areas.

Research conducted by Siniff et al. (1982) suggests that when conducting an aerial census, only a percentage of the total number of animals are ever counted. An analysis of past inventories in the HMAs further suggests some factors which may have influenced the accuracy of census data in the HMA. The primary factors to consider are:

1) Different types of aircraft were used.

2) Number of observers varied from one to two in succeeding years.

3) Observers of different experience levels were used.

4) Census was not conducted at the same time period each year.

5) The entire area was not always flown.

6) Flights were flown at different heights above ground level.

7) Prior to 1979, animals which were counted in the southern portion of the Lake Creek Pasture (Little Owyhee HMA) were added to the Snowstorm HMA. Those counts should have been added to the Little Owyhee data.

8) There may be periodic emigration and immigration occurring into and out of both HMAs. Horses may be coming into the HMAs from HMAs located in the Elko District.

The obvious concern with continuing immigration is that it is difficult to reach appropriate management levels (AMLs). Another problem associated with fluctuations in population numbers concerns the monitoring and removal processes. For example, if an aerial census indicates there are X number of wild horses in an HMA, and shortly thereafter an additional unknown number enter from another HMA, there would be no reliable population information for monitoring and removal decisions.

The allotment boundary fences and interior division fences require maintenance, and lack of fence maintenance has been a documented cause of fluctuations in numbers in the past.

b. Current conditions

The major limiting factor affecting wild horses is the lack of adequate water in the summer. In the Little Owyhee HMA, there are only three permanent, publicly owned water sources, all situated in the southern portion of the HMA. These are the North Fork of the Little Humboldt River (NFLH) in Fairbanks pasture, a seep at the mouth of Milligan Creek gorge in Twin Valley Springs pasture, and the South Fork of the Little Humboldt River (Rodear Flat) in Lake Creek field. In addition, water from the Maiden Springs pipeline (a private water right) has been available from breaks in the line, and at places provided by the permittee. Chukar and Little Mud springs, in southern Fairbanks pasture, may also be perennial.

In the Snowstorm HMA, permanent water is available at the South Fork of the Little Humboldt (Rodear Flat and Castle Place [private]), at Kelly and Kenny Creeks, and at numerous springs and seeps in Kinney, Snowstorm Flat and Kelly pastures (see Appendix B for list of water sources). Horses are restricted from entering the latter areas due to fences.

Who owns those?

In addition to the lack of water in summer, the lack of

exposed forage during certain times in winter can be a problem.

It is estimated (from inventory data) that the present population, as of spring 1994 before foal production, of wild horses in the HMAs is ~650 animals -- 340 in the Little Owyhee HMA and 310 in the Snowstorm HMA. In the Little Owyhee HMA, in summer 1992, the horses were concentrated around the available water-- on the uplands above Rodear Flat and Milligan Creek, and west of the NFLH. During the wet winter of 1992-93, horses moved away from the permanent water sources and were concentrated in north Lake Creek, central Twin Valley and south Fairbanks pastures. During the spring and summer of 1993, more water was available in the northern and central portions of Twin Valley and Lake Creek pastures. Therefore, more horses remained in these areas and did not move south until the water started drying up later in the year.

In the Snowstorm HMA, the largest number of horses are in the First Creek pasture south and west of the South Fork during spring and summer, and in Castle Ridge pasture during fall and winter. There is a small herd in the Dry Hills pasture and a few horses in Kinney and/or Snowstorm Flat pastures.

For details on census flights and numbers of horses by pasture, refer to the Little Owyhee and Bullhead Allotment Evaluations, available for review in the Winnemucca District Office.

Horse movements and migrations are determined by the availability of water. Horses move toward and are concentrated around permanent water in summer, and disperse as ephemeral water sources become available in fall, winter and spring. In the Little Owyhee, this means movement southward in summer and northward in winter (the reverse for horses around the Maiden Springs Pipeline). In the Snowstorms, movement is easterly in summer and westerly in winter in the First Creek and Dry Hills pastures; the reverse in the Castle Ridge pasture.

Drought has affected horse distribution and movement. In the Little Owyhee HMA, historically documented herds have existed in the Button Lake and Lake Creek Reservoir areas, which by summer 1992 were no longer present as there was no water in these areas. In the Snowstorm HMA, the virtual disappearance of horses from the Castle Ridge pasture in summer, which has no water other than the South Fork Little Humboldt, may be drought related.

Another factor affecting horse movements is fences. Approximately 60 miles of interior fence were installed in the Little Owyhee Allotment in the late 1970's. By 1986, almost 40 miles of interior fences had been installed in the Bullhead

Allotment. These fences have impeded and restricted the movement of wild horses. Historically, the horses also utilized the higher country in the Snowstorm HMA up to, and around, the Kelly Creek Burn Fence. An inventory was conducted in 1982 (Little Owyhee Allotment) to determine what maintenance was necessary for these fences. The inventory revealed almost 50 holes in the fences. The holes were created by wild horses because the fences disrupted their normal movement and distribution patterns.

Horses now appear to have adapted to the fences. Gates have been installed to facilitate horse movements (see p. 15) but it is not apparent that horses are using them.

There is suspected, but not documented, movement of wild horses from the Little Owyhee to the Snowstorm Mountains HMA, and vice versa. There are two fences which physically separate the two HMAs. These fences always require maintenance, and if some movement does occur between the two HMAs, it is a result of movement through very poorly maintained fences. Since the fences are constructed on private land, and the BLM has no control over maintenance of the fences, the two HMAs will be kept separate for management purposes. The Rodear Flat area, where horses from both HMAs water in summer, is another possible site for migration.

Demographic characteristics, i.e. sex ratio and age structure, have been developed for the HMAs from data obtained during gather operations, particularly for the Little Owyhee. During the summer 1992 and winter 1993-94 gathers, almost all horses were captured and restrained in a portable chute to determine age. The 1992 demographic data showed a relatively young herd, with 69.6% of the population being 5 years old and younger, 15.6% aged 6-9, and 14.8% aged 10 and older. As all older (10+) animals were returned to the range (and following the 1993-94 gather, the 6+ age classes), these ratios changed. The percentages are now approximately 10.1, 28.4 and 61.5 for 0-5, 6-9 and 10+ age classes respectively.

Capture data from the Snowstorm HMA is not as useful for determining a true age structure, as not all horses were captured (thus raising the possibility of a biased sample), and furthermore the most recent data is 9 years old (1985).

The majority of the horses in both HMAs exhibit a bay, sorrel, roan or gray color pattern. During the winter of 1987-88, 15 horses (7 pintos, 6 buckskins, 1 palomino-paint and 1 palomino) were introduced into the Twin Valley pasture. These animals and their descendants are part of the Milligan Creek (southern Twin Valley) herd.

2. Reference to Land Use Plan

An AMP for the Little Owyhee Allotment was signed in 1972. An AMP for the Bullhead Allotment was signed in 1985. The monitoring plans for the Bullhead and Little Owyhee Allotments were completed in 1986. CRMP recommendations were developed and approved for both allotments in 1982. These documents are located in the District files and can be reviewed upon request.

The Little Owyhee and Bullhead CRMP Committee recommended an initial AML of 200 adult wild horses for the Little Owyhee Allotment and 50 for the Bullhead Allotment. The Winnemucca District Manager approved this recommendation, and the Elko BLM District concurred with the AML numbers. These numbers represented the initial AML for the HMAs.

The land use plan (MFP III) did not establish levels of use (in AUMs). From 1982 to 1993, the use of forage of all consumptive users (wildlife, wild horses, and livestock) for both allotments was based upon CRMP recommendations. These forage use levels were used until adjustments were indicated by monitoring data.

Current forage use levels, as indicated in the Little Owyhee and Bullhead allotment evaluations and multiple use decisions completed in 1993, are as follows. Little Owyhee: Carrying capacity of 32,971 AUMs (in times of maximum water availability), which is allocated as 27,800 AUMs for livestock, 3,578 AUMs for wild horses, and 1,593 AUMs for wildlife. In times of limited water availability, wild horses and wildlife will retain their total AUM allocation and the livestock allocation will be reduced to a level commensurate with the remaining available water. Bullhead: (To be included following issuance of the final MUD for Bullhead in spring 1994)

The Little Owyhee and Bullhead allotment evaluations are on file and available for review in the Winnemucca District Office.

A Technical Review Team (TRT) was created in 1987 to review, discuss and develop methods and practices that relate to achieving the Little Owyhee Allotment CRMP planning objectives. In 1987, the TRT recommended winter use (CRMP objective #2) in the Fairbanks and Lake Creek fields. This recommendation had the intent of reducing the stocking rate or shortening the grazing period in the summer pastures.

The TRT also recommended a modification to the rest-rotation grazing system. The modification recognizes that water availability in the Little Owyhee allotment varies on a yearly

and seasonal basis with some areas receiving no use during the years of scheduled use, and then with water available, the same area may be suitable for grazing in a rested year. The recommendation was to allow grazing use of these areas during a rested year, if monitoring data indicated such. This recommendation was adopted.

The Bullhead AMP is also a spring-summer rest-rotation grazing complex. Wild horses have free access to the First Creek, Castle Ridge and Dry Hills pastures. The AMP was designed to exclude livestock grazing from one of the spring pastures each year. This AMP has never been fully implemented, primarily because Castle Ridge pasture lacks adequate stock water. The present grazing system consists of spring use pastures (First Creek, Dry Hills), summer use pastures (Kinney, Kelly Burn, Snowstorm Flat) and winter use pastures (Rabbit and Bullhead Seeding, outside the HMA).

The Snowstorm Mountains HMA consists of the First Creek, Castle Ridge, Kinney, Kelly Burn and Snowstorm Flat Pastures, and a portion of the Dry Hills Pasture, within the Bullhead Allotment. Due to the arbitrary division line in the Dry Hills pasture (set in 1981 at the time of the Paradise-Denio Grazing EIS to divide the Snowstorm and Osgood Mountains Herd Areas) the horse use area has de facto included all of the Dry Hills pasture. As per the Bullhead Allotment Evaluation, horses will be maintained primarily within the spring pastures. Nevertheless, the summer pastures will be retained within the HMA boundary.

A TRT was created for the Bullhead Allotment in 1990. It recommended division of the Dry Hills pasture with the west side being winter use and the east side being spring use.

On June 7, 1989, the Interior Board of Land Appeals (IBLA) issued a ruling invalidating all AMLs which were not based on monitoring data. "The Board will set aside a BLM decision to remove wild horses from a herd management area where removal is not properly predicated on an appropriate determination that removal is necessary to restore the range to a thriving natural ecological balance and prevent a deterioration of the range, in accordance with sec. 3(b) of the Wild Free-Roaming Horses and Burros Act. . . we conclude that section 3(b) of the Act does not authorize the removal of wild horses in order to achieve an AML which has been established for administrative reasons, rather than in terms of the optimum number which results in a thriving natural ecological balance and avoids a deterioration of the range" (109 IBLA 112,119).

Accordingly, AMLs for the HMAs have been established based on resource monitoring, primarily in terms of available year-round water. The final AMLs, forage use levels and grazing

systems for both allotments have been determined by the Paradise-Denio Area Manager in his final multiple-use decision, based on the Little Owyhee and Bullhead Allotment evaluations. The recommended AML for the Little Owyhee HMA is 298 adult wild horses, and that for the Snowstorm Mountains HMA is XXX adult wild horses.

3. Constraints

The interior fences which were installed in 1986 in the Bullhead Allotment will restrict migration of horses to areas which they historically used as summer range. These areas are the Snowstorm Flat, Winters Ridge, First and Pole Creek areas.

As previously mentioned, lack of water is a problem. Areas where more water should be developed for wild horses in the Bullhead Allotment are the Castle Ridge and First Creek Pastures. Areas in the Little Owyhee Allotment are the south half and northeast corner of the Fairbanks Pasture, the northwest portion and south half of the Lake Creek Pasture, and the central third of the Twin Valley Pasture.

During the summer and fall seasons, wild horses have historically used the Castle Ridge pasture. There is very little water and available forage in this pasture. In fact, water and forage are so limited that livestock haven't made use of this pasture for a number of years. The horses that use this area are required to travel some distance to a reliable source of water (South Fork of the Little Humboldt). Water development projects which may be proposed in this area would benefit wild horses. Therefore, a program of cost sharing for such projects may be appropriate. An equitable cost-share method could be one based on percentage use (AUMs) of a pasture by livestock vs. wild horses. A constraint to habitat improvement projects in this area is the existence of the South Fork Little Humboldt River Wilderness Study Area (WSA). This WSA, which is administered by the Elko BLM District, encompasses 36,593 acres, including all of the Castle Ridge pasture south of the main east-west road. A WSA designation requires these areas to be managed in accordance with guidance provided in the BLM Handbook, Interim Management Policy and Guidelines for Lands Under Wilderness Review, dated 12/12/79.

When implemented (1972), the Little Owyhee AMP established a three-pasture rest-rotation grazing system for the spring pastures -- one pasture would be grazed early, one after seedripe (July 15), and one pasture receiving complete rest. Since 1982, the pasture schedule has been based upon CRMP recommendations. Use occurred in two of the spring pastures, with one of them rested. During 1985 and 1986, Twin Valley and Lake Creek fields were used, due to a fire closure in the

Fairbanks field. Use was again based upon the CRMP and TRT recommendations beginning in 1987.

4. Other Biotic Components

In addition to wild horses, other important resource values in the HMA are: wildlife, watershed, fisheries, recreation, Wilderness Study Areas, and riparian values. All of these resources are considered to be of equal value to one another and any activity plan must be formulated to consider all multiple-use values.

Wildlife species currently found within the HMAs are many and varied. However, those which principally compete with domestic livestock and wild horses for forage are limited to mule deer (Odocoileus hemionus), antelope (Antilocapra americana), rodents, and lagomorphs. The Lahontan cutthroat trout is the only threatened species that occurs within the HMAs. Other important game species found within the HMAs are quail, brook trout, chukar partridge, and sage grouse.

In addition to the South Fork Little Humboldt WSA (NV-010-132) in the Snowstorm HMA, the North Fork Little Humboldt WSA (NV-020-827) lies within the Little Owyhee HMA. See Appendix A maps for location of the WSAs.

II. Objectives

A. Habitat objectives

1. Maintain the forage use levels for all herbivores within the HMAs at a level which does not exceed proper use of key forage plant species as identified by the Little Owyhee and Bullhead Monitoring Plans, and which meets the vegetation objectives established in the two allotments' final Multiple Use Decisions. See Appendix F for the vegetation objectives.

2. Provide for additional year-round water in both HMAs.

3. Improve the free-roaming nature of the horses in both HMAs by leaving gates open at critical times during migration.

4. Acquire data on the home ranges and distribution/movement patterns of the animals in both HMAs to facilitate evaluation of effects of range improvement.

5. Determine to what extent, if any, horses move back and forth between the two HMAs, and between the two HMAs and the adjacent HMAs in the Elko District.

SAME AS previous HMAP Nothing Done?

B. Animal objectives

1. Manage horses within a range of 35% below AML to AML in both HMAs. In the Little Owyhee HMA, this range is 194 to 298 adult horses. In the Snowstorm HMA, this range is XXX to XXX adult horses. Although more information needs to be obtained (Animal Objective #2), an adult population of 298 would be approximately 358 total animals in the Little Owyhee HMA. An adult population of XXX would be approximately XXX total animals in the Snowstorm HMA.

2. Acquire data on the demographic characteristics of the wild horse population in both HMAs to include information on sex ratios, age structures, young/adult ratios, and actual use. These parameters will be analyzed to determine natality, mortality, and rate of increase.

3. Maintain a healthy, genetically viable population of horses. Genetically enhance the color patterns in both HMAs. Monitor genetic abnormalities through blood sampling. Monitor changes in blood protein gene frequencies in the herd over time.

III. Management Methods

A. Habitat Objective Number:

1. Allocate forage within the HMAs as indicated in their respective MUDs, i.e. an allocation providing forage for 298 adults in the Little Owyhee HMA and XXX adults in the Snowstorm Mountains HMA. Adjustments in forage use levels will be made on a proportionate basis.

2. Develop additional permanent water sources for wild horses by developing new springs and reservoirs, and improving existing springs and reservoirs.

   Drill wells in central or north Twin Valley or Lake Creek pastures to benefit wild horses in drought years.

   Acquire water rights on all existing springs and reservoirs.

3. Implement action items 8, 9 and 10 of the CRMP wild horse management plan recommendations. Refer to Appendix D for specifics.

   Responsibility for closing gates in spring after livestock turnout will be the permittee. Responsiblity for opening gates in summer following livestock removal will be the BLM.

   If practical, consider removing all interior fences within the HMA, except those enclosing private lands or BLM authorized

exclosures.

4. Conduct studies designed to collect information regarding wild horse distribution and movement patterns.

Conduct 2 seasonal distribution flights each year, in winter and summer.

During removal operations, all horses to be released back into the HMAs (except foals, grays and whites) will be freeze branded on the left hip. The brand will differentiate between males and females, and indicate the area of capture. The brand will be visible from an aircraft at 500 feet AGL. The branding strategy for the HMAs is as follows:

Little Owyhee			Snowstorm		
Pasture	Males	Females	Pasture	Males	Females
Fairbanks	01	02	First Creek	11	12
Twin Valley	03	04	Castle Ridge	13	14
Lake Creek	05	06	Dry Hills	15	16
Outside HMA	07	08	Summer past.	17	18

Note that the first digit represents the last digit of the HMA number, and the second digit indicates sex (odd for males, even for females) and area of capture.

Horses freeze branded in the summer 1992 gather were marked with an X (for males) or XX (for females), and released into the Lake Creek and Fairbanks pastures. These horses will receive no further brands.

5. BLM personnel from the Winnemucca and Elko Districts will coordinate and determine if any migration occurs between the two districts' HMAs.

The eastern boundary fence of the Lake Creek and Castle Ridge pastures, and the southern boundary fence of the Snowstorm Flat and Kelly Burn pastures, will be physically inspected once a year from the air, road or horseback to determine if horses are moving into or out of Elko District HMAs.

A BLM employee will camp at Rodear Flat, in a manner that will not disturb horses, for a 3-5 day period each summer to determine if horses are moving between the Little Owyhee and Snowstorm HMAs at this site.

Observations of freeze brands (#4) can help determine if inter-HMA migration is occurring.

B. Animal Objective Number:

1. A total count census, by helicopter, will be conducted

periodically to determine whether actual wild horse numbers exceed the AML range in each HMA. In addition, a total count census will be conducted on both HMAs immediately prior to a proposed removal to determine the exact number of adult wild horses which would have to be removed to reach the AML range in each HMA.

Once AMLs have been reached in the HMAs, they will need to be gathered again periodically to maintain the population within the AML range.

The interval between gathers will be a minimum of 3 years, and possibly longer.

During this time the herd composition will be analyzed based on the following factors: the precise age structure of the herd after the previous gather (available from capture data), and recruitment and mortality in the interim, estimated by computerized population modeling and "ground-truthed" when possible by aerial census and/or distribution flights.

Population modeling will help to determine the timing of and elements included in the next removal. Subsequent gathers may take only a portion of individuals in each age and/or sex class. The effects of any proposed action will be analyzed through modeling.

When technologically feasible, fertility control may be performed on mares as per the Strategic Plan. The number and age classes of mares on which to perform fertility control will be determined based on population modeling.

2. **Studies will be established to collect information regarding sex ratios, age structure, and rate of increase.**

   For more details on types, frequency and intensity of study methods, refer to Section IV, Evaluation and Revision, and Appendix E of this plan.

3. During removal operations, horses of an age within the age group targeted for removal, meeting these conformational or color characteristics, may be released back into the HMA to provide continued genetic diversity: pinto, palomino, buckskin or grulla colored; weight 950-1100 pounds, height 14-15 hands, prominent withers, short back, straight legs, head proportional to body.

   During removal operations, take blood samples from 10-12 older animals of each sex from each pasture. Subject these to laboratory analysis for variants in blood protein systems: the serologically defined systems (A,C,D,K,P,Q,T,U) and electrophoretically defined systems (Albumin, Transferrin,

Serum Esterase, Protease Inhibitor, XK, GC, PGD, Hb).

Introduce wild horses into both HMAs that have solid white, pinto or paint color patterns. Introduce at least 10 horses with any combination of these colors into the Little Owyhee Desert HMA, and 5 into the Snowstorm Mountains HMA. The introduced animals will range from one to seven years of age.

The introduced animals will be inspected by a veterinarian before they are turned loose into the HMA. Details of the introduction (location, age, sex) including photographs will be inserted into the Herd Management Area file.

C. Objectives Implemented

The following animal and habitat objectives of the original HMAP and CRMP plans have been fully or partially implemented.

1. Monitoring plans have been developed for both HMAs.

2. Interior gates are left open when livestock are off the range to benefit movement of wild horses.

3. Thirty-two reservoirs have been maintained back to serviceable condition. Two wells were repaired. Three miles of water pipelines were maintained. Nine new miles of water pipelines were installed. One new reservoir was constructed.

4. Interior gates were lengthened for easier movement of wild horses.

5. Seven Pintos, two Palominos and six Buckskins were relocated to the Little Owyhee HMA. This new infusion of genetic pool, mixing with the existing gene pool, has resulted in some very interesting color patterns in the HMA.

IV. Evaluation and Revision

The following studies have been initiated or will be established to evaluate the effectiveness of the management methods identified in this plan to meet the objectives. Refer to the Little Owyhee and Bullhead Monitoring Plans, Appendix E, to find the time of year and frequency that the following studies will be read as well as the key area locations.

A. Habitat Study Methods

1. Climatological

Climatological data will be obtained from the Antelope Lake Remote Automated Weather Station located 1.5 miles east of the

Little Owyhee Allotment boundary fence in Elko County. This data can be supplemented by data published by the National Oceanic and Atmospheric Administration. This data will be obtained on a yearly basis and will consist of average monthly precipitation, temperature, wind speed and humidity.

2. Frequency and Trend

One of the parameters to show changes in plant composition (trend) is frequency. Frequency data will be collected using the quadrat-frequency method as described in the Nevada Range Monitoring Handbook (1984). Data will be stored and analyzed using standard statistical analysis procedures as a part of the Bureau ADP computer program. When as statistically significant change in frequency data is noted, a double-sampling transect will be read. Frequency data will be used in combination with the ecological status to determine trend. This data will be collected at key areas on a yearly basis until management determines that adequate information has been obtained.

Refer to Appendix A map which shows key area locations.

3. Ecological Status

Ecological status (formerly referred to as "ecological range condition") was determined in FY 1986 in the Little Owyhee Allotment on all of the key management areas discussed in the monitoring plan. An Ecological Status Inventory was conducted in 1987-88 in the Bullhead Allotment. The double-sampling methods as described in the National Range Handbook SCS 1976) were used to determine ecological status.

The ecological status for the Little Owyhee and Bullhead Allotments is summarized below. The figures are for the entire allotments, including the areas outside the HMA boundaries. ESI categories are as follows: Early seral (0-25%), Mid seral (26-50%), Late seral (51-75%), and potential natural community (PNC) (76-100%).

Little Owyhee Allotment

PNC	Late Seral	Mid Seral	Early Seral
995 acres	189,669 acres	314,403 acres	24,185 acres
(0.2%)	(35.8%)	(59.4%)	(4.6%)

Bullhead Allotment

PNC	Late Seral	Mid Seral	Early Seral
0	28,178 acres	127,734 acres	2,628 acres
	(17.8%)	(80.6%)	(1.6%)

4. Utilization

Vegetation utilization data, which includes utilization made by livestock, wildlife and wild horses will be collected using the key forage plant method, which is also described in the Range Monitoring Handbook. Utilization cages will be placed on all key areas for calibration purposes.

Additional key areas will be established on areas of specific horse concentrations.

Utilization data will be collected twice a year, once just prior to livestock turnout, and once just after livestock are removed. These studies would show the degree of utilization made by wild horses and wildlife when livestock are absent from specific pastures. Studies will also be conducted when all three kinds of herbivore are using a specific pasture. These studies will be able to show the total utilization which occurred during that period, but will not be able to differentiate use made by any particular species.

B. Wild Horse Population Study Methods

1. Home Range and Seasonal Movements

If and when possible, a comprehensive study will be conducted to secure an understanding of home ranges and seasonal movements of wild horses. This will be accomplished by collaring 25 wild horses in the Little Owyhee HMA and 7 in the Snowstorm Mountains HMA with radio tracking equipment. Collars will be constructed so as not to constrict horses' necks. Once accomplished the animals will be observed in the field from vehicles and from the air, and their locations and movements will be recorded. Observations will be made a minimum of 4 times a year, for a period of at least 2 years (i.e. spring, summer, fall and winter). Collaring horses may be accomplished either during removal roundups or special capture operations.

It is recommended that a graduate student from the University of Nevada, Reno or other institution carry out this project.

2. Productivity, Survival and Population Estimates

a. Productivity and Survival

General productivity indices will be estimated from the relative age composition (percent foals) of the HMAs population as per NSO Manual 4730. The desired data will be

secured from aerial census and ground observations no later than every third year until the indices become established and are predictable. Aerial censuses designed to obtain wild horse home range and seasonal movement patterns can also supply relative age composition.

First year survival rates will be approximated through shrinkage of foal incidence between post-parturition composition surveys and parturition surveys (Wolfe 1980). Such surveys will be conducted in July and January in conjunction with seasonal movement and home range inventories.

b. Population Estimates

Population estimates will be developed no later than every third year. These estimates will be derived by conducting an aerial census using a Bell 47B1 helicopter or equivalent in September or October.

These estimates can be analyzed with other wild horse studies to obtain a more reliable data base of population estimates. The census will place the animals in adult, foal and if possible, yearling categories.

Locations of the wild horses, weather conditions, flight period and flight patterns will be recorded as described in NSO Manual Supplement 4730.

3. Sex Ratio--Age Structure Determination

Both the sex ratio and age structure of the population of the wild horses in the HMAs will be estimated from an analysis of capture data obtained whenever excess animals are removed. This information will be supplemented by developing basic life tables as described in NSO Manual 4730.

Computerized population modeling will be used to predict population changes over time. The model used will be that developed by Dr. Stephen Jenkins of the University of Nevada, Reno. The parameters used in the model (age-specific survival and fecundity, and sex-specific survival) will be derived from capture data. If such data from these HMAs is inadequate, capture data from other HMAs within the district or state will be used to estimate the parameters.

4. Animal Condition

Since the general condition of the animals is also an indicator of the population health and habitat conditions, during any on-the-ground observations or aerial census, all negative animal conditions will be recorded. Some of the conditions that will be recorded are deformities within

individual bands, glossiness of coat, fleshiness of animals, etc.

C. Revision

Revision of this plan may be necessary when adequate studies data is gathered which indicates that changes to the grazing system, Monitoring Plan, and/or the AML of animals are warranted because key area and/or resource objectives are not being met. This plan may also be modified or changed if experience gained in the operation of the plan indicates that a change is necessary to meet resource and/or management objectives. This will be determined by the Area Manager, Supervisory Range Conservationist, and District and Resource Area Wild Horse and Burro Specialists in consultation with affected interests.

If the habitat studies data indicates that additional forage is available, proportionate increases will be given to wild horses, wildlife and livestock. This provision is consistent with both CRMP plans and allotment evaluations. The plans also provide for a proportionate decrease to wild horses and livestock.

V. Coordination and Cooperation in Management

Approximately one-third of the HMAs are located within the administrative boundary of the Elko BLM District. An agreement (CN-020-33) for the Administration of Resource between the Winnemucca and Elko Districts was signed on August 19, 1977. This agreement allows the Winnemucca District to administer the wild horses for the entire HMAs.

Both the Little Owyhee and Bullhead CRMP and AMPs have received concurrence by the Elko BLM District.

The Elko District RMP and the Paradise-Denio LUP were coordinated. There are no discrepancies between the two documents as the areas of use and number of animals.

There is an agreement between the Bureau of Land Management and the State Department of Agriculture. State brand inspections will be conducted to determine if horses captured during roundups should be released to the state and transferred to private owners under estray laws. Unbranded horses will be considered wild with the exception of those which can be shown, to the satisfaction of the BLM authorized officer, after consultation with the state brand inspector, to be privately owned.

VI. Appendices

A. Maps

Maps are attached as Appendix A.

B. Range Improvements and Water Sources

Refer to Appendix B. For both allotments, all the existing improvements were installed for the benefit of livestock.

C. Color Types and Assorted Population Data

Refer to Appendix C.

D. CRMP Wild Horse Management Plan Recommendations

Refer to Appendix D.

E. Allotment Monitoring Plans

Refer to Appendix E.

F. Allotment Vegetation Objectives

Refer to Appendix F.

VII. Funding

All actions undertaken pursuant to this plan are contingent upon available funding. Funding for range improvement projects will be secured from various Bureau programs, the District Advisory Board, and contributed monies from livestock permittees. The possibility also exists that some funding may be provided by the Nevada Commission for the Preservation of Wild Horses, appointed to administer the Heil Fund bequest. These monies could be used for animal and habitat studies, and water developments.

VIII. Signatures

Prepared by:

Wild horse and burro specialist Paradise-Denio Resource Area	Date

Reviewed by:

Wild horse and burro specialist Winnemucca District Office	Date

Approved by:

Area Manager Paradise-Denio Resource Area	Date
Area Manager Elko Resource Area	Date

Concurred by:

Winnemucca District Manager	Date
Elko District Manager	Date
Nevada State Director	Date

Glossary of Terms

Active Preference -- The allowable grazing use made by domestic livestock during the grazing year, and generally expressed in AUMs.

Adjudication (or range adjudication) -- The allocation of grazing areas or use of allotments, season of grazing use, numbers and class of livestock, and numbers of AUMs to qualified livestock operators (Nevada Report). The "Nevada Report" is a document prepared by Bureau personnel in 1974. The Nevada Report was about the effects of livestock grazing on wildlife, watershed, recreation, and other resource values in Nevada.

Allotment -- An area of land where one or more individuals graze their livestock. It generally consists of public lands but may include parcels of private or state owned lands. The number of livestock and period-of-use are stipulated for each allotment. An allotment may consist of several pastures or it may be only one pasture (Nevada Report).

Allotment Management Plan (AMP) -- A documented program which applies to livestock operations on the public lands, prepared in consultation and cooperation with the permittee(s), lessee(s), or other involved affected interests (43 CFR 4100.0-5).

Animal Unit Month (AUM) -- The amount of forage necessary for the sustenance of one cow and calf or its equivalent (1 horse, 5 sheep, 4 deer, 5 antelope) for a period of one month (43 CFR 4100.0-5).

Appropriate Management Levels (AMLs) -- The median number of wild horses or burros to be maintained by herd management area (NSO Instruction Memorandum NV-83-289).

Carrying or grazing capacity -- As used in this document, the terms are synonymous. The phrase means the maximum stocking rate possible without inducing damage to vegetation or related resources.

Coordinated Resource Management Plan (CRMP) -- A public involvement program in which interest groups, other agencies, users and affected individuals develop multiple-use plans as part of the BLM's planning process (Winnemucca Preliminary Final Environmental Impact Statement).

Endangered species -- Any species in danger of extinction throughout all or a significant portion of its range (WPFEIS).

Grazing system -- Systematic sequence of grazing use and nonuse of an area, which is designed to achieve established objectives (Nevada Report).

Herd or band -- One or more stallions and their mares or jacks and their jennies (43 CFR 4700.0-5).

Herd Management Area Plan (HMAP) -- An activity plan which addresses the management of wild horses or burros and the habitat on one or more herd

management areas (NSO Instruction Memorandum NV-83-289).

Herd Management Area (HMA) -- A herd area identified in an approved land use plan where wild horses or burros will be maintained or managed (WO Instruction Memorandum No. 83-289).

Management Framework Plan (MFP) -- A land use plan for the public lands which provides a set of goals, objectives, and constraints for a specific planning area to guide the development of detailed plans for the management of each resource (WPFEIS).

MFP II -- A BLM Area Manager's recommendation to the District Manager for the Management Framework Plan based on conflict resolution (WPFEIS).

MFP III -- The District Manager's land use decision for management of the public lands and their resources (WFPEIS).

Management Plan -- A written program of action designed to protect, manage and control wild free-roaming horses and burros and maintain a natural ecological balance on the public lands (43 CFR 4700.0-5).

Multiple use -- The management of public lands and their various resource values so that they are utilized in a combination that will best meet the present and future needs of the public (WPFEIS).

Public lands -- Any lands administered by the Secretary of the Interior through the Bureau of Land Management (43 CFR 4700.0-5).

Range survey (vegetation inventory) -- A method for the measuring or inventory of vegetation to provide base data for use in management decisions and establishment of the grazing capacity.

Riparian -- A biological zone influenced by the presence of water. Also used to refer to the vegetation that grows along streams or around springs (WPFEIS).

Threatened species -- Any species likely to become endangered within the foreseeable future throughout all or a significant part of its range (WPFEIS).

Unit Resource Analysis (URA) -- A description of the basic physical characteristics of an area.

Wilderness Study Area (WSA) -- An area determined to have wilderness characteristics. Study areas will be subject to interdisciplinary analysis and public comment to determine wilderness suitability. Suitable areas will be recommended to the President and Congress for wilderness designation (WPFEIS).

Wild free-roaming horse and burro -- All unbranded and unclaimed horses and burros that use the public lands as all or part of their habitat or that have been removed from these lands by the authorized officer but have not lost their status under section 3 of the Wild Horse and Burro Act of 1971 (NSO Instruction Memorandum NV-83-289).

Little Owyhee Desert-Snowstorm Mountains

Wild Horse

Herd Management Area Plan

1987

Little Owyhee Desert-Snowstorm Mountains

Wild Horse Herd Management Area Plan

Paradise-Denio Resource Area

Winnemucca District

Prepared by:

Rich Ruben — 3/31/87

Wild Horse and Burro Specialist — Date

and

Recommended and Approved by:

Scott Billings — 7-9-87

Paradise-Denio Resource Area Manager — Date

Jim Hatzell — 5-26-87

Elko Resource Area Manager — Date

Concurred by:

Fred Wolf — 8/6/87

State Director, Nevada — Date

Associate

Johnny Harris — 5-26-87

District Manager, Elko — Date

Thomas C Thiesen — 7/13/87

District Manager, Winnemucca — Date

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Little Owyhee Desert-Snowstorm Mountains
Wild Horse Herd Management Area Plan

I. Introduction and Background Information

A. Location and Setting

This activity plan (HMAP) is developed to set forth management goals and objectives for two Herd Management Areas (HMA) -- the Little Owyhee Desert and Snowstorm Mountains HMAs. Wild, free-roaming horses will be managed to achieve and maintain a thriving ecological balance on public lands (BLM). Refer to Appendix A for location of the HMAs.

The geographical center of the HMAs is located approximately 40 air miles northeast of Winnemucca and 20 miles northeast of Paradise Valley, Nevada.

Prominent landmarks/features found within or near the HMAs are the North and South Forks of the Little Humboldt River, portions of the Snowstorm Mountains, the Santa Rosa Mountains, and the South Fork of the Little Owyhee River.

The area is in the Paradise Planning Unit of the Paradise-Denio Resource Area. The area consists of approximately 560,258 acres, of which about 95 percent is public (BLM) land. The east one-third of the area lies within the Elko BLM District, but all renewable resources occurring within this area are administered by the Winnemucca District.

A Coordinated Resource Management and Planning (CRMP) Plan was developed and approved for both allotments in 1982.

The Little Owyhee Desert HMA is located within the Little Owyhee Allotment, and the Snowstorm Mountains HMA is in the Bullhead Allotment.

Relation To Planning Documents

An Allotment Management Plan (AMP) was signed in 1972 for the Little Owyhee Allotment. Since 1972, this plan has been modified a number of times. An AMP for the Bullhead Allotment was signed in 1985. Both plans contain elements that conflict with wild horse use. Refer to discussion on Constraints on page 8 for information of impacts of these AMPs on wild horses.

The Paradise-Denio Unit Resource Analysis (URA) was completed in 1979. The URA described the physical resources of the HA, the conditions/problems of the wild horse population, and presented (in tabular form) the estimated population for both HAs. The primary condition/problems which were described were: fences that cause problems and injure horses; improper distribution of water sources; no specific use levels (AUMs) for wild horses; existence of wilderness study areas that could be potential problem (specifics

were not addressed); and degradation of some riparian areas caused by over-utilization of forage. At the time the URA was prepared, it was estimated that there were 565 wild horses in the Snowstorm Mountain HMA, and about 2,324 in the Little Owyhee HMA.

The Paradise-Denio land use plan (Management Framework Plan - Step III) was approved on July 7, 1982. This decision document established an Appropriate Management Level (AML) of 200 adult wild horses in the Little Owyhee Desert HMA and 50 adults in the Snowstorm Mountain HMA. Also of significance, the land use plan did not reserve any forage (AUMs) for wild horses. The decision was to make future adjustments in grazing use based levels upon monitoring.

B. Resource Information

1. Wild Horse and Burro Use History

There are no burros in either HMA.

Since 1981, there have been five BLM authorized removals. These were:

Capture Data

Calendar Year	Number of Wild Horses Gathered	HA Removed From
1977	1,065	Little Owyhee Desert
1981	51	Little Owyhee Desert
	479	Snowstorm Mountains
1983	342	Little Owyhee Desert
	426	Snowstorm Mountains
1984	487	Little Owyhee Desert
	199	Snowstorm Mountains
1985	726	Little Owyhee Desert
	258	Snowstorm Mountains
TOTAL REMOVED =	4,033	

Past removals have removed approximately 60% females and 40% males. The age structure of these animals indicates that removals are leaving adequate numbers of each age class--especially in the one to five year old class.

The following table represents all BLM censuses conducted in the HMAs.

Year	Population Count and HMA	Method Of Inventory
1974	875 Little Owyhee	Aerial count/Super Cub
1975	954 Little Owyhee	Aerial count/Super Cub
1976	1,399 Little Owyhee	Aerial count/Super Cub
	429 Snowstorm Mountains	Aerial count/Super Cub
1977	1,381 Little Owyhee	Aerial count/Super Cub
1979	1,081 Little Owyhee	Aerial count/Bl Helicopter
	453 Snowstorm Mountains	Aerial count/Bl Helicopter
1980	1,483 Little Owyhee	Aerial count/Bl Helicopter
	545 Snowstorm Mountains	Aerial count/Bl Helicopter
1982	1,024 Little Owyhee	Aerial count/Super Cub
	456 Snowstorm Mountains	Aerial count/Super Cub
1984	833 Little Owyhee	Aerial count/Bl Helicopter
	234 Snowstorm Mountains	Aerial count/Bl Helicopter
1986	291 Little Owyhee	Aerial count/Bl Helicopter
	124 Snowstorm Mountains	Aerial count/Bl Helicopter

Research conducted by Siniff et al. (1981) suggests that when conducting an aerial census, only a percentage of the total number of animals are ever counted. An analysis of past inventories in the HMAs further suggests some factors which may have influenced the accuracy of census data in the HMA. The primary factors to consider are:

a. Different types of aircraft were used.

b. Number of observers varied from one to two in succeeding years.

c. Census was not conducted at the same time period each year.

d. Prior to 1979, animals which were counted in the southern portion of the Lake Creek Pasture (Little Owyhee HMA) were added to the Snowstorm HMA. Those counts should have been added to the Little Owyhee data.

e. For a number of years, there has been periodic emigration and immigration occurring into and out of both HMAs. Bureau personnel have been aware of the fluctuations in population numbers for a number of years. There appears to be more influx of horses coming into both HAs than are leaving. It is suspected that horses are coming into the HMAs from the Hot Springs HA, and possibly from HMA's located in the Elko District.

The obvious concern with the continuing immigration is that it is difficult to reach Appropriate Management Levels (AMLs). Another problem associated with fluctuations in population numbers concerns the monitoring and removal processes. For example, if an aerial census indicates there are X number of wild horses in an HMA, and shortly

thereafter an additional unknown number enter from another HMA, there would be no reliable population information for monitoring and removal decisions would be somewhat unreliable.

A documented cause for the fluctuations in numbers is the lack of fence maintenance. For example, the fence separating the Kelly Creek Pasture and the Tall Corral Pasture requires maintenance. The exterior fence on the northwest side of the Little Owyhee Allotment is down. Portions of the fence which separates the very southeast corner of the Bullhead Allotment from the Elko District requires repair. The fence which divides the Lake Creek Field and the Owyhee Allotment (Elko District) requires maintenance. The fence between the Little Owyhee and Bullhead Allotments needs maintenance. In 1984 and 1985 much of this maintenance was done by the BLM and permittees. In some areas it was obvious that wild horses had broken through these fences as part of continuing their normal distribution and movement patterns. In other places the reason for fence damage could not be determined. Refer to maps for general locations.

Approximately 60 miles of interior fence have been installed in the Little Owyhee Allotment. By 1986, almost 40 miles of interior fences have been installed in the Bullhead Allotment. These fences have impeded and restricted the movement of wild horses. An inventory was conducted in 1982 (Little Owyhee Allotment) to determine what maintenance was necessary for these fences. The inventory revealed almost 50 holes in the fences. The holes were created by wild horses because the fences disrupted their normal distribution and movement patterns. There is an obvious need for some type of fence modification--especially for the interior pasture fences in the Little Owyhee Allotment, and between the Little Owyhee and Bullhead Allotments.

It is estimated (from inventory data) that the present population, as of January, 1986, of wild horses in the two HMAs is 415 animals. The horses migrate from north to south in the Little Owyhee area and east to west in the Snowstorms area. In the summertime the horses are scattered (in the Little Owyhee from the North Fork of the Little Humboldt River to the Oregon and Idaho borders). The concentrations become less dense the farther north one goes.

Refer to Appendix A. map for seasonal migration patterns for both HMAs.

In both HMAs, there is a lack of demographic characteristics such as sex ratios, age structures, young adult ratios, and actual use.

In the late spring, summer, and fall, the wild horses in the Snowstorm Mountains HMA will concentrate in the Castle Ridge area, and also south along the breaks of the South Fork of the Little Humboldt River. Historically, the horses also utilized the higher country up to, and around, the Kelly Creek Burn Fence.

In the wintertime, the wild horses in the Little Owyhee HA will concentrate on the southern slopes and breaks around the North Fork of the Little Humboldt River. The wild horses in the Snowstorm Mountain HMA will winter in the Dry Hills and Kinney Creek Areas. Refer to Appendix A for further details of movement patterns.

There is suspected, although not documented, movement of wild horses from the Little Owyhee to the Snowstorm Mountains HMA, and vice versa. There are two fences which physically separate the two HMAs. These fences always require maintenance, and if some movement does occur between the two HMAs, it is a result of movement through very poorly maintained fences. Since the fences are constructed on private land, and the BLM has no control about maintenance of the fences, the two HMAs will be kept separate for management purposes.

The major limiting habitat factor in the summer for both HMAs is the lack of adequate water. At certain time during the winter, the lack of exposed forage is a problem.

Over 90 percent of the wild horses in both HMAs exhibit a solid bay or sorrel color pattern.

2. Reference To Land Use Plan

The Little Owyhee and Bullhead CRMP Committee recommended an initial AML of 200 adult wild horses for the Little Owyhee Allotment and 50 for the Bullhead Allotment. The Winnemucca District Manager approved this recommendation, and the Elko BLM District concurred with the AML numbers. These numbers represent the initial AML for the HMAs.

An AMP for the Little Owyhee Allotment was signed in 1972. An AMP for the Bullhead Allotment was signed in 1985. The monitoring plan for the Bullhead Allotment was completed in 1986. The Little Owyhee plan will be completed in 1987. CRMP recommendations were developed and approved for both allotments in 1982. These documents are located in the District files and can be reviewed upon request.

The land use plan (MFP III) did not establish levels of use (in AUMs). Since 1982, the use of forage for all consumptive users (wildlife, wild horses, and livestock) for both allotments is based upon CRMP recommendations. These forage use levels will be used until adjustments are indicated by monitoring data.

There are seven pastures in the Little Owyhee Allotment--three spring pastures and four summer pastures. The Little Owyhee Desert HA encompasses all three spring pastures. The names of the spring pastures are Twin Valley, Fairbanks, and Lake Creek. One of the spring pastures is rested each year. Except for consumptive use by wildlife, this exclusion benefits those wild horses located in the rested pasture by lessening competition for forage, water and space.

The Bullhead AMP is also a spring-summer rest-rotation grazing complex. Wild horses have free access to the First Creek, Castle Ridge, and Dry Hills Pastures (spring pastures). The AMP was designed and implemented to exclude livestock grazing from one of the spring pastures each year.

CRMP Recommendations

Bullhead Allotment

The active preference for the Bullhead Allotment is 12,050 AUMs. Based upon CRMP recommendations and subsequent District Manager's decision to make the recommendations operational, the initial forage use levels (AUMs) for all consumptive users was:

Year	Livestock	Wildlife	Wild Horses	Total
1982		1,029 deer		
		101 antelope		
	5,700	1,130	3,000	9,830

As horse numbers are reduced to AML, livestock use levels increase in direct proportion to the number of horses removed the previous grazing year until voluntary non-use is restored. For example, the 1985 use level was:

Livestock	Wildlife	Wild Horses	Total
(1) 7,614	(3) 1,130	(1) 1,336	10,080
(2) 5,886	(3) 1,130	(2) 3,064	10,080

(1) AUMs available if horses removed as scheduled.
(2) AUMs available if horses are not removed as scheduled.
(3) AUMs for wildlife will remain constant unless requested differently by the Nevada Department of Wildlife.

Based upon land use plan decisions, and subsequent CRMP recommendations, the forage use levels (for 1985 through 1988) for the Bullhead Allotment will be 8,350 AUMs for livestock and 900 AUMs for wild horses. After 1988, levels of use will be determined by management decisions based upon monitoring data.

The CRMP recommendations for both HMAs will be implemented to the extent possible, and as funding becomes available. If recommended by the CRMP #1 Wild Horse Committee, and concurred with by the District Manager, all three of the objectives (a, b and c of Objective #5) will be considered for implementation, along with Animal Objective #3.

Little Owyhee Allotment

The active preference for the Little Owyhee Allotment is 44,882 AUMs. Based upon CRMP recommendations and subsequent District Manager's decision to make the recommendations operational, the initial forage use level (AUMs) for all the consumptive users was:

Year	Livestock	Wildlife	Wild Horses	Total
1982		1,233 antelope 63 deer		
	15,800	1,296	15,578	32,674

The CRMP Plan has as one of its objectives a ten year (1992) goal to provide 44,882 AUMs for livestock and 3,840 AUMs for wild horses. Monitoring data will determine if this goal is attainable. Until management decisions are made based upon monitoring data, the CRMP Plan provides for a minimum of 2,400 AUMs (yearly) for wild horses.

Constraints

The interior fences which were installed in 1986 in the Bullhead Allotment will restrict migration of horses to areas which they historically used as summer range. These areas are the Snowstorm Flat, Winters Ridge, First and Pole Creek areas.

As previously mentioned, lack of water is a problem. Areas where more water should be developed for wild horses in the Bullhead Allotment are the Dry Hills area, and Castle Ridge and First Creek Pastures. Areas in the Little Owyhee Allotment are the south one-half and the northeast corner of the Fairbanks Pasture, the northwest portion and the south one-half of the Lake Creek Pasture, and the northern one-third of the Twin Valley Pasture.

During the summer and fall seasons, wild horses have historically used the Castle Ridge Pasture. There is very little water and available forage in this pasture. In fact, water and forage are so limited that livestock haven't made use of this pasture for a number of years. The horses that use this area are required to travel some distance to a reliable source of water (South Fork of the Little Humboldt), and the quantity and quality of forage isn't adequate for the general health and welfare of the horses. Water and vegetative manipulation projects which may be proposed in this area would benefit wild horses. Therefore, a program of cost sharing for such projects may be appropriate. An equitable cost-share method could be one based upon percentage use (AUMs) of a pasture by livestock vs. wild horses. A constraint to habitat improvement projects in this area is the existence of the Little Humboldt Wilderness Study Area (WSA). This WSA, which is administered by the Elko BLM District, encompasses 36,593 acres. A WSA designation precludes the development of habitat improvement projects such as reservoirs and vegetative manipulation projects.

When implemented, (1972), the Little Owyhee AMP established a three-pasture rest-rotation grazing system for the spring pastures—one pasture would be grazed early, one after seedripe (July 15), and one pasture receiving complete rest. Since 1982, the pasture schedule has been based upon CRMP recommendations. Use occurred in two of the spring pastures, with one of them rested. During 1985 and 1986, Twin Valley and Lake Creek fields were used, due to a fire closure in the Fairbanks field. Use will again be based upon the CRMP recommendations in 1987.

3. Other Biotic Components

In addition to wild horses, other important resource values in the HMA are: wildlife, watershed, fisheries, Wilderness Study Areas, and riparian values. All of these resources are considered to be of equal value to one another and any activity plan must be formulated to consider all multiple-use values.

Wildlife

Wildlife species currently found within the HMAs are many and varied. However, those which principally compete with domestic livestock and wild horses for forage are limited to mule deer (Odocoileus hemionus), antelope (Antilocapra americana), rodents, lagomorphs, and insects. The Lahontan cutthroat trout is the only threatened species that occurs within the HMAs. Other important game species are found within the HMAs are:

Quail	Deer
Brook trout	Chukar partridge
Antelope	Sage grouse

II. Objectives

A. Habitat Objectives

1. Maintain the forage use levels for all herbivores within the HMA at a level which does not exceed proper use of key forage plant species as identified by the Little Owyhee and Bullhead Monitoring Plan. By 1988, provide 3,578 AUMs of forage for wild horses in the Little Owyhee Desert HMA, and 900 AUMs for wild horses in the Snowstorm Mountains HMA.

2. Provide for additional year-round water in both HMAs.

3. Improve the free-roaming nature of the horses within both HMAs by the installation of let down panels, and leaving gates open at critical times during migration.

4. Acquire data on the home ranges and distribution/movement patterns of the animals in both HMAs to facilitate evaluation of effects of range improvement.

5. Determine to what extent, if any, horses move back and forth between the two HMAs. and between the two HMAs and the HMAs located in the Elko District.

B. Animal Objectives

1. Within the AMLs of 200 adult wild horses in the Little Owyhee Desert HMA and 50 adult wild horses in the Snowstorm Mountains HMA, allow the population to increase by +35 percent in both HMAs before another removal is considered. The +35 percent variance factor would allow the population to increase to 270 adult wild horses in the Little Owyhee HMA, and to 68 adult wild horses in the Snowstorm Mountains HMA before an additional reduction is considered. Although more information needs to be obtained (Animal Objective No. 2), an adult population of 270 means there would be approximately 383 total animals in the Little Owyhee HMA, and 121 in the Snowstorm Mountain HMA.

2. Acquire data on the demographic characteristics of the wild horse population in both HMAs to include information on sex ratios, age structures, young/adult ratios, and actual use. These parameters will be analyzed to determine natality, mortality, and rate of increase.

3. Genetically enhance the color patterns in both HMAs.

III. Management Methods

A. Habitat Objective Number:

1. Wild horses will be maintained within the AML of 200 adults in the Little Owyhee HMA and 50 adults in the Bullhead HMA until forage objectives are met. Adjustments in forage use levels will be made on a proportinate basis.

2. Develop additional permanent water sources for wild horses by developing new springs and reservoirs, and improving existing springs and reservoirs. Refer to Appendix B for specific location and type of improvement.

3. Implement action items 8, 9, and 10 of the CRMP Wild Horse Management Plan recommendations. Refer to Appendix D for specifics.

4. Conduct studies designed to collect information regarding wild horse distribution and movement patterns.

5. During the next removal operations, seven horses from the Snowstorm HMA will be collared and released back into the HMA. The collars will be orange in color. Also, 25 horses from the Little Owyhee Desert HMA will be collared and released back into the HMA.

These collars will be white in color. BLM personnel from the Elko and Winnemucca Districts will coordinate and determine if any migration occurs between the two districts HMAs.

B. Animal Objective Number:

1. A total count census will be conducted periodically to determine whether actual wild horse numbers exceed the AML in each HMA. In addition, a total count census will be conducted (by helicopter) on both HMAs immediately prior to a proposed removal to determine the exact number of adult wild horses which would have to be removed to reach the AML of 200 (Little Owyhee) and 50 (Snowstorm Mtns.) in each HMA.

   During removals, the wild horse population will not be reduced below the AML for either HMA.

2. Studies will be established to collect information regarding sex ratios, age structure, rate of increase, and actual use. This kind of information needs to be obtained before some of the action items of the CRMP Wild Horse Management Plan recommendations can be implemented.

   For more details on types, frequency and intensity of study methods, refer to Section IV, Evaluation and Revision, and Appendix D of this plan.

3. Introduce wild horses into both HMAs that have solid white, Pinto or Paint color patterns.

   Introduce 10 horses with any combination of these colors into the Little Owyhee Desert HMA, and 5 into the Snowstorm Mountains HMA.

   The 15 introduced animals will range from one to seven years in age.

   The 15 animals will be inspected by a veterinarian before they are turned loose into the HMA. Details of the introduction (location, age, sex) including photographs will be inserted into the Herd Area file.

IV. Evaluation and Revision

Data necessary to effectively manage the wild horse and burro population is virtually unavailable for the HMA. The following studies have been initiated or will be established to evaluate the effectiveness of the management methods identified in this plan to meet the objectives. Refer to the Little Owyhee and Bullhead Monitoring Plan, Appendix E, to find the time of year and frequency that the following studies will be read as well as the key area locations.

A. Habitat Study Methods

1. Climatological

Climatological data will be obtained from the Dry Canyon Remote Automated Weather Station located in Paradise Valley. This data can be supplemented by data published by the National Oceanic and Atmospheric Administration. This data will be obtained on a yearly basis and will consist of average monthly precipitation and temperature.

2. Frequency and Trend

One of the parameters to show changes in plant composition (trend) is frequency. Frequency data will be collected using the quadrat-frequency method as described in the Nevada Range (1984) Monitoring Procedures Handbook. Data will be stored and analyzed using standard statistical analysis procedures as a part of the Bureau ADP computer program. When a statistically significant change in frequency data is noted, a double- sampling transect will be read. Frequency data will be used in combination with the ecological status to determine trend. This data will be collected at key areas on a yearly basis until management determines that adequate information has been obtained.

Refer to Appendix A map which shows key area locations.

3. Ecological Status

Ecological status (formerly referred to as "ecological range condition") was determined in FY 1986 on all of the key management areas discussed in the monitoring plan. The double-sampling methods as described in the National Range Handbook (SCS 1976) will be used to determine ecological status.

Refer to Appendix A map which shows key area locations.

4. Utilization

Vegetation utilization data, which includes utilization made by livestock, wildlife and wild horses will be collected using the key forage plant method, which is also described in the Range Monitoring Handbook. Utilization cages will be placed on all key areas for calibration purposes.

Utilization data will be collected twice a year, once just prior to livestock turn-out, and once just after livestock are removed. These studies would show the degree of utilization made by wild horses and wildlife when livestock are absent from specific pastures. Studies will also be conducted when all three kinds of herbivores are using a specific pasture. These studies will be able to show the total utilization which occurred, during that period, but will not be able to differentiate use made by any particular species.

B. Wild Horse Population Study Methods

1. Home Range and Seasonal Movements

A comprehensive study will be conducted to secure an understanding of home ranges and seasonal movements of wild horses. This will be accomplished by collaring 25 wild horses in the Little Owyhee HMA and 7 in the Snowstorm Mtns. HMA with radio tracking equipment. Once accomplished the animals will be observed in the field from vehicles and from the air, and their locations and movements will be recorded. Observations will be conducted a minimum of four times each year, for a period of at least two years (i.e., spring, summer, fall, and winter). Collaring horses may be accomplished either during removal roundups or special capture operations.

2. Productivity, Survival, and Population Estimates

To implement the Wild Horse Management Plan CRMP recommendations, additional information is needed for wild horses in both HMAs.

Productivity and Survival

General productivity indices will be estimated from the relative age composition (percent foals) of the HAs population as per NSO Manual 4730. The desired data will be secured from aerial census and ground observations every third year until the indices become established and are predictable. Aerial censuses designated to obtain wild horse home range and seasonal movement patterns can also supply relative age composition.

First year survival rates will be approximated through shrinkage of foal incidence between post-parturition composition surveys and parturition surveys (Wolfe 1980). Such surveys will be conducted in July and January in conjunction with seasonal movement and home range inventories. The surveys will be conducted every third year.

Population Estimates-Actual Use

Population estimates will be developed every third year. These estimates will be derived by conducting an aerial census using a Bell 47B1 or equivalent helicopter in September or October.

These estimates will be analyzed with other wild horse studies to obtain a more reliable data base of population estimates. The census will place the animals in adult, foal, and if possible, in yearling categories.

Locations of the wild horses, weather conditions, flight period and flight patterns will be recorded as described in NSO Manual Supplement 4730.

3. Sex Ratio-Age Structure Determination

Both the sex ratio and age structure of the population of wild horses in the HMAs will be estimated from an analysis of capture data obtained whenever excess animals are removed. This information will be further supplemented by developing basic life tables as described in NSO Manual 4730.

4. Animal Condition

Since the general condition of the animals is also an indicator of the population health and habitat conditions, during any on-the-ground observations or aerial censuses, all negative animal conditions will be recorded. Some of the conditions that will be recorded are deformities within individual bands, glossiness of coat, fleshiness of animals, etc.

C. Revision

Revision of this plan may be necessary when adequate studies data is gathered which indicates that changes to the grazing system, Monitoring Plan, and/or the AML of animals are warranted because key area and/or resource objectives are not being met. This plan may also be modified or changed if experience gained in the operation of the plan indicates that a change is necessary to meet resource and/or management objectives. This will be determined by the Area Manager, Supervisory Range Conservationist, and District Wild Horse/Burro Specialist in consultation with the CRMP group.

If the habitat studies data indicates that additional forage is available, proportionate increases will be given to wild horses, wildlife, and livestock. This provision is consistent with both CRMP plans. The CRMP plans also provide for a proportionate decrease to wild horses and livestock. Wildlife forage will not be reduced unless requested by the Nevada Department of Wildlife.

V. Coordination

A. Cooperation in Management

Approximately one-third of the HMA is located within the administrative boundary of the Elko BLM District. An agreement (CN-020-33) for the Administration of Resource between the Winnemucca and Elko Districts was signed on August 19, 1977. This agreement allows the Winnemucca District to administer the wild horses for the entire HMA.

Both the Little Owyhee and Bullhead CRMP and AMPs have received concurrence by the Elko BLM District.

The Elko District RMP and the Paradise-Denio LUP were coordinated. There are no discrepancies between the two documents as to areas of use and number of animals.

5. Establish a herd monitoring system including:
   a. Observation of gathering and selection process.
   b. Inventory of initial herd by age, sex, type & condition.
   c. Herd photographic inventory.
   d. Seasonal inventory by location (ocular & photographic every spring and fall).
   e. Yearly review of herd proportions, condition, health, locations, migrations and trends.

   Who: BLM & CRMP #1 Wild Horse Committee
   When: Beginning 1982

6. Adjust herd inventory if monitoring indicates any age or sex group is disproportionately large or small. Gather excess groups, return deficient group with large proportion of potential replacements.

   Who: Wild Horse Committee decides and recommends adjustments to be made by BLM.
   When: Every two years.

7. In the event the natural base herd is reduced below 100 head by disease, accident or other causes, reintroduction of a base herd up to 250 head should be made from wild horse gatherings within Nevada.

   Who: BLM
   When: Within two years of the time base herd is found to be reduced below 100 head.

8. Internal division fences in herd area shall have gates at one mile minimum intervals and new gates (minimum 20 ft. wide) at all locations receiving heavy pressures from past wild horse populations.

   Who: BLM
   When: 1982

9. All gates on division fences between Lake Creek, Twin Valley, Fairbanks pastures and Bullhead Allotment, shall be opened and tied back from July 1 to March 15 to facilitate "free-roaming" migration of the base herd within spring range area and Bullhead Allotment. A deterioration of range condition caused by excessive use in any one field may be controlled by gate closure if deemed necessary by CRMP Wild Horse Committee.

   Who: BLM & NFC
   When: 1983

10. Wild horse use of checkerboard and scattered deeded properties. Where wild horses now exist, wild horses shall be permitted use of unfenced Nevada First Corporation deeded properties in the same ratio of domestic livestock to wild horses as in the Little Owyhee and Bullhead CRMP plans when managed under a plan approved by CRMP Local #1. BLM will adjust the exchange of use agreement with Nevada First Corporation to account for AUMs used by wild horses on Nevada First Corporation private lands.

    Who: BLM & NFC
    When: 1982

Glossary of Terms

Active Preference - the allowable grazing use made by domestic livestock during the grazing year, and generally expressed in AUMs.

Adjudication (or range adjudication) - the allocation of grazing areas or use of allotments, season of grazing use, numbers and class of livestock, and numbers of AUMs to qualified livestock operators (Nevada Report). The "Nevada Report" is a document prepared by Bureau personnel in 1974. The Nevada Report was about the effects of livestock grazing on wildlife, watershed, recreation, and other resource values in Nevada.

Adult Horse - any wild horse two years or older (NSO Instruction Memorandum NV 83-289).

Allotment - an area of land where one or more individuals graze their livestock. It generally consists of public lands but may include parcels of private or state owned lands. The number of livestock and period-of-use are stipulated for each allotment. An allotment may consist of several pastures or be only one pasture (Nevada Report).

Allotment Management Plan (AMP) - means a documented program which applies to livestock operations on the public lands, prepared in consultation and cooperation with the permittee(s), lessee(s), or other involved affected interests (43 CFR 4100.0-5).

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

Appropriate Management Levels (AMLs) - the median number of wild horses or burros to be maintained by herd management area (NSO Instruction Memorandum No. 83-289).

Carrying or grazing capacity - as used in this document, the words are synonymous. The phrase means the maximum stocking rate possible without inducing damage to vegetation or related resources.

Coordinated Resource Management and Planning (CRMP) - public involvement program in which interest groups, other agencies, users, and affected individuals develop multiple-use plans as part of the BLM's planning process (Winnemucca Preliminary Final Environmental Impact Statement).

Endangered species - any species in danger of extinction throughout all or a significant portion of its range (WPFEIS).

Grazing system - systematic sequence of grazing use and nonuse of an area, which is designed to achieve established objective (Nevada Report).

Herd - means one or more stallions and their mares or jacks and their jennies (43 CFR 4700.0-5).

Herd Management Area Plan (HMAP) - an activity plan which addresses the management of wild horses or burros and the habitat on one or more herd management areas (NSO Instruction Memorandum NV 83-289).

Herd Management Area (HMA) - a herd area identified in an approved land use plan where wild horses or burros will be maintained and managed (WO Instruction Memorandum No. 83-289).

Management Framework Plan (MFP) - a land-use plan for the public lands which provides a set of goals, objectives, and constraints for a specific planning area to guide the development of detailed plans for the management of each resource (WPFEIS).

MFP II - a BLM Area Manager's recommendation to the District Manager for the Management Framework Plan based on conflict resolution (WPFEIS).

MFP III - the District Manager's land use decision for management of the public lands and their resources (WPFEIS).

Management Plan - means a written program of action designed to protect, manage, and control wild free-roaming horses and burros and maintain a natural ecological balance on the public lands (43 CFR 4700.0-5).

Multiple use - the management of public lands and their various resource values so that they are utilized in a combination that will best meet the present and future needs of the public (WPFEIS).

Public lands - means any lands administered by the Secretary of the Interior through the Bureau of Land Management (43 CFR 4700.0-5).

Range survey (vegetation inventory) - a method for the measuring or inventory of vegetation to provide base data for use in management decisions and establishment of the grazing capacity.

Riparian - a biological zone influenced by the presence of water. Also used to refer to vegetation that grows along streams or around springs (WPFEIS).

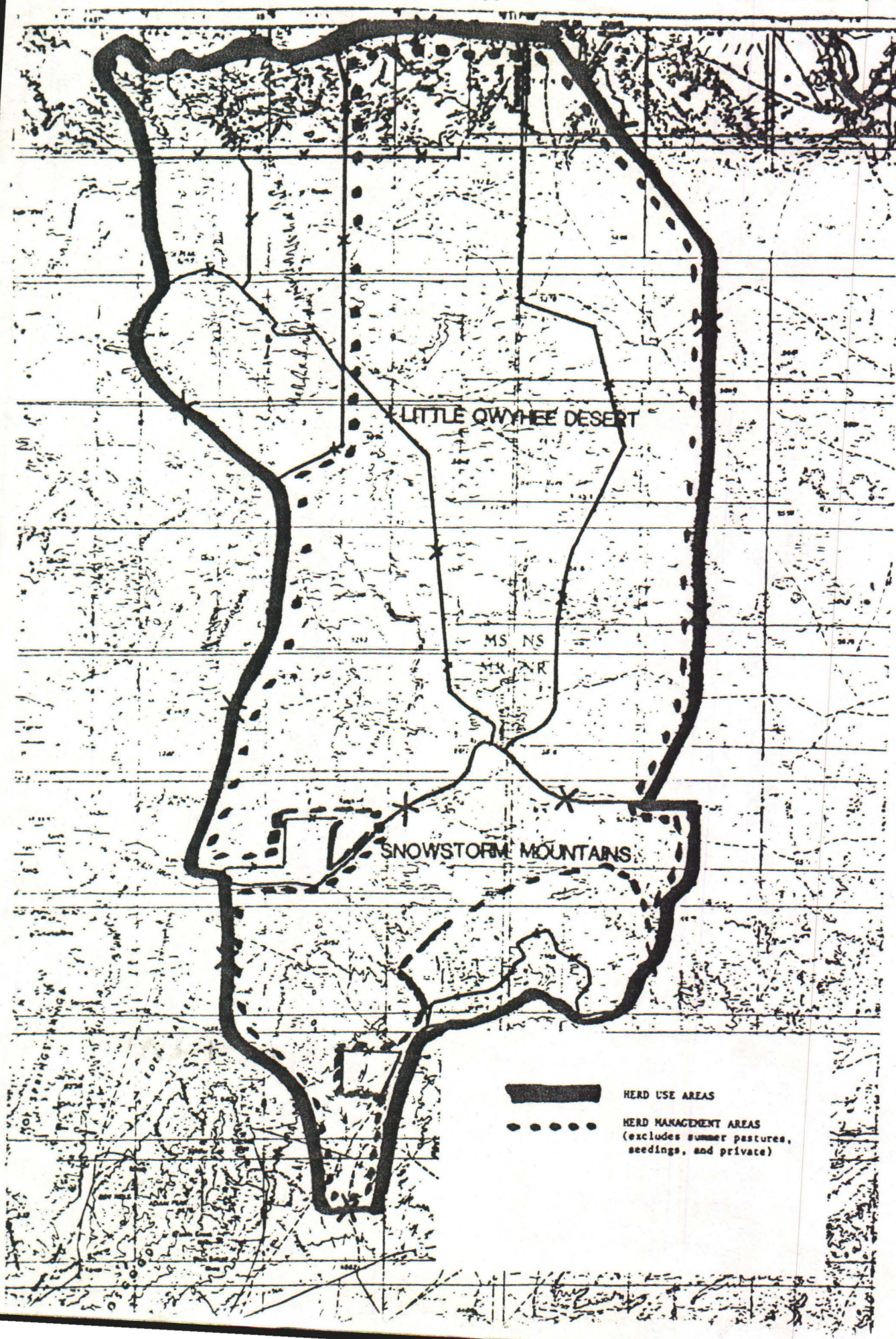
Threatened species - any species likely to become endangered within the foreseeable future throughout all or a significant part of its range (WPFEIS).

Unit Resource Analysis (URA) - a description of the basic physical characteristics of an area.

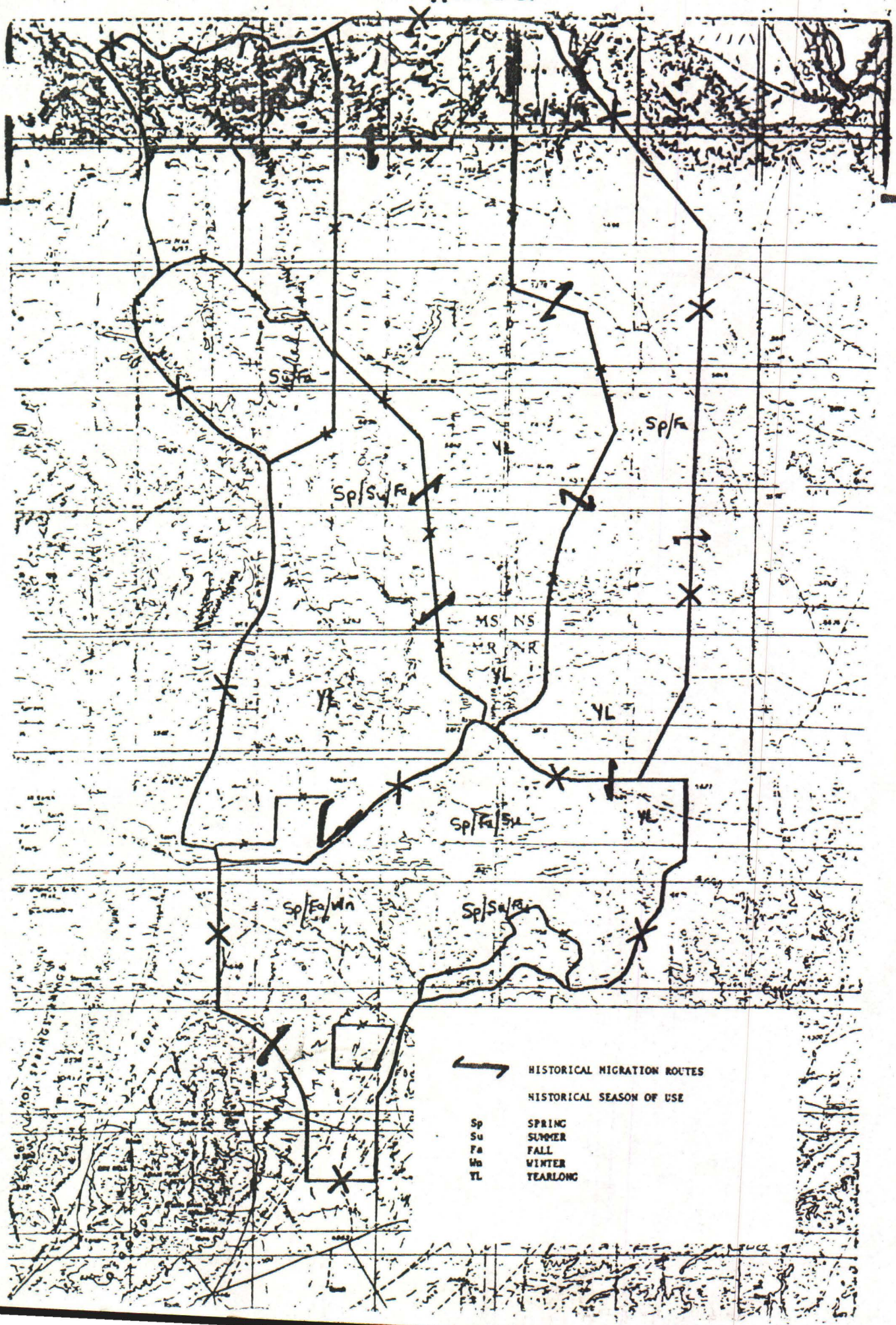
Wilderness Study Area (WSA) - an area determined to have wilderness characteristics. Study areas will be subject to interdisciplinary analysis and public comment to determine wilderness suitability. Suitable areas will be recommended to the President and Congress for wilderness designation (WPFEIS).

Wild free-roaming horse and burro - all unbranded and unclaimed horses and burros that use public lands as all or part of their habitat or that have been removed from these lands by the authorized officer but have not lost their status under section 3 of the Act (NSO Instruction Memorandum NV 83-289).

Appendix a.


LITTLE QWYHEE DESERT
MS NS
MR NR
SNOWSTORM MOUNTAINS
HERD USE AREAS
HERD MANAGEMENT AREAS
(excludes summer pastures, seedings, and private)

Appendix a.


Sp/Fa
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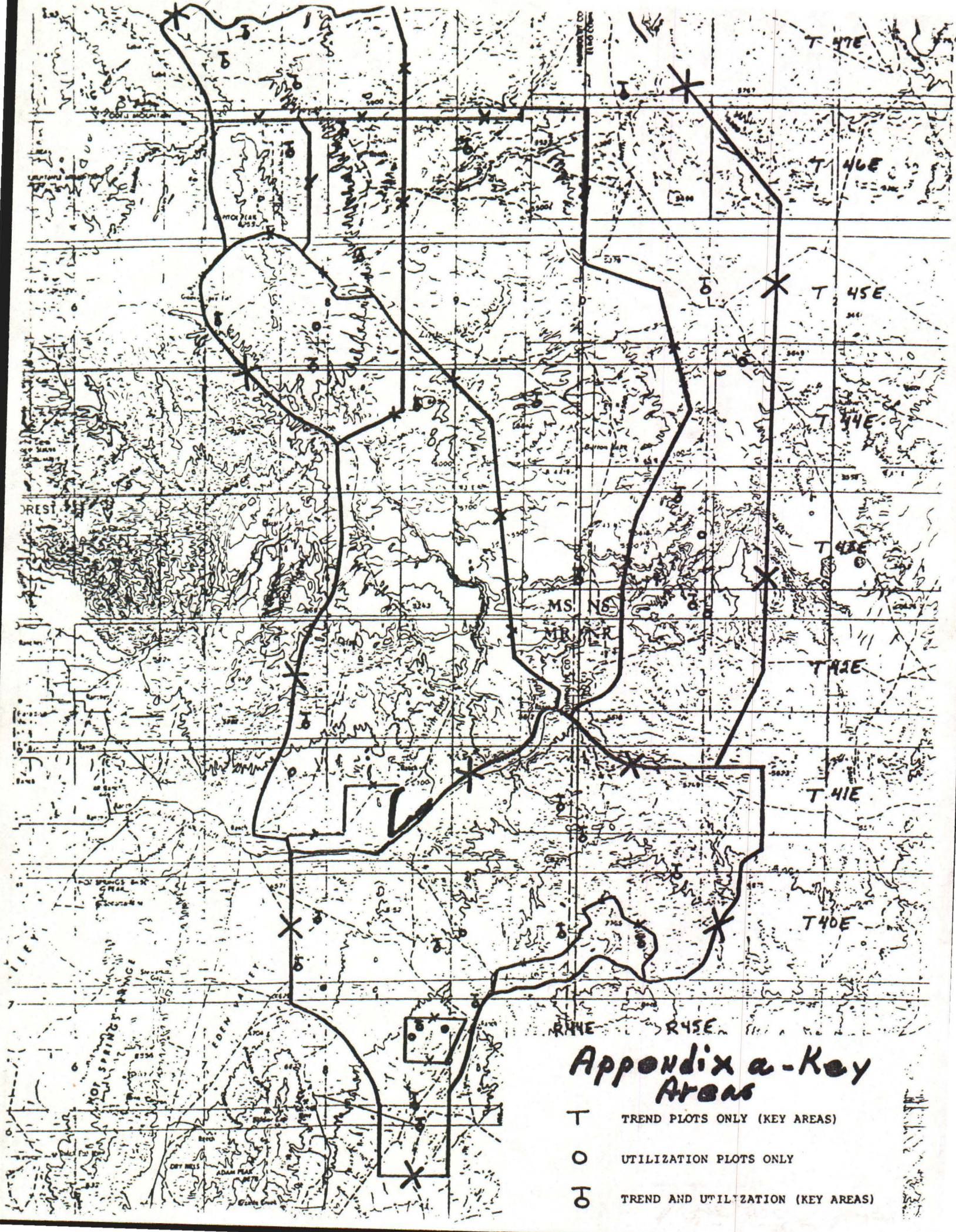
Sp/Su/Fa
HISTORICAL MIGRATION ROUTES
HISTORICAL SEASON OF USE
Sp SPRING
Su SUMMER
Fa FALL
Wn WINTER
YL YEARLONG



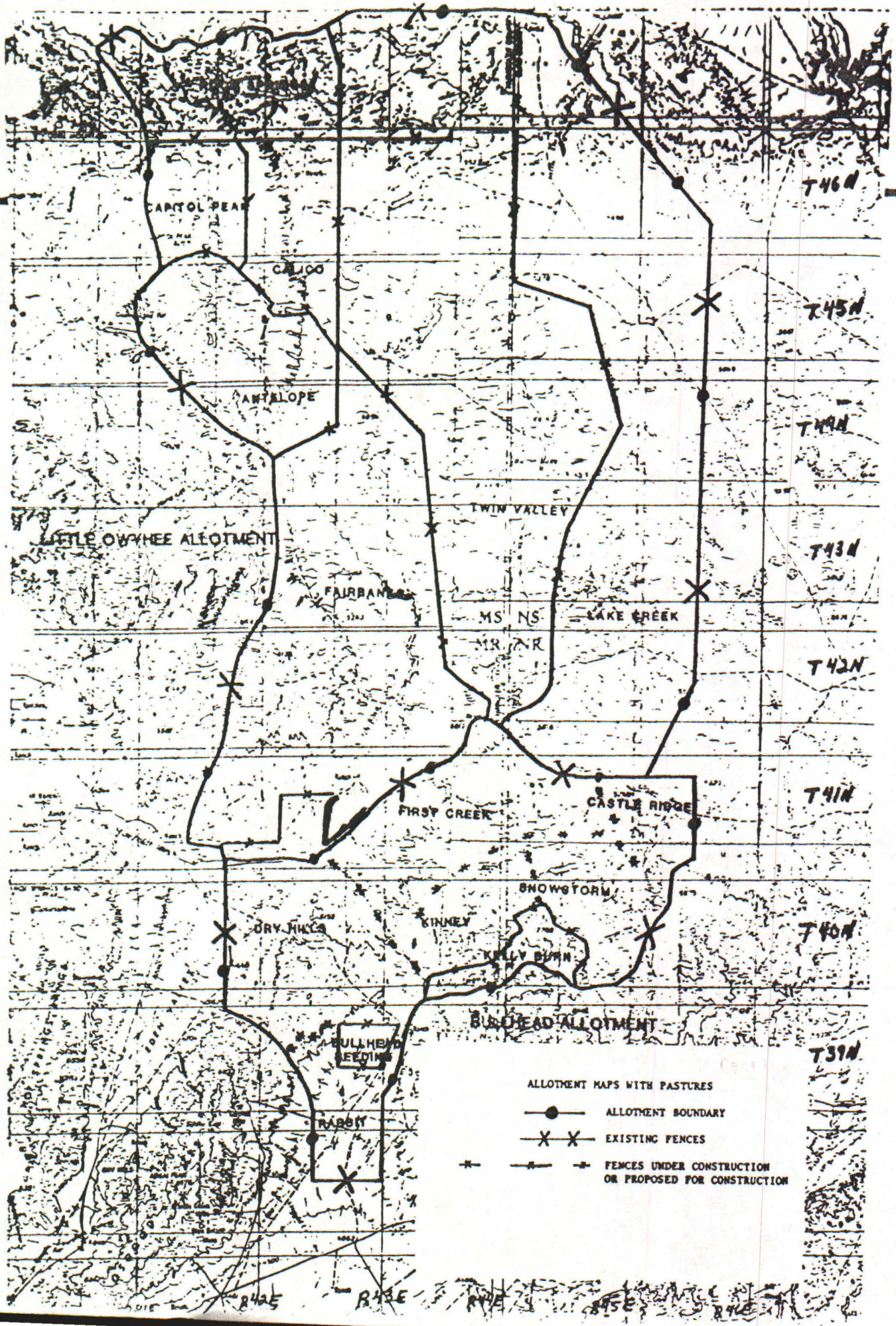
Appendix a-Key Areas

T TREND PLOTS ONLY (KEY AREAS)

O UTILIZATION PLOTS ONLY

TREND AND UTILIZATION (KEY AREAS)

Appendix a.


CAPITOL PEAK
CALICO
ANTELOPE
LITTLE OWYHEE ALLOTMENT
TWIN VALLEY
FAIRBANKS
MS NS
MR NR
LAKE CREEK
FIRST CREEK
CASTLE RIDGE
SNOWSTORM
DRY HILLS
KELLY BURN
BULLHEAD ALLOTMENT
BULLHEAD FEEDING
RABBIT
T46N
T45N
T44N
T43N
T42N
T41N
T40N
T39N
R42E
R43E
R44E
R45E
R46E
ALLOTMENT MAPS WITH PASTURES
ALLOTMENT BOUNDARY
EXISTING FENCES
FENCES UNDER CONSTRUCTION OR PROPOSED FOR CONSTRUCTION

Appendix B.

Range Improvements

Existing Projects (Bullhead Allotment)

Project Name	No.	Location	Date Constructed	Condition	Comments
Kelly Creek Wash Res.	410	T. 39 N., R. 42 E., Sec. 24	1946	Fair	Not used by horses
Tobin Reservoir	412	T. 39 N., R. 42 E.	1946	Fair	Reservoir is dry when used by horses
Meyer Reservoir	413	T. 39 N., R. 43 E.	1946	Fair	Dry when horses are in area.
Mainroad Reservoir	4796	T. 40 N., R. 43 E., Sec. 29		No data	Dry when horses are in area
Dry Hills Reservoir	4797	T. 40 N., R. 43 E., Sec. 19		Fair	Sometimes beneficial to horses.
Rimrock Reservoir	4798	T. 41 N., R. 45 E., Sec. 32	1968	Good	Beneficial to horses
Cleavage Reservoir	4813	T. 40 N., R. 44 E., Sec. 3	1968	Fair	Beneficial to horses
Bullhead Seeding Pipeline	1187	T. 39 N., R. 43 E. Sec. 16, 17, 20	1968	Good	Reconstructed 1981. Horses do not use this area.
Bullhead Seeding Fence	1038	T. 39 N., R. 43 E.	1967	Excellent	
Snowstorm Fire Rehab. Fence	4720	T. 40 N., R. 45 E.	1976	Good	1980-1, Restricts movement of horses to historic summer range.
Bullhead Well	4230	T. 39 N., R. 43 E., Sec. 9	1972	Good 1)	No benefit to horses
Hot Springs Well	4231	T. 40 N., R. 42 E., Sec. 4	1972	Good	Sometimes beneficial to horses.
North Fork Cattleguard	546	T. 41 N., R. 42 E.	1964	Good	
Bullhead Seeding Cattleguard	1134	T. 39 N., R. 43 E., Sec. 14 and 22	1968	Good	
Rodear Flat West Cattleguard	4848	T. 41 N., R. 45 E., Sec. 16	1983	Excellent	NFC installed

Project Name	No.	Location	Constructed	Condition	Comments
Rodear Flat East Cattleguard	4848	T. 41 N., R. 45 E., Sec. 15	1983	Excellent	NFC installed
Snowstorm Short fence	4871	T. 40 N., R. 44 E., Sec. 26	1986	Excellent	Would have no effect on horses
Snowstorm Fence	4875	T. 40 N., R. 43 E.,	1986	Excellent	Could restrict movement of horses to historic summer range. Should be checked periodically for damage
Surprise Spring and Reservoir	4814	T. 40 N., R. 43 E., Sec. 12, NW	1983	Good	Beneficial to horses
Ernie Spring		T. 42 N., R. 44 E., Sec. 14, NESE¼			Beneficial to horses
South Fork Fence	4510	T. 40 and 41 N., R. 45 E.			Restricts movement of horses
Kelly Creek & Red House Cattleguard	1161	T. 38 N., R. 43 E., Sec. 20	1967	Good	
Snowstorm Fire Rehab. Cattleguards	4721	T. 40 N., R. 45 E., Sec. 20; T. 40 N., R. 44 E., Sec. 12	1976	Good	
First Creek Cattleguard	4877	T. 40 N., R. 44 E., Sec. 2	1983	Excellent	

Proposed Projects (Bullhead Allotment)

Project Name	No.	Location	Date Constructed	Condition	Comments
Purple Sage Reservoir	4811	T. 40 N., R. 43 E., Sec. 14 NW NE			Would appreciably benefit horses
Cupola Reservoir	4818	T. 41 N., R. 46 E., Sec. 20 SW SW			Would appreciably benefit horses
Triangle Butte Res.	4821	T. 41 N., R. 45 E., Sec. 17 NW SW			Would appreciably benefit horses

Project Name	No.	Location	Constructed	Condition	Comments
Kelly Spring and Pipeline	4795	T. 40 N., R. 43 E., Sec. 22			Pipeline and troughs would benefit horses
Surprise Spring and Reservoir	4812	T. 40 N., R. 43 E., Sec. 12 NW SW			Would benefit horses
Hot Springs Pipeline	4806	T. 39 N., R. 42 E., Sec. 4			
Hot Springs Pipeline Ext.	N/A	T. 39 N., R. 42 E., Sec. 4			
Ernie Spring		T. 42 N., R. 44 E., Sec. 14 NE1/4SE1/4			To be constructed by BLM. Would benefit horses.
Rabbit Fence	N/A	T. 39 N., R. 42 and 43 E.			Could possibly effect movement of horses.
Kelly Creek Prescribed Burn	N/A	To be determined			Would benefit horses
First Creek Aspen Burn	N/A	T. 40 N., R. 44 E., Sec. 9 and 10			Would benefit horses

Refer to CRMP Plan for implementation stages and responsible parties (Objectives number 3, 4 and 8).

Additional projects needed will be added to this plan as they are identified. The projects will be implemented in consultation and recommendations from the licensee and CRMP committee. Funding responsibilities have been agreed to in the CRMP Plan under Objectives number 3, 4 and 8.

Existing Projects (Little Owyhee Allotment)

Project Name	No.	Location	Date Constructed	Condition	Comments
Fairbanks Field:					
Gonda Division Fence	550	T. 41 N., R. 41 E.		Good	No effect to horses
Fairbanks Management Fence	4711	T. 43 N., R. 43 E.		Fair	Restricts movement
North Fork Stream Improvement	4397	T. 43 N., R. 42 E.		Unknown	No effect
McCleary Well	34	T. 44 N., R. 43 E.		Unknown	Benefit to horses
Antelope Reservoir	428	T. 42 N., R. 42 E.		Good	Beneficial to horses
Jackrabbit Reservoir	430	T. 42 N., R. 42 E.		Good	Beneficial to horses
Fairbanks Reservoir	431	T. 41 N., R. 42 E.		Fair	Beneficial to horses
McCleary Reservoir	871	T. 41 N., R. 41 E.		Good	Beneficial to horses
Owyhee #1 Reservoir	968	T. 42 N., R. 41 E.		Good	Beneficial to horses
Sagehen Protection Fence	935	T. 42 N., R. 43 E.		Good	No effect
Twin Valley Spring Field:					
Twin Valley Capture Corral	4746	T. 45 N., R. 43 E.		Unknown	No effect
Four Mile Reservoir	4729	T. 42 N., R. 45 E.		Fair	Beneficial to
Eight Mile Reservoir	4731	T. 43 N., R. 45 E.		Fair	Beneficial to horses
Button Lake Reservoir	327	T. 44 N., R. 44 E.		Good	Beneficial to horses
Owyhee #13 Reservoir	4499	T. 43 N., R. 44 E.		Good	Beneficial to horses
Owyhee #9 Reservoir	4501	T. 43 N., R. 45 E.		Fair	Beneficial to horses

Project Name	No.	Location	Date Constructed	Condition	Comments
Button Lake Well	694	T. 44 N., R. 44 E.		Unknown	Beneficial to horses
Owyhee #14 Reservoir	4502	T. 43 N., R. 45 E.		Good	Beneficial to horses
Owyhee #44 Reservoir	4503	T. 43 N., R. 45 E.		Good	Beneficial to horses
Owyhee #8 Reservoir	4504	T. 44 N., R. 45 E.		Unknown	Unknown benefits
Owyhee #20 Reservoir	4505	T. 44 N., R. 45 E.		Unknown 2)	Unknown benefits
Owyhee #21 Reservoir	4506	T. 44 N., R. 45 E.		Good	Beneficial to horses
Owyhee #22 Reservoir	4507	T. 44 N., R. 45 E.		Unknown 2)	Unknown benefits
Owyhee #25 Reservoir	4508	T. 44 N., R. 45 E.		Good	Beneficial to horses
Lake Creek Field:					
Lake Creek Management Fence	4693	T. 43 N., R. 45 E.		Good	Restricts movement of horses
Corral Lake Pipeline	4258	T. 44 N., R. 46 E.		Unknown	Beneficial to horses
Reed and Taylor Reservoir	4727	T. 45 N., R. 45 E.		Unknown	Beneficial to horses
Lake Creek Reservoir	4728	T. 47 N., R. 45 E.		Unknown	Beneficial to horses
Owyhee #43 Reservoir	4498	T. 45 N., R. 46 E.		Unknown	Unknown benefits

3) Proposed Projects (Little Owyhee Allotment)

Project Name	Location	Comments
North Fork Fence	From Forks Ranch to Greeley Crossing	Could close access of horses to water
Construct fence around Maiden Springs	Maiden Springs	No effect to horses
Repair wells	As needed	Beneficial to horses
Develop new reservoirs in the Fairbanks, Twin Valley, and Lake Creek Fields	Refer to pages 8 and 9	Beneficial to horses
If feasible, develop new springs in the Fairbanks and Lake Creek Fields	As determined by feasibility studies	Beneficial to horses
Vegetative manipulative projects	As determined by feasibility studies	Beneficial to horses

1) Fenced seeding - not used by horses.
2) Requires maintenance.
3) From CRMP Plan. Site specific projects have yet to be located.

Appendix C

Color Types

Data From 1981 Little Owyhee/Snowstorm Gather

Color Type	Number	Percent
Appaloosa	1	-
Bay	123	23
Black	46	9
Brown	39	7
Buckskin	16	3
Chestnut	15	3
Gray	25	5
Palomino	17	3
Roan	37	7
Sorrel	189	36
Pinto	8	1
Sevina	5	1
Dun	6	-
Albino	3	-
	530	100

Sex Ratio

1. Total population = 57% females; 43% males
2. Adult population = 59% females; 41% males
3. Foal population = 53% females; 47% males
4. Foal/100 adults = 34/100

Appendix C

Color Types
Data From 1983 Little Owyhee/Snowstorm Gather

Color Type	Number	Percent
Bay	162	21
Black	43	6
Brown	87	11
Buckskin	25	3
Chestnut	31	4
Gray	125	16
Palomino	28	4
Roan	79	11
Sorrel	160	21
Pinto	17	2
Sevina	7	1
Dun	1	-
Albino	3	-
	768	100

Color Types
Data From 1984 Little Owyhee/Snowstorm Gather

Color Type	Number	Percent
Bay	232	33
Black	76	11
Brown	85	12
Buckskin	12	2
Chestnut	14	2
Gray	64	9
Palomino	5	1
Roan	49	7
Sorrel	141	21
Pinto	4	1
Sevina	4	1
	686	100

Data from 1983 Little Owyhee/Snowstorm Gather

Age Class	Males	Females
0-11 months	97	108
1 year	42	68
2	55	64
3	29	38
4	5	13
5	10	18
6	29	31
7	41	39
8	16	32
9	5	9
10	-	5
11	-	-
12	7	5
13	2	-
TOTAL	338	430

56% Females vs. 44% Males

Appendix C

Data from 1984 Little Owyhee/Snowstorm Gather

Age Class	Males	Females
0-11 months	71	84
1 year	48	87
2	19	39
3	17	35
4	15	15
5	9	22
6	18	34
7	22	33
8	29	27
9	4	7
10	4	7
11	1	6
12	2	2
13	1	1
14	3	1
15	2	1
16	1	2
17	4	1
18	4	1
19	-	-
20	2	2
22	1	-
25	1	-
27	1	-
TOTAL	279	407

59% Females gathered vs. 41% Males

APPENDIX D

CRMP Wild Horse Management Plan Recommendations

Note: The following objectives are taken from the CRMP plans precisely as they were written in the early 1980s in order to demonstrate the intent of the plans. Some of the planned objectives have been accomplished and some have not.

Objective #5

Establish a wild horse management plan.

a. Perpetuate a viable herd which is manageable and compatible with livestock operations, wildlife and resources available.
b. Preserve unique types and primitive mustang markings.
c. Reduce internal barriers to herd migration within the wild horse herd area.

A base herd of 200 wild horses was agreed as compatible with livestock operations as planned, wildlife demand, and resources available in the Little Owyhee spring range area. An additional 50 adult horses shall be included as part of the Owyhee herd and Bullhead allotment spring range shall be included as part of the wild horse management area.

ACTIONS:

1. Gathering of wild horses in Little Owyhee and Bullhead allotment.
   Who: BLM
   When: 1981, 1982 and 1983 before spring turn-out.

2. Select a base herd of 250 head for the Little Owyhee and Bullhead spring range consisting of:
   a. Equal numbers of male and female.
   b. Approximate proportions of 45% age 2-4 year olds, 40% age 5-8 year olds, and 15% age 9+ years.
   c. All primitive marking mustang types gathered will be returned as part of the base herd.
   Who: BLM
   When: 1982, 1983

3. Select with base herd a considerable portion of foals to assure replacements surviving two winters prior to time they become part of the base herd. Efforts will be made to allow foals to "mother-up" with mares selected for the base herd.
   Who: BLM
   When: 1982, 1983

4. Select with the base herd a portion of yearlings needed to develop into 2 year olds for base herd replacements for death loss from old age and other causes.
   Who: BLM
   When: 1982, 1983

5. Establish a herd monitoring system including:
   a. Observation of gathering and selection process.

b. Inventory of herd by age, sex, type and condition.
c. Herd photographic inventory.
d. Seasonal inventory by location (ocular and photographic every spring and fall).
e. Yearly review of herd proportions, condition, health, locations, migrations and trends.

Who: BLM
When: Beginning 1982

6. Adjust herd inventory if monitoring indicates any age or sex is disproportionately large or small. Gather excess groups, return deficient group with large proportion of potential replacements.
Who: Wild Horse Committee decides and recommends adjustments to be made by BLM.
When: Every two years.

7. In the event the natural base herd is reduced below 100 head by disease, accident or other causes, reintroduction of a base herd up to 250 head should be made from wild horse gatherings within Nevada.
Who: BLM
When: Within 2 years of the time base herd is found to be reduced below 100 head.

8. Internal division fences in herd area shall have gates at one mile minimum intervals and new gates (minimum 20 ft. wide) at all locations receiving heavy pressures from past wild horse populations.
Who: BLM
When: 1982

9. All gates on division fences between Lake Creek, Twin Valley, Fairbanks pastures and Bullhead Allotment, shall be opened and tied back from July 1 to March 15 to facilitate "free-roaming" migration of the base herd within spring range area and Bullhead Allotment. A deterioration of range condition caused by excessive use in any one field may be controlled by gate closure if deemed necessary by CRMP Wild Horse Committee.
Who: BLM and NFC
When: 1983

10. Wild horse use of checkerboard and scattered deeded properties. Where wild horses now exist, wild horses shall be permitted use of unfenced Nevada First Corporation deeded properties in the same ratio of domestic livestock to wild horses as in the Little Owyhee and Bullhead CRMP plans when managed under a plan approved by CRMP Local #1. BLM will adjust the exchange of use agreement with Nevada First Corporation to account for AUMs used by wild horses on Nevada First Corporation private lands.
Who: BLM and NFC
When: 1982

APPENDIX C

Color by Age and Sex

Data from 1993-94 Little Owyhee gather

Twin Valley

MALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	Pnt	BRn	Buc	Ron	Whi	Gru	Total
0-1	4	4	6	4	3	3	2	1	-	-	-	-	27
2	5	2	3	2	4	-	1	-	-	1	-	-	18
3	7	4	4	6	2	1	-	-	-	1	1	1	27
4	2	2	1	5	-	2	1	-	-	-	-	-	13
5	-	3	-	1	-	-	-	-	-	-	-	-	4
6	1	-	-	-	1	-	1	-	-	-	-	-	3
7	1	-	1	1	1	-	-	1	-	-	-	-	5
8	-	1	-	1	-	-	-	-	-	-	-	-	2
9	-	-	-	-	1	-	-	-	-	-	-	-	1
10	1	-	-	-	-	-	-	-	-	-	-	-	1
12	-	1	-	1	1	1	-	-	-	-	-	-	4
13	-	-	-	1	-	1	1	-	-	-	-	-	3
14	1	-	1	1	-	-	-	1	-	-	-	-	4
15	1	-	2	-	-	-	-	1	-	-	-	-	4
17	-	-	-	1	-	-	-	-	-	-	1	-	2
18	-	-	1	-	-	-	1	-	-	-	-	-	2
20+	-	-	2	-	-	1	-	-	-	-	-	-	3
X	2	-	1	-	1	-	-	-	1	-	-	-	5
Total	25	17	22	24	14	9	7	4	1	2	2	1	128

FEMALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	Pnt	BRn	Buc	Ron	Whi	Gru	Total
0-1	4	1	3	1	4	2	5	-	-	1	-	1	22
2	6	1	1	1	2	4	-	-	-	-	-	-	15
3	5	4	-	1	-	2	2	1	-	2	-	-	17
4	2	1	3	-	1	2	-	-	-	-	-	-	9
5	2	3	-	1	-	1	-	-	-	-	-	-	7
6	-	1	-	1	-	1	3	-	-	-	-	-	6
7	1	1	-	-	1	1	1	-	-	-	-	-	5
8	5	-	1	-	1	-	1	-	-	-	-	-	8
10	-	-	-	-	-	-	1	-	-	-	-	-	1
11	-	-	-	-	-	1	-	-	-	-	-	-	1
12	3	1	-	3	-	1	-	-	1	-	1	-	10
13	-	-	-	1	-	1	1	-	-	-	-	-	3
14	-	1	-	1	-	-	1	-	-	-	-	-	3
18	1	-	-	1	-	-	-	-	-	-	-	-	2
XX	-	-	-	-	-	-	-	-	-	-	-	-	0
Total	29	14	8	11	9	16	15	1	1	3	1	1	109

APPENDIX C

Color by Age and Sex

Data from 1993-94 Little Owyhee gather

Lake Creek

MALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	BRn	Buc	Pal	SRn	Total
0-1	4	2	5	3	1	-	1	-	1	-	17
2	2	-	-	-	-	-	-	-	-	-	2
3	1	-	2	1	-	-	-	-	-	-	4
4	-	1	-	1	1	-	-	-	-	-	3
7	1	1	-	-	-	-	-	-	-	-	2
8	1	-	-	-	-	-	-	-	-	-	1
9	-	1	-	-	-	1	-	-	-	-	2
10	1	-	1	-	-	-	-	-	-	-	2
11	-	-	-	-	-	2	-	-	-	1	3
12	-	-	1	1	-	-	-	-	-	-	2
13	-	1	-	-	-	-	-	-	-	-	1
14	1	-	-	1	-	-	-	-	-	-	2
15	1	1	-	-	-	-	-	-	-	-	2
16	-	-	-	2	-	-	-	-	-	-	2
19	1	-	-	-	-	-	-	-	-	-	1
20+	-	-	-	2	-	-	-	-	-	-	2
X	7	4	7	-	1	5	2	2	-	-	28
Total	20	11	16	8	3	8	3	2	1	1	76

FEMALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	BRn	Buc	Pal	Gru	Total
0-1	1	4	4	1	1	1	-	2	-	-	14
2	6	3	1	-	-	-	-	-	-	1	11
3	6	1	-	-	-	-	-	1	-	-	8
4	2	-	-	-	1	1	-	-	-	-	4
5	1	1	-	1	-	-	-	-	-	-	3
7	-	1	-	-	-	-	-	-	-	-	1
8	-	1	-	3	1	-	-	-	-	-	5
9	-	-	-	1	-	1	-	-	-	-	2
10	1	-	-	-	-	-	-	-	-	-	1
11	-	-	-	1	-	-	-	-	-	-	1
12	1	-	-	1	1	-	-	-	-	-	3
14	1	-	-	1	-	-	-	-	-	-	2
15	-	-	-	1	-	-	-	-	-	-	1
16	-	-	-	1	-	-	-	-	-	-	1
18	1	-	-	-	-	-	-	-	-	-	1
20+	1	1	-	1	-	-	-	-	-	-	3
XX	2	5	3	-	-	1	4	1	4	-	20
Total	23	17	8	12	4	4	4	4	4	1	81

APPENDIX C

Color by Age and Sex

Data from 1993-94 Little Owyhee gather

Outside HMA

MALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	BRn	Whi	Gru	Total
0-1	2	2	-	-	-	-	-	-	-	4
2	2	-	-	-	-	-	-	-	-	2
3	2	-	1	1	-	2	-	-	1	7
4	1	-	-	-	-	-	-	-	-	1
5	2	-	-	-	1	-	-	-	-	3
6	-	1	-	-	1	-	-	-	-	2
8	-	-	1	-	1	-	-	-	-	2
10	-	-	-	-	-	-	-	1	-	1
11	1	-	-	-	-	-	-	-	-	1
12	-	-	-	-	-	-	1	-	-	1
19	-	-	-	-	-	-	-	1	-	1
20+	-	-	1	-	-	-	-	-	-	1
X	-	1	-	-	-	-	-	-	-	1
Total	10	4	3	1	3	2	1	2	1	27

FEMALES

Age	Bay	Sor	Blk	Gry	Brw	BRn	Buc	Pal	Gru	Dun	App	Total
0-1	5	2	4	-	3	1	1	2	-	-	-	18
2	1	1	-	1	1	2	-	-	-	-	1	7
3	1	-	-	-	-	-	-	-	-	1	-	2
4	3	-	1	-	-	1	-	-	-	-	-	5
5	1	-	-	-	-	-	-	-	-	-	1	2
8	-	1	-	-	-	-	-	-	-	-	-	1
10	1	1	-	-	-	-	-	-	-	-	1	3
11	2	-	-	1	-	-	-	-	1	-	-	4
12	3	-	-	-	-	-	-	-	-	-	-	3
13	1	-	-	-	-	-	-	-	-	-	-	1
14	1	-	-	-	-	-	-	-	-	-	-	1
XX	-	-	-	-	-	-	-	-	-	-	-	0
Total	19	5	5	2	4	4	1	2	1	1	3	47

APPENDIX C

Data from 1983 Little Owyhee/Snowstorm Gather

	Little Owyhee			Snowstorm		
Age Class	Males	Females	Total	Males	Females	Total
0-11 months	36	36	72	61	72	133
1 year	20	29	49	22	39	61
2	20	26	46	35	38	73
3	19	16	35	10	22	32
4	5	13	18	0	0	0
5	4	14	18	6	4	10
6	12	14	26	17	17	34
7	14	11	25	27	28	55
8	8	15	23	8	17	25
9	5	9	14	0	0	0
10	0	0	0	0	5	5
12	5	5	10	2	0	2
13	2	0	2	0	0	0
TOTAL	150	192	342	188	238	426
	Sex ratio 44:56			Sex ratio 44:56		

Data from 1984 Little Owyhee/Snowstorm Gather

	Little Owyhee			Snowstorm		
Age Class	Males	Females	Total	Males	Females	Total
0-11 months	55	60	105	16	24	40
1 year	26	61	87	22	26	48
2	14	20	34	5	19	24
3	11	22	33	6	13	19
4	11	13	24	4	1	5
5	7	16	23	2	6	8
6	16	26	42	2	8	10
7	14	20	34	8	13	21
8	15	18	33	14	9	23
9	4	7	11	0	0	0
10	4	7	11	0	0	0
11	1	6	7	0	0	0
12	2	2	4	0	0	0
13	1	1	2	0	0	0
14	3	1	4	0	0	0
15	2	1	3	0	0	0
16	1	2	3	0	0	0
17	4	1	5	0	0	0
18	4	1	5	0	0	0
20	2	2	4	0	0	0
22	1	0	1	0	0	0
25	1	0	1	0	0	0
27	1	0	1	0	0	0
TOTAL	200	287	487	79	120	199
	Sex ratio 41:59			Sex ratio 40:60		

APPENDIX C

Data from 1985 Little Owyhee/Snowstorm Gather

	Little Owyhee			Snowstorm		
Age Class	Males	Females	Total	Males	Females	Total
0-11 months	49	53	102	7	37	44
1 year	52	45	97	27	18	45
2	35	53	88	20	23	43
3	19	16	35	5	4	9
4	15	29	44	8	18	26
5	30	18	48	20	5	25
6	31	63	94	15	13	28
7	24	21	45	13	11	24
8	13	19	32	5	7	12
9	9	6	15	4	0	4
10	10	9	19	0	0	0
11	7	4	11	0	0	0
12	8	2	10	0	0	0
13	5	5	10	0	0	0
14	6	4	10	0	0	0
15	2	3	5	0	0	0
16	7	8	15	0	0	0
17	2	0	2	0	0	0
18	4	4	8	0	0	0
20	6	2	8	0	0	0
21	1	1	2	0	0	0
22	0	3	3	0	0	0
23	5	0	5	0	0	0
25	7	1	8	0	0	0
26	5	0	5	0	0	0
27	2	0	2	0	0	0
31	1	0	1	0	0	0
32	1	1	2	0	0	0
TOTAL	356	370	726	124	134	258
	Sex ratio 49:51			Sex ratio 48:52		

APPENDIX C

Data from 1992 Little Owyhee Gather

	Overall			Rodear Flat			North Twin Valley		
Age Class	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-11 months	81	92	173	58	70	128	23	22	45
1 year	25	17	42	17	14	31	8	3	11
2	55	65	120	45	43	88	10	22	32
3	53	64	117	45	46	91	8	18	26
4	39	47	86	30	35	65	9	12	21
5	12	28	40	9	22	31	3	6	9
6	15	23	38	12	19	31	3	4	7
7	24	30	54	16	24	40	8	6	14
8	11	20	31	9	15	24	2	5	7
9	1	6	7	-	2	2	1	4	5
10	11	10	21	7	8	15	4	2	6
11	15	11	26	11	7	18	4	4	8
12	6	8	14	3	7	10	3	1	4
13	10	9	19	9	8	17	1	1	2
14	11	-	11	8	-	8	3	-	3
15	11	4	15	9	3	12	2	1	3
16	2	1	3	1	1	2	1	-	1
17	2	1	3	-	-	-	2	1	3
18	3	-	3	3	-	3	-	-	-
19	-	-	-	-	-	-	-	-	-
20+	4	1	5	2	-	2	2	1	3
N.A.	1	2	3	1	2	3	-	-	-
TOTAL	392	439	831	295	326	621	97	113	210

Sex ratio:	47:53	48:52	46:54
Percentages:	0-5: 69.6%	69.9%	68.6%
	6-9: 15.6%	15.6%	16.2%
	10+: 14.8%	14.5%	15.2%

APPENDIX C

Data from 1993-94 Little Owyhee Gather

	Overall			Fairbanks			Twin Valley		
Age Class	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-1 year	63	74	137	15	20	35	27	22	49
2	35	67	102	13	34	47	18	15	33
3	56	42	98	18	15	33	27	17	44
4	32	27	59	15	9	24	13	9	22
5	12	14	26	5	2	7	4	7	11
6	11	17	28	6	11	17	3	6	9
7	14	8	32	7	2	9	5	5	10
8	12	23	35	7	9	16	2	8	10
9	5	4	9	2	2	4	1	-	1
10	13	10	23	9	5	14	1	1	2
11	8	9	17	4	3	7	-	1	1
12	17	21	38	10	5	15	4	10	14
13	6	5	11	2	1	3	3	3	6
14	8	7	15	1	1	2	5	3	8
15	9	1	10	3	-	3	4	-	4
16	5	2	7	3	1	4	-	-	-
17	3	1	4	1	1	2	2	-	2
18	4	3	7	2	-	2	2	2	4
19	2	-	2	-	-	-	-	-	-
20+	4	6	10	-	1	1	3	-	3
11+(X/XX br.)	34	23	57	1	3	4	4	-	4
TOTAL	355	362	717	124	125	249	128	109	237
Sex ratio:	50:50			50:50			54:46		
Percentages:	0-5: 58.9%			0-5: 58.6%			0-5: 67.1%		
	6-9: 14.5%			6-9: 18.5%			6-9: 12.7%		
	10+: 26.6%			10+: 22.9%			10+: 20.2%		

APPENDIX C
Data from 1993-94 Little Owyhee Gather

	Lake Creek			Outside HMA		
Age Class	Males	Females	Total	Males	Females	Total
0-1 year	17	14	31	4	18	22
2	2	11	13	2	7	9
3	4	8	12	7	2	9
4	3	4	7	1	5	6
5	-	3	3	3	2	5
6	-	-	-	2	-	2
7	2	1	3	-	-	-
8	1	5	6	2	1	3
9	2	2	4	-	-	-
10	2	1	3	1	3	4
11	3	1	4	1	4	5
12	2	3	5	1	3	4
13	1	-	1	-	1	1
14	2	2	4	-	1	1
15	2	1	3	-	-	-
16	2	1	3	-	-	-
17	-	-	-	-	-	-
18	-	1	1	-	-	-
19	1	-	1	-	-	-
20+	2	3	5	1	-	1
11+(X/XX br.)	28	20	48	1	-	1
TOTAL	76	81	157	27	47	74

Sex ratio:	48:52	36:64
Percentages:	0-5: 42.0%	0-5: 68.9%
	6-9: 8.3%	6-9: 6.8%
	10+: 49.7%	10+: 24.3%

APPENDIX C

Color Types

Data from 1983 Little Owyhee/Snowstorm Gather

	Little Owyhee		Snowstorm	
Color Type	Number	%	Number	%
Bay	46	13	116	27
Black	21	6	22	5
Brown	32	9	55	13
Buckskin	11	3	14	3
Chestnut	16	5	15	4
Gray	50	16	75	18
Palomino	20	6	8	2
Roan	35	10	44	10
Sorrel	89	27	71	17
Pinto	11	3	6	1
Sevina	7	1	0	0
Dun	1	-	0	0
Albino	3	1	0	0
	342	100	426	100

Data from 1984 Little Owyhee/Snowstorm Gather

	Little Owyhee		Snowstorm	
Color Type	Number	%	Number	%
Bay	133	27	99	50
Black	35	8	41	21
Brown	38	8	47	23
Buckskin	12	2	0	0
Chestnut	14	3	0	0
Gray	64	13	0	0
Palomino	5	1	0	0
Roan	49	10	0	0
Sorrel	129	26	12	6
Pinto	4	1	0	0
Sevina	4	1	0	0
	487	100	199	100

APPENDIX C

Color Types

Data from 1985 Little Owyhee/Snowstorm Gather

	Little Owyhee		Snowstorm	
Color Type	Number	%	Number	%
Bay	179	25	70	27
Black	70	10	9	3
Brown	74	10	22	9
Buckskin	28	4	0	0
Chestnut	19	3	7	3
Gray	126	17	70	27
Palomino	14	2	0	0
Roan	41	6	12	5
Sorrel	150	21	68	26
Pinto	6	1	0	0
Sevina	12	1	0	0
Dun	1	-	0	0
Quemella	3	-	0	0
White	2	-	0	0
Albino	1	-	0	0
	726	100	258	100

Data from 1992 Little Owyhee Gather

	Overall		Rodear Flat		North Twin Valley	
Color Type	Number	%	Number	%	Number	%
Bay	195	24	151	24	44	21
Sorrel	140	17	107	17	33	16
Gray	112	14	74	12	38	18
Roan	91	11	79	13	12	6
Black	80	10	64	10	16	8
Brown	69	8	52	8	17	8
Palomino	38	4	25	4	13	6
Buckskin	34	4	18	3	16	8
Blue Roan	19	2	17	3	2	1
White	15	2	10	2	5	2
Red Roan	11	1	11	2	-	-
Grulla	7	1	6	1	1	1
Paint	3	-	-	-	3	1
Chestnut	2	-	2	-	-	-
Albino	1	-	1	-	-	-
StrawberryRoan	1	-	-	-	1	-
Unclassified	13	2	4	1	9	4
	831	100	621	100	210	100

APPENDIX C

Color by Age and Sex

Data from 1992 Little Owyhee gather

Overall

MALES

Age	Bay	Sor	Gry	Ron	Blk	Brw	Pal	Buc	BRn	Whi	RRn	Gru	Che	Alb	Unc	Total
0-11mo	20	16	6	2	4	13	3	5	2	2	1	1	1	-	5	81
1	2	5	4	2	3	3	1	4	1	-	-	-	-	-	-	25
2	14	6	4	12	9	1	3	4	1	1	-	-	-	-	-	55
3	13	9	7	5	6	5	4	-	2	-	1	-	-	1	-	53
4	13	8	5	6	1	4	-	1	-	1	-	-	-	-	-	39
5	5	-	3	-	2	-	-	-	1	-	1	-	-	-	-	12
6	2	3	2	3	3	2	-	-	-	-	-	-	-	-	-	15
7	1	5	6	3	3	2	1	-	2	1	-	-	-	-	-	24
8	2	2	-	3	-	2	-	1	-	1	-	-	-	-	-	11
9	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
10	3	1	-	1	3	1	-	-	1	1	-	-	-	-	-	11
11	6	2	1	1	1	1	1	1	-	-	1	-	-	-	-	15
12	2	1	2	1	-	-	-	-	-	-	-	-	-	-	-	6
13	1	-	3	1	1	2	-	-	-	2	-	-	-	-	-	10
14	3	1	2	2	2	1	-	-	-	-	-	-	-	-	-	11
15	6	1	-	1	2	-	-	-	-	1	-	-	-	-	-	11
16	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
17	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	2
18	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3
20+	1	-	-	-	1	1	-	1	-	-	-	-	-	-	-	4
N.A.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	99	60	46	45	41	38	13	18	10	10	4	1	1	1	5	392

FEMALES

Age	Bay	Sor	Gry	Ron	Blk	Brw	Pal	Buc	BRn	Whi	RRn	Gru	Pnt	Che	SRn	Unc	Total
0-11mo	19	17	4	6	9	12	6	5	1	-	-	5	1	-	-	7	92
1	4	8	-	1	1	1	-	1	-	-	1	-	-	-	-	-	17
2	19	15	8	9	2	4	1	2	2	-	1	1	1	-	-	-	65
3	15	10	10	9	6	4	4	1	-	1	3	-	1	-	-	-	64
4	7	7	12	3	6	4	4	-	2	1	-	-	-	-	-	1	47
5	13	1	3	3	5	-	-	1	-	1	1	-	-	-	-	-	28
6	2	5	4	2	4	1	2	1	-	1	1	-	-	-	-	-	23
7	8	5	7	4	1	1	-	1	1	-	-	-	-	1	1	-	30
8	3	2	6	3	1	2	2	1	-	-	-	-	-	-	-	-	20
9	1	1	-	-	-	1	1	2	-	-	-	-	-	-	-	-	6
10	1	1	4	-	2	1	-	-	1	-	-	-	-	-	-	-	10
11	2	-	3	3	-	-	3	-	-	-	-	-	-	-	-	-	11
12	1	2	2	1	-	-	1	1	-	-	-	-	-	-	-	-	8
13	1	3	1	1	1	-	-	-	1	1	-	-	-	-	-	-	9
15	-	1	2	-	-	-	1	-	-	-	-	-	-	-	-	-	4
16	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
17	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
20+	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
N.A.	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2
Total	96	80	66	46	39	31	25	16	9	5	7	6	3	1	1	8	439

APPENDIX C

Color by Age and Sex

Data from 1992 Little Owyhee gather

Rodear Flat

MALES

Age	Bay	Sor	Gry	Ron	Blk	Brw	Pal	Buc	BRn	Whi	RRn	Gru	Che	Alb	Unc	Total
0-11mo	16	13	4	1	3	8	2	5	2	-	1	1	1	-	1	58
1	2	4	2	2	3	2	-	1	1	-	-	-	-	-	-	17
2	11	5	4	10	8	-	3	2	1	1	-	-	-	-	-	45
3	11	8	4	5	5	1	2	-	1	-	1	-	-	1	-	45
4	10	6	4	5	1	2	-	1	-	1	-	-	-	-	-	30
5	3	-	2	-	2	-	-	-	1	-	1	-	-	-	-	9
6	1	1	2	3	3	2	-	-	-	-	-	-	-	-	-	12
7	1	3	4	3	2	-	1	-	2	-	-	-	-	-	-	16
8	2	2	-	2	-	2	-	-	-	1	-	-	-	-	-	9
10	1	1	-	-	2	1	-	-	1	1	-	-	-	-	-	7
11	3	2	1	1	1	1	1	-	-	-	1	-	-	-	-	11
12	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	3
13	1	-	2	1	1	2	-	-	-	2	-	-	-	-	-	9
14	3	-	-	2	2	1	-	-	-	-	-	-	-	-	-	8
15	5	1	-	1	1	-	-	-	-	1	-	-	-	-	-	9
16	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
18	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3
20+	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2
N.A.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	76	46	30	38	34	26	10	10	10	7	4	1	1	1	1	295

FEMALES

Age	Bay	Sor	Gry	Ron	Blk	Brw	Pal	Buc	BRn	Whi	RRn	Gru	Che	Unc	Total
0-11mo	17	14	2	6	8	10	4	2	1	-	-	4	-	2	70
1	4	5	-	1	1	1	-	1	-	-	1	-	-	-	14
2	10	12	4	8	2	2	1	1	1	-	1	1	-	-	43
3	13	7	7	7	3	4	2	-	-	-	3	-	-	-	46
4	7	4	9	3	5	3	2	-	1	-	-	-	-	1	35
5	8	1	3	3	4	-	-	1	-	1	1	-	-	-	22
6	2	4	3	2	3	1	1	1	-	1	1	-	-	-	19
7	7	4	5	4	-	1	-	1	1	-	-	-	1	-	24
8	3	2	3	2	1	2	2	-	-	-	-	-	-	-	15
9	1	-	-	-	-	1	-	-	-	-	-	-	-	-	2
10	-	1	4	-	1	1	-	-	1	-	-	-	-	-	8
11	1	-	2	3	-	-	1	-	-	-	-	-	-	-	7
12	1	2	1	1	-	-	1	1	-	-	-	-	-	-	7
13	1	3	-	1	1	-	-	-	1	1	-	-	-	-	8
15	-	1	1	-	-	-	1	-	-	-	-	-	-	-	3
16	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
N.A.	-	1	-	-	1	-	-	-	-	-	-	-	-	-	2
Total	75	61	44	41	30	26	15	8	7	3	7	5	1	3	326

APPENDIX C

Color by Age and Sex

Data from 1992 Little Owyhee gather

North Twin Valley

MALES

Age	Bay	Sor	Gry	Ron	Blk	Brw	Pal	Buc	Whi	Unc	Total
0-11mo	4	3	2	1	1	5	1	-	2	4	23
1	-	1	2	-	-	1	1	3	-	-	8
2	3	1	-	2	1	1	-	2	-	-	10
3	2	1	3	-	1	-	1	-	-	-	8
4	3	2	1	1	-	2	-	-	-	-	9
5	2	-	1	-	-	-	-	-	-	-	3
6	1	2	-	-	-	-	-	-	-	-	3
7	-	2	2	-	1	2	-	-	1	-	8
8	-	-	-	1	-	-	-	1	-	-	2
9	-	-	-	1	-	-	-	-	-	-	1
10	2	-	-	1	1	-	-	-	-	-	4
11	3	-	-	-	-	-	-	1	-	-	4
12	1	1	1	-	-	-	-	-	-	-	3
13	-	-	1	-	-	-	-	-	-	-	1
14	-	1	2	-	-	-	-	-	-	-	3
15	1	-	-	-	1	-	-	-	-	-	2
16	1	-	-	-	-	-	-	-	-	-	1
17	-	-	1	-	-	-	-	1	-	-	2
20+	-	-	-	-	1	1	-	-	-	-	2
Total	23	14	16	7	7	12	3	8	3	4	97

FEMALES

Age	Bay	Sor	Gry	Ron	Blk	Brw	Pal	Buc	BRn	Whi	Gru	Pnt	SRn	Unc	Total
0-11mo	2	3	2	-	1	2	2	3	-	-	1	1	-	5	22
1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	3
2	9	3	4	1	-	2	-	1	1	-	-	1	-	-	22
3	2	3	3	2	3	-	2	1	-	1	-	1	-	-	18
4	-	3	3	-	1	1	2	-	1	1	-	-	-	-	12
5	5	-	-	-	1	-	-	-	-	-	-	-	-	-	6
6	-	1	1	-	1	-	1	-	-	-	-	-	-	-	4
7	1	1	2	-	1	-	-	-	-	-	-	-	1	-	6
8	-	-	3	1	-	-	-	1	-	-	-	-	-	-	5
9	-	1	-	-	-	-	1	2	-	-	-	-	-	-	4
10	1	-	-	-	1	-	-	-	-	-	-	-	-	-	2
11	1	-	1	-	-	-	2	-	-	-	-	-	-	-	4
12	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
13	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
15	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
17	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
20+	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	21	19	22	5	9	5	10	8	2	2	1	3	1	5	113

APPENDIX C

Color Types

Data from 1993-94 Little Owyhee gather

Color Type	Overall Number	Overall %	Fairbanks Number	Fairbanks %	Twin Valley Number	Twin Valley %
Bay	284	40	158	64	54	23
Sorrel	115	16	47	20	31	13
Black	67	9	5	2	30	13
Gray	62	9	1	-	35	15
Brown	57	8	20	8	23	10
Red Roan	49	7	10	4	25	10
Paint	22	3	-	-	22	9
Blue Roan	17	2	-	-	5	2
Buckskin	10	1	1	-	2	1
Palomino	7	1	-	-	-	-
Roan	7	1	2	1	5	2
White	6	1	1	-	3	1
Grulla	5	1	-	-	2	1
Dun	4	1	3	1	-	-
Appaloosa	3	-	-	-	-	-
Strawberry Roan	2	-	1	-	-	-
Total	717	100	249	100	237	100

Color Type	Lake Creek Number	Lake Creek %	Outside HMA Number	Outside HMA %
Bay	43	27	29	40
Sorrel	28	18	9	12
Black	24	15	8	11
Gray	23	15	3	4
Brown	7	4	7	10
Red Roan	12	8	2	3
Paint	-	-	-	-
Blue Roan	7	4	5	8
Buckskin	6	4	1	1
Palomino	5	3	2	3
Roan	-	-	-	-
White	-	-	-	-
Grulla	1	1	2	3
Dun	-	-	1	1
Appaloosa	-	-	3	4
Strawberry Roan	1	1	-	-
Total	157	100	74	100

APPENDIX C

Color by Age and Sex

Data from 1993-94 Little Owyhee gather

Overall

MALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	Pnt	BRn	Buc	Pal	Ron	Whi	Gru	SRn	Total
0-1	19	10	11	7	7	4	2	2	-	1	-	-	-	-	63
2	20	2	4	2	4	1	1	-	-	-	1	-	-	-	35
3	22	8	7	8	3	4	-	-	-	-	1	1	2	-	56
4	9	10	1	6	3	2	1	-	-	-	-	-	-	-	32
5	4	6	-	1	1	-	-	-	-	-	-	-	-	-	12
6	4	2	-	-	3	-	1	-	-	-	-	-	-	1	11
7	5	4	1	1	2	-	-	1	-	-	-	-	-	-	14
8	7	2	1	1	1	-	-	-	-	-	-	-	-	-	12
9	1	2	-	-	1	1	-	-	-	-	-	-	-	-	5
10	7	-	1	-	2	-	-	-	-	-	2	1	-	-	13
11	3	1	1	-	-	2	-	-	-	-	-	-	-	1	8
12	7	2	1	2	1	3	-	1	-	-	-	-	-	-	17
13	2	1	-	1	-	1	1	-	-	-	-	-	-	-	6
14	3	-	2	2	-	-	-	1	-	-	-	-	-	-	8
15	2	4	2	-	-	-	-	1	-	-	-	-	-	-	9
16	3	-	-	2	-	-	-	-	-	-	-	-	-	-	5
17	1	-	-	1	-	-	-	-	-	-	-	1	-	-	3
18	1	-	1	1	-	-	1	-	-	-	-	-	-	-	4
19	1	-	-	-	-	-	-	-	-	-	-	1	-	-	2
20+	-	-	3	2	-	1	-	-	-	-	-	-	-	-	6
X	10	5	7	-	2	5	-	2	3	-	-	-	-	-	34
Total	131	59	43	37	30	24	7	8	3	1	4	4	2	2	355

FEMALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	Pnt	BRn	Buc	Pal	Ron	Whi	Gru	Dun	App	Total
0-1	21	14	11	2	9	4	5	1	3	2	1	-	1	-	-	74
2	42	6	3	2	5	4	-	2	1	-	-	-	1	-	1	67
3	21	9	-	1	1	3	2	1	1	-	2	-	-	1	-	42
4	12	1	5	-	4	3	-	1	-	-	-	-	-	1	-	27
5	5	5	-	2	-	1	-	-	-	-	-	-	-	-	1	14
6	8	4	-	1	-	1	3	-	-	-	-	-	-	-	-	17
7	2	2	-	-	2	1	1	-	-	-	-	-	-	-	-	8
8	12	2	1	3	4	-	1	-	-	-	-	-	-	-	-	23
9	1	1	-	1	-	1	-	-	-	-	-	-	-	-	-	4
10	5	2	-	-	-	1	1	-	-	-	-	-	-	-	1	10
11	3	-	-	2	-	2	-	-	-	-	-	-	1	1	-	9
12	8	3	-	4	1	2	-	-	1	-	-	-	-	1	-	20
13	2	-	-	1	-	1	1	-	-	-	-	1	-	-	-	6
14	3	1	-	2	-	-	1	-	-	-	-	-	-	-	-	7
15	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
16	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	2
17	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
18	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
20+	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	4
XX	4	5	3	-	1	1	-	4	1	4	-	-	-	-	-	23
Total	153	56	24	25	27	25	15	9	7	6	3	2	3	4	3	362

APPENDIX C

Color by Age and Sex

Data from 1993-94 Little Owyhee gather

Fairbanks

MALES

Age	Bay	Sor	Blk	Gry	Brw	RRn	Ron	SRn	Total
0-1	9	2	-	-	3	1	-	-	15
2	11	-	1	-	-	1	-	-	13
3	12	4	-	-	1	1	-	-	18
4	6	7	-	-	2	-	-	-	15
5	2	3	-	-	-	-	-	-	5
6	3	1	-	-	1	-	-	1	6
7	3	3	-	-	1	-	-	-	7
8	6	1	-	-	-	-	-	-	7
9	1	1	-	-	-	-	-	-	2
10	5	-	-	-	2	-	2	-	9
11	2	1	1	-	-	-	-	-	4
12	7	1	-	-	-	2	-	-	10
13	2	-	-	-	-	-	-	-	2
14	1	-	-	-	-	-	-	-	1
15	-	3	-	-	-	-	-	-	3
16	3	-	-	-	-	-	-	-	3
17	1	-	-	-	-	-	-	-	1
18	1	-	-	1	-	-	-	-	2
X	1	-	-	-	-	-	-	-	1
Total	76	27	2	1	10	5	2	1	124

FEMALES

Age	Bay	Sor	Blk	Brw	RRn	Buc	Whi	Dun	Total
0-1	11	7	-	1	1	-	-	-	20
2	29	1	1	2	-	1	-	-	34
3	9	4	-	1	1	-	-	-	15
4	5	-	1	2	-	-	-	1	9
5	1	1	-	-	-	-	-	-	2
6	8	3	-	-	-	-	-	-	11
7	1	-	-	1	-	-	-	-	2
8	7	-	-	2	-	-	-	-	9
9	1	1	-	-	-	-	-	-	2
10	3	1	-	-	1	-	-	-	5
11	1	-	-	-	1	-	-	1	3
12	1	2	-	-	1	-	-	1	5
13	1	-	-	-	-	-	-	-	1
14	1	-	-	-	-	-	-	-	1
16	-	-	-	-	-	-	1	-	1
17	1	-	-	-	-	-	-	-	1
20+	-	-	1	-	-	-	-	-	1
XX	2	-	-	1	-	-	-	-	3
Total	82	20	3	10	5	1	1	3	125

Appendix C

Color Types
Data From 1985 Little Owyhee/Snowstorm Gather

Color Type	Number	Percent
Pinto	6	1
Sorrel	218	22
Roan	53	5
Chestnut	26	3
Bay	249	26
Black	79	8
Brown	96	10
Buckskin	28	3
Gray	196	20
Palomimo	14	1
Quemella	3	-
Sevina	12	1
White	2	-
Dun	1	-
Albino	1	-
	984	100

Sex Ratio

1. Total population = 51% females; 49% males
2. Adult population = 52% females; 48% males
3. Foal population = 52% females; 48% males
4. Foal/100 adults = 40/100

Appendix C

Data from 1985 Little Owyhee/Snowstorm Gather

Age Class	Males	Females
0-11 months	56	90
1 year	79	63
2	55	76
3	24	20
4	23	47
5	50	23
6	46	76
7	37	30
8	18	26
9	13	6
10	10	9
11	7	4
12	8	2
13	5	5
14	6	4
15	2	3
16	7	8
17	2	0
18	4	4
19	0	0
20	6	2
21	1	1
22	0	3
23	5	0
24	0	0
25	7	1
26	5	0
27	2	0
28	0	0
29	0	0
30	0	0
31	1	0
32	1	1
TOTAL	480	504

49% Females vs. 51% Males

CRMP Wild Horse Management Plan Recommendations:

Note: The following objectives are taken from the CRMP plans precisely as they were written in the early 1980s in order to demonstrate the intent of the plans. Some of the planned actions have been accomplished and some have not.

Appendix D.

Objective #5

Establish a wild horse management plan.

a. Perpetuate a viable herd which is manageable and compatible with livestock operations, wildlife, and resources available.
b. Preserve unique types and primitive mustang markings.
c. Reduce internal barriers to herd migration within wild horse herd area.

A base herd of 200 wild horses was agreed as compatible with livestock operations as planned, wildlife demand, and resources available in the Little Owyhee spring range area. An additional 50 wild horses shall be included as part of the Owyhee herd and Bullhead allotment spring range shall be included as part of the wild horse management area.

ACTIONS:

1. Gathering of wild horses in Little Owyhee and Bullhead Allotment.
   Who: BLM
   When: 1981, 1982 and 1983 before spring turn-out.

2. Select a base herd of 250 head for the Little Owyhee and Bullhead spring range consisting of:
   a. Equal numbers of male and female.
   b. Approximately proportions of 45% age 204 year olds, 40% age 5-8 year olds, and 15% age 9+ years.
   c. All primitive marking mustang types gathered will be returned as part of the base herd.
   Who: BLM
   When: 1982, 1983

3. Select with base herd a considerable portion of foals to assure replacements surviving two winters prior to time they become part of the base herd. Efforts will be made to allow foals to "mother-up" with mares selected for the base herd.
   Who: BLM
   When: 1982, 1983

4. Select with the base herd a portion of yearlings needed to develop into two year olds for base herd replacements for death loss from old age and other causes.
   Who: BLM
   When: 1982, 1983

Table 1. Monitoring Studies Locations and Baseline Data

Bullhead 1

KEY AREA NO. (PASTURE)	KEY AREA NAME	LOCATION	TYPE OF STUDY(S)	ECOLOGICAL SITE[1]	ECOLOGICAL STATUS[2]
0201 (Dry Hills)	DH1	T. 42 N., R. 42 E., Sec. 29 SESE	Trend Utilization	024X002N (loamy 5-8" p.z.)	60% Late Seral
0202 (Dry Hills)	DH2	T. 40 N., R. 43 E., Sec. 29 NENE	Trend Utilization	025X019N (loamy 8-10" p.z.)	36% Mid-Seral
0203 (Dry Hills)	DH3	T. 39 N., R. 43 E., Sec. 2 SESE	Trend Utilization	024X005N (loamy 8-10" p.z.)	51% Late Seral
0204 (Dry Hills)	DH4	T. 40 N., R. 42 E., Sec. 16 NWSE	Trend Utilization	024X020N (droughty loam 8-10" p.z.)	46% Mid-Seral
0205 (Dry Hills)	DH5	T. 39 N., R. 42 E., Sec. 3 NWNW	Utilization	N/A	N/A
0301 (First Creek)	First Creek Basin	T. 41 N., R. 44 E., Sec. 36 NENE	Trend Utilization	025X019N (loamy 8-10" p.z.)	44% Mid Seral
0302 (First Creek)	County Line	T. 41 N., R. 44 E., Sec. 23 SENE	Trend Utilization	025X019N (loamy 8-10" p.2.)	65% Late Seral
0303 (First Creek)	Kelly Spring	T. 40 N., R. 43 E., Sec. 22 SWNE	Utilization	N/A	N/A
0401 (Kelly Burn)	Winter's Creek	T. 40 N., R. 45 E., Sec. 18 SE SE	Trend Utilization	025x12N (loamy slope 10-16" p.2.)	49% Mid-Seral
0402 (Kelly Burn)	Aspen	T. 40 N., R. 45 E., Sec. 19 SENW	Trend Utilization	023X064N Riparian Aspen	No Data (Ecological site has not yet been developed.
0403 (Kelly Burn)	Meadow	T. 40 N., R. 44 E., Sec. 22 NE	Trend	025X06N Dry Meadow 10-16" p.z.	No Data
0404	Kelley Creek		Stream Survey	N/A	N/A

[1] Ecological sites listed here can be referenced to SCS Ecological Site Descriptions (SCS 1983)
[2] Ecological status is referred to here in terms of the percent potential natural plant community (PNC) present on the site

Table 1. Monitoring Studies Locations and Baseline Data — Bullhead 2

KEY AREA NO. (PASTURE)	KEY AREA NAME	LOCATION	TYPE OF STUDY(S)	ECOLOGICAL SITE[1]	ECOLOGICAL STATUS[2]
0501 (Bull Seed)	Kelly Ranch	T. 39 N., R. 43 E., Sec. 15 SWNE	Utilization	N/A	N/A
0502 (Bull Seed)	Private Native	T. 39 N., R. 43 E., SEc. 17 SESW	Utilization	N/A	N/A
0503 (Bull Seed)	Upper	T. 39 N., R. 43 E., Sec. 17 SWNE	Trend Utilization	No Data	No Data
0601 (Kinney)	Crows Nest	T. 40 N., R. 44 E., Sec. 16 NESE	Trend Utilization	025X027N (loamy 12-16" p.z.)	38% Mid-Seral
0602 (Kinney)	Kinney Aspen	T. 40 N., R. 44 E., Sec. 22 NE	Trend Utilization	Aspen Woodland	No Data
0603	Kinney Meadow	T. 40 N., R. 44 E., Sec. 11 SENE	Trend Utilization	026X06N Dry Meadow 10-16" p.z.	
0801 (Rabbit)	Rabbit Creek	T. 38 N., R. 43 E., Sec. 5 NENW	Trend Utilization	024X020N (droughty loam 8-10" p.z.)	26% Early Seral
0802 (Rabbit)	Kelly Creek	T. 38 N., R. 43 E., Sec. 8 NE NW	Trend Utilization	024X006N (dry floodplain 6-10" p.z.)	69% Late Seral
0901 (Snowstorm)	Snowstorm Creek	T. 40 N., R. 45 E., Sec. 4 SWSW	Trend Utilization	025X014N loamy 10-12" p.z.)	49% Mid Seral
0902 (Snowstorm)	Flat Meadow	T. 40 N., R. 45 E., Sec. 26, SWNW	Trend Utilization	025X06N Dry Meadow 10-16" p.z.	No Data
0903	First Creek		Stream Survey	N/A	Fair to Poor
0904	Pole Creek		Stream Survey	N/A	Fair to Poor
0905	South Fork		Stream Survey	N/A	Fair to Poor

[1] Ecological sites listed here can be referenced to SCS Ecological Site Descriptions (SCS 1983)
[2] Ecological status is referred to here in terms of the percent potential natural plant community (PNC) present on the site

Table 2A. Key Management Area Objectives — Bullhead 2

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

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Table 2A. Key Management Area Objectives

Bullhead 1

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

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Table 2A. Key Management Area Objectives — Bullhead 3

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

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Table 2A. Key Management Area Objectives

Bullhead 4

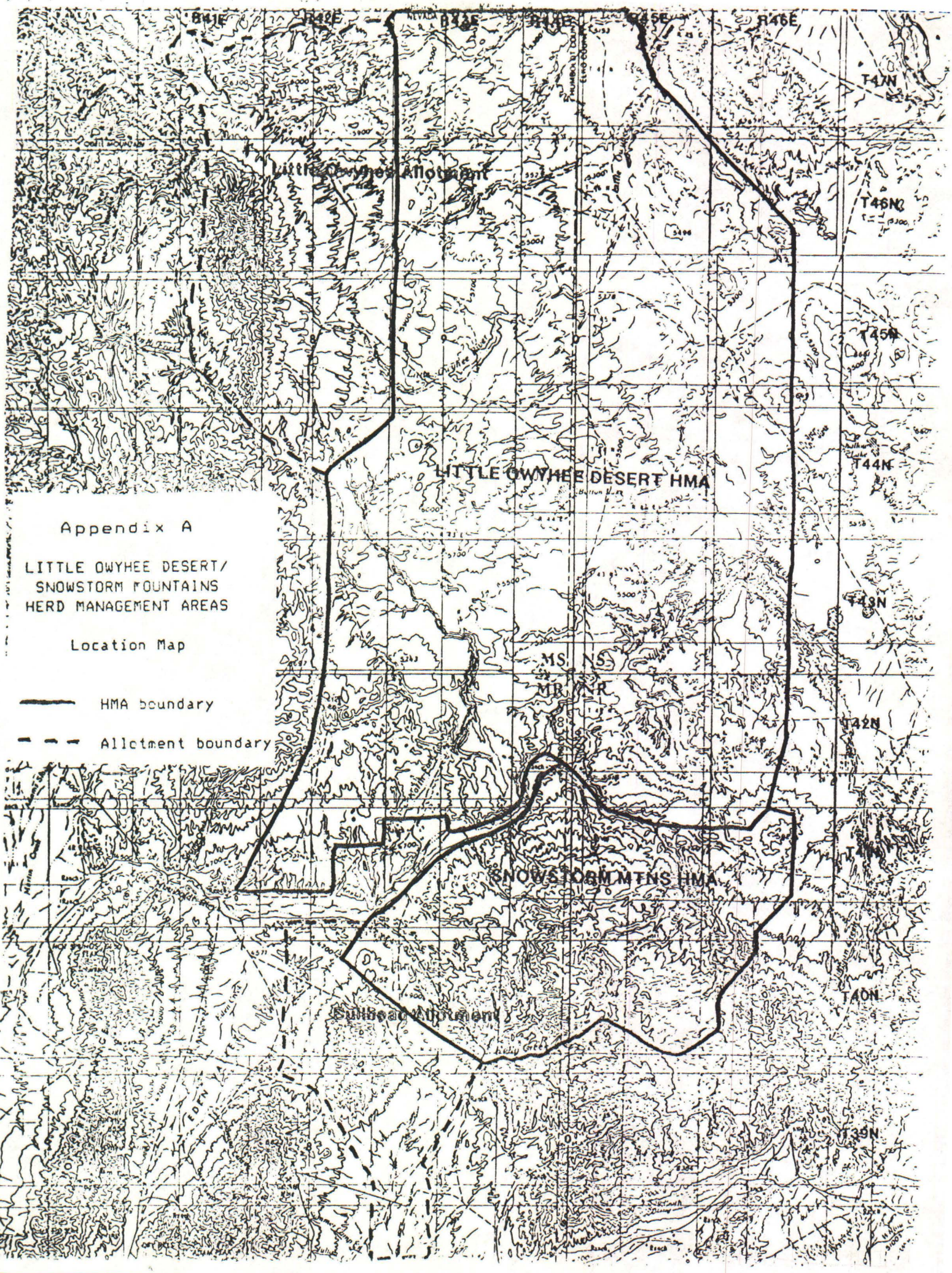
KEY AREA NUMBER	KEY SPECIES[1]	ALLOWABLE USE LEVELS[2]	DESIRED ECOLOGICAL STATUS[3]	INTERIM (5 YEARS) FREQUENCY TREND[4]	SHORT TERM (10 YEARS) FREQUENCY TREND	SHORT TERM (10 YEARS) ECOLOGICAL STATUS OBJECTIVES[4]	LONG TERM (35 Years) FREQUENCY TREND	LONG TERM (35 Years) ECOLOGICAL STATUS OBJECTIVES
0801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

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Bibliography

Siniff, D.B., J.R. Tester, R.D. Cook, and G.L. McMahon. 1982. Census methods for wild horses and burros. Univ. Minn. Dep. Ecol. and Behav. Final Rep. to BLM on Contract AA858-CTO-52. 83 pp.

Wolfe, M.L. 1980. Feral horse demography: a preliminary report, Journal of Range Management 33:354-360.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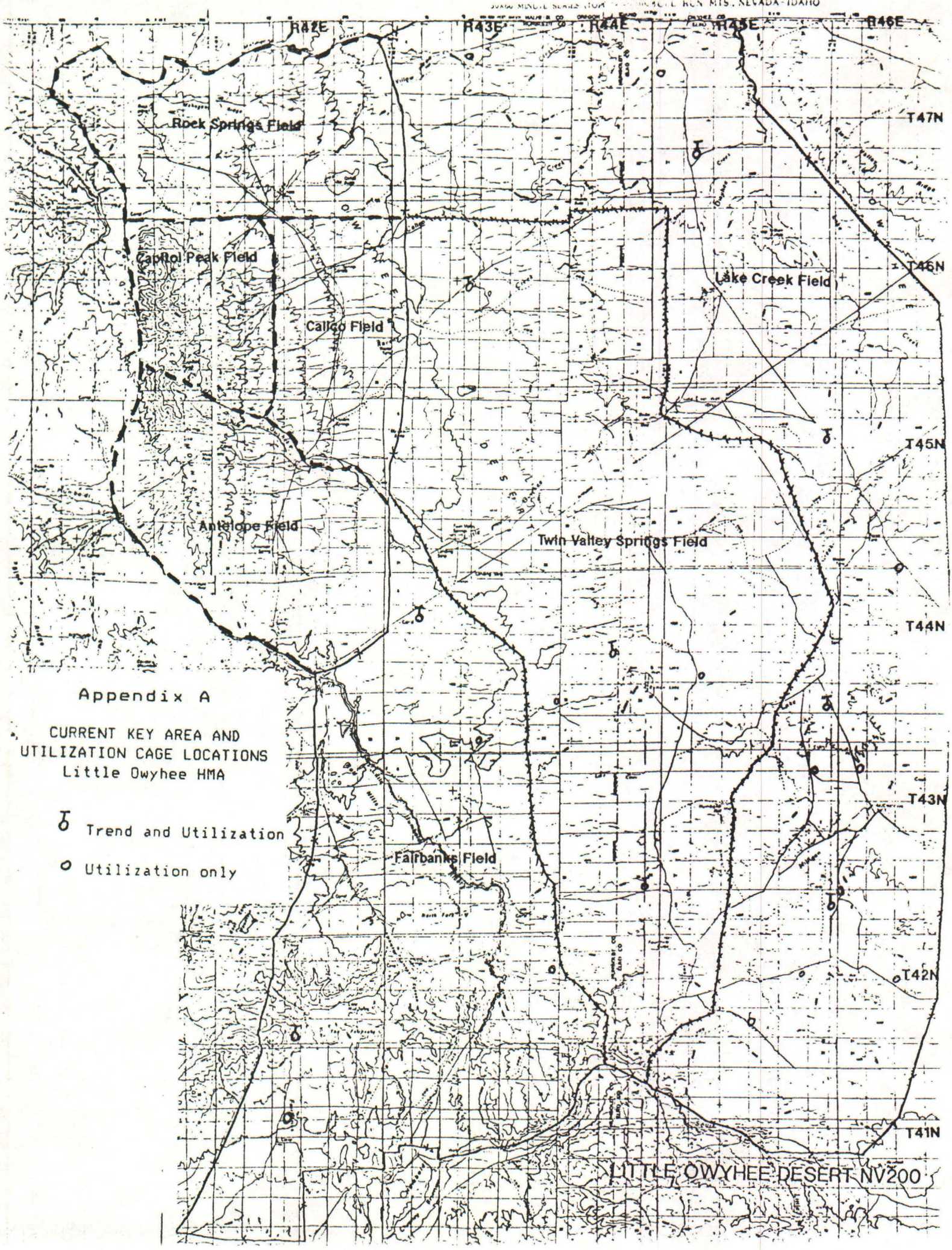
R42E
R43E
R44E
R45E
R46E
T47N
T46N
T45N
T44N
T43N
T42N
T41N
T40N
T39N
Little Owyhee Allotment
LITTLE OWYHEE DESERT HMA
MS NS
MR NR
SNOWSTORM MTNS HMA
Bullhead Allotment
Appendix A
LITTLE OWYHEE DESERT/
SNOWSTORM MOUNTAINS
HERD MANAGEMENT AREAS
Location Map
HMA boundary
Allotment boundary

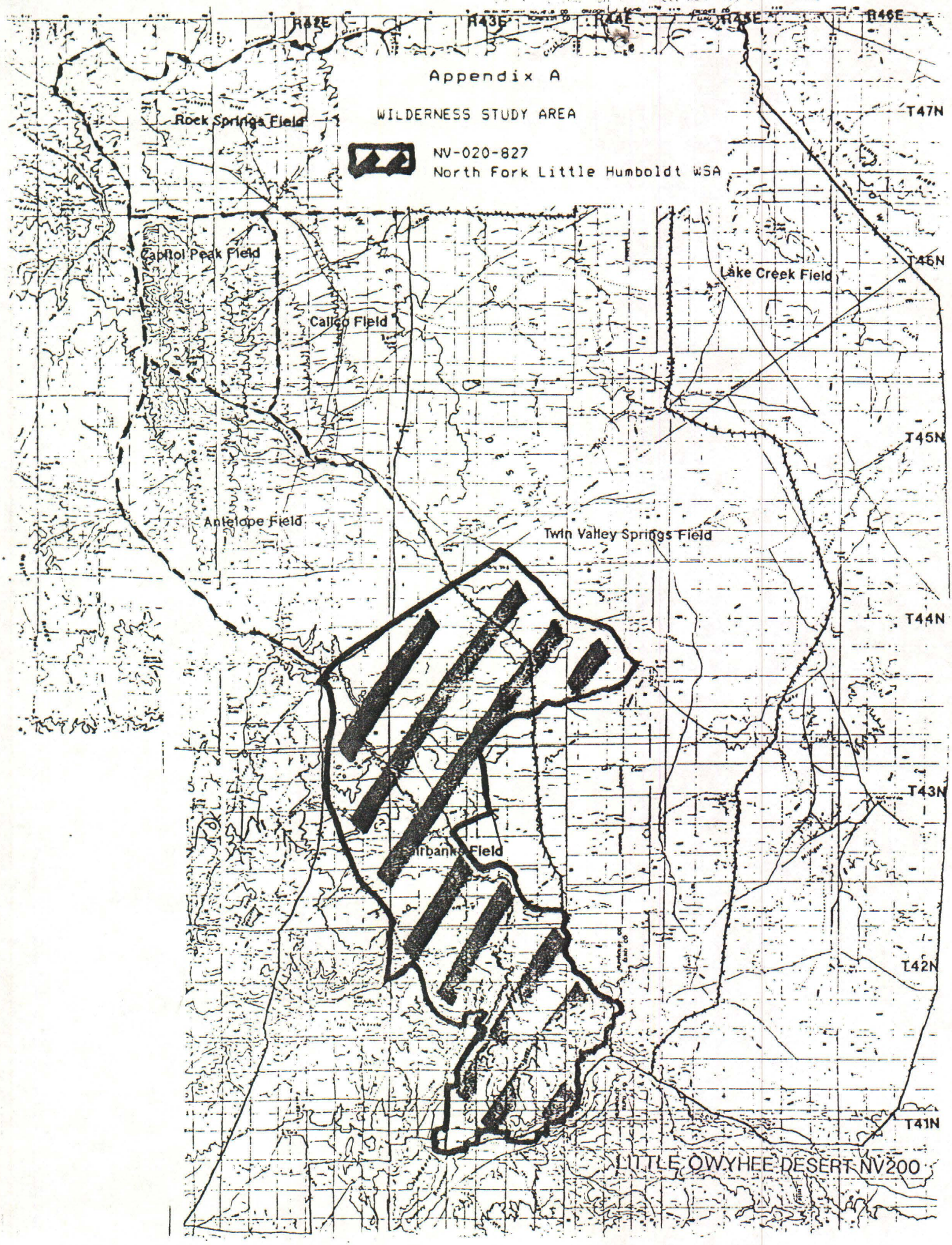

R42E
R43E
R44E
R45E
R46E
T47N
T46N
T45N
T44N
T43N
T42N
T41N
Rock Springs Field
Capitol Peak Field
Calico Field
Lake Creek Field
Antelope Field
Twin Valley Springs Field
Fairbanks Field
Appendix A
CURRENT KEY AREA AND
UTILIZATION CAGE LOCATIONS
Little Owyhee HMA
Trend and Utilization
Utilization only
LITTLE OWYHEE DESERT NV200

Appendix A

CURRENT KEY AREA AND UTILIZATION CAGE LOCATIONS Snowstorm Mtns HMA

δ Trend and Utilization

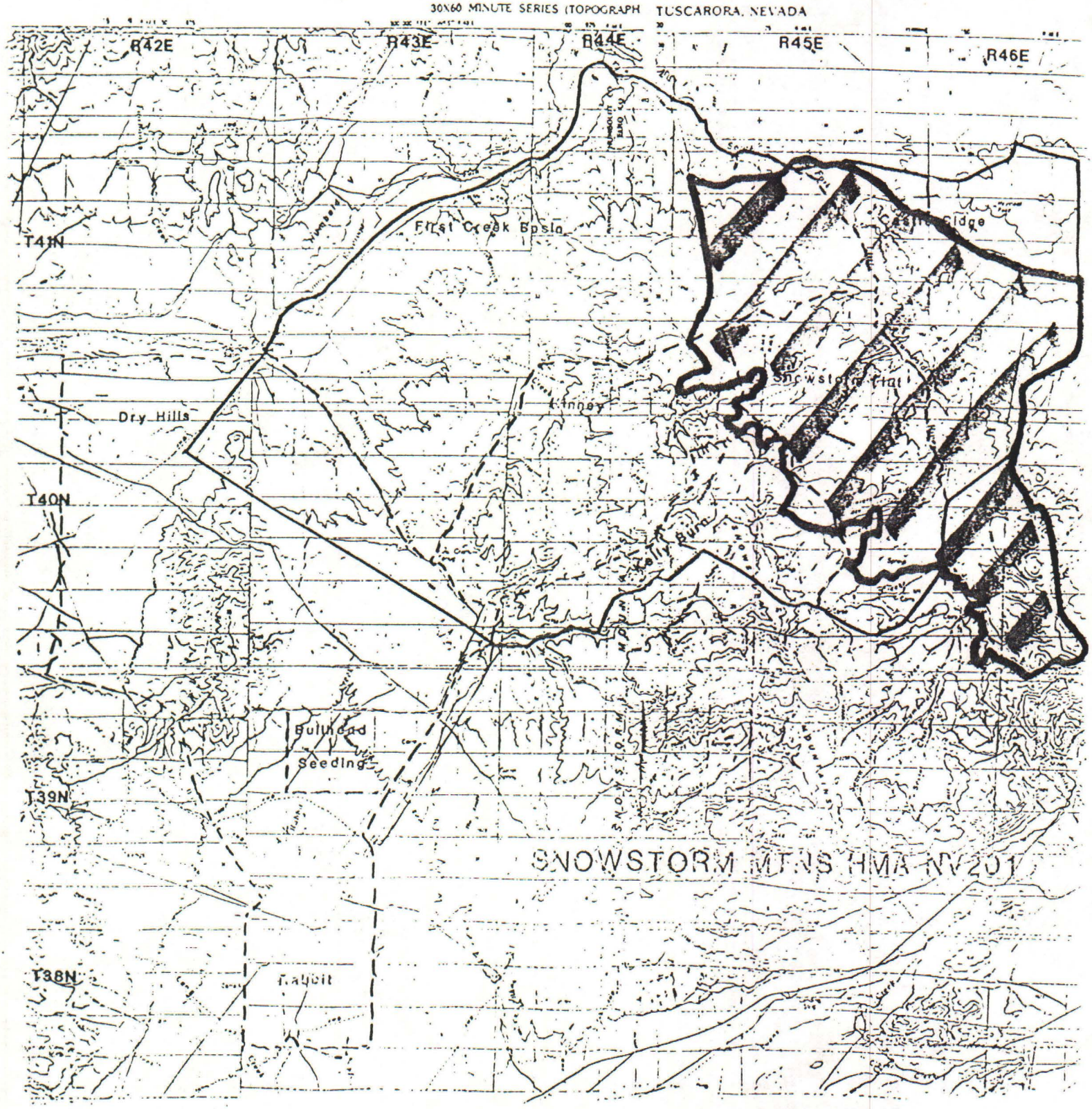
o Utilization only


R42E
R43E
R44E
R45E
R46E
Appendix A
WILDERNESS STUDY AREA
NV-020-827
North Fork Little Humboldt WSA
Rock Springs Field
Capitol Peak Field
Calico Field
Lake Creek Field
Antelope Field
Twin Valley Springs Field
T47N
T46N
T45N
T44N
T43N
T42N
T41N
LITTLE OWYHEE DESERT NV200

Appendix A

WILDERNESS STUDY AREA

NV-010-132
South Fork Little Humboldt WSA



APPENDIX B

Range Improvements

Water Sources (Little Owyhee Allotment)

FAIRBANKS FIELD

Reservoirs

Legal location	Name	Project No.	Date Const.	Date Reconst.	Comments
41N-42E-10 SW NW	FAIRBANKS	0431	1948		
41N-42E-11 NW SW					
41N-42E-19 NW NE	MCCLEARY	0871	1958		
42N-42E-09 SE SW					
42N-42E-15 NW SW	JACKRABBIT	0430	1948		
42N-42E-15 NW SE					
42N-42E-28 SW NE					
42N-42E-33 NW NW					
42N-43E-06 NW SW					
42N-43E-06 SW NW					
42N-43E-07 SE NE	WHISKEY SPRING				
42N-43E-23 SE SE					
42N-43E-26 SW SW					
42N-43E-30 SW NE					
42N-44E-21 SE NE					
43N-42E-03 NW NE					
43N-42E-13 NE SW	BIG	0216	1946		
43N-42E-23 SW NE					Not a viable reservoir
43N-42E-26 NE SW	BULL PEN				
43N-42E-36 NW SW					
43N-43E-15 SE NE					

Springs

42N-42E-04 NE NW	MUSTANG SPRING			Private land
42N-42E-10 NE SE	CHUKAR SPRING	4924	1985	Developed spring
42N-42E-14 SW NE	LITTLE MUD SPRING	4704	1975	Developed spring
42N-43E-07 SE NE	WHISKEY SPRINGS			

Small waterhole

41N-42E-19 NE SW

Natural depression/playa

43N-43E-27 NW NW

Miscellaneous water sources

42N-43E-28,32}	NORTH FORK LITTLE HUMBOLDT RIVER	Perennial, mostly
41N-43E-5 }		private land

LAKE CREEK FIELD

Reservoirs

41N-45E-02	NW	NE				
42N-45E-03	NW	NE				
42N-45E-04	SE	NE				
42N-45E-13	SW	NE				
42N-45E-21	NE	NW				
42N-45E-29	SE	NE				
42N-45E-29	SE	NE	ROCKY			
42N-45E-32	SE	NW				
42N-45E-34	SE	NE				
42N-46E-06	SE	NW				Dam broken
42N-46E-06	SW	NW				
43N-45E-14	SW	SE				
43N-46E-21	SE	SW				
43N-46E-28	NW	NE				Needs cleaned out
44N-45E-25	SE	NW	OWYHEE #8	4504	1963	
44N-45E-25	SE	SW				
45N-45E-07	SE	NW				Private land
45N-45E-25	NE	NW	REED & TAYLOR	4727	1930	1982 Pvt water right
45N-46E-30	NE	NW	OWYHEE #43	4509	1963	1981
47N-43E-05	NW	SE				
47N-43E-06	SE	SE				
47N-43E-06	SW	NW	WILLOW SPRING			
47N-44E-10	SE	NW				
47N-45E-07	NE	SW	CATHCART			
47N-45E-07	SE	NW				
47N-45E-27	SW	SE	LAKE CREEK	4498	1963	1985

Wells

42N-46E-18	NW	SE	MCCLEARY WELL #2			Private water right
43N-46E-20	SE	NW	MCCLEARY WELL #1			" " "
44N-45E-13	NE	NE	CORRAL LAKE WELL	4003	1971	" " "

Pipelines

44N-45E-12	SE	SE	CORRAL LK PIPELIN	4258	1971	Private water right
44N-45E-24	SW	NE	CORRAL LK PIPELIN	4258	1971	" " "
44N-46E-06	NE	NE	CORRAL LK PIPELIN	4258	1971	" " "
44N-46E-06	SW	SW	CORRAL LK PIPELIN	4258	1971	" " "
45N-45E-03	SW	NE	CORRAL LK PIPELIN	4258	1988	" " "
45N-45E-13	NE	SE	CORRAL LK PIPELIN	4258	1988	" " "
45N-45E-13	NW	NW	CORRAL LK PIPELIN	4258	1988	" " "
45N-46E-19	SW	SE	CORRAL LK PIPELIN	4258	1988	" " "
46N-44E-02	NW	SE	MAIDEN SPR PIPELN	0141	1962	" " "
47N-44E-36	SW	NE	MAIDEN SPR PIPELN	0141	1988	" " "
47N-45E-30	SW	NE	MAIDEN SPR PIPELN	0141	1988	" " "

Small waterholes

47N-45E-07	SW	SE
47N-45E-17	SW	SW
47N-45E-18	SE	NE
47N-45E-20	SW	SW
47N-45E-29	NW	SW

Natural depressions/playas

42N-46E-03 NE SW					
44N-45E-01 NE SW					
44N-45E-13 NE SE					
44N-46E-15 SE SE					

Miscellaneous water sources

41N-45E-15&16	RODEAR FLAT (South Fork Little Humboldt River)				Perennial, partially private land

TWIN VALLEY SPRINGS FIELD

Reservoirs

42N-44E-04 SE SE					
42N-45E-07 SW SE	FOUR MILE	4729	1964	1982	
43N-43E-25 NW SE	NEW				
43N-44E-25 NW SE					
43N-44E-25 SE NE					
43N-45E-03 NE SW					
43N-45E-04 SW SE	OWYHEE #9	4501	1963		
43N-45E-05 SE SW	OWYHEE #10	4500	1963		
43N-45E-07 NE SW					
43N-45E-08 SW NW					
43N-45E-28 SE NW					
43N-45E-29 NE NE	OWYHEE #44	4503	1963		
43N-45E-29 SW SW	OWYHEE #14	4502	1963		
43N-45E-30 NW SW	EIGHT MILE	4731	1964	1982	
44N-43E-12 SW NE					
44N-43E-25 SW NW	OWYHEE #13	4499	1963	1982	
44N-44E-22 NW NW	MCCLEARY	0034	1961		
44N-44E-35 SW NE	BUTTON LAKE	0327	1962		
44N-44E-36 NE NW					
44N-45E-04 NE SE					
44N-45E-04 NW SE					Needs cleaned out
44N-45E-07 SW SW					
44N-45E-11 SW SE	OWYHEE #25	4508	1963		
44N-45E-11 SW SW					
44N-45E-14 NW SE	OWYHEE #22	4507	1963		
44N-45E-23 SW SW	OWYHEE #21	4506	1963		Needs cleaned out
44N-45E-24 NW NW	OWYHEE #20	4505	1963		
44N-45E-34 SW SE					
45N-45E-33 SE NW					
46N-43E-12 NE NW					

Springs

45N-43E-28 NE SW	TWIN VALLEY SPRINGS				

Wells

44N-44E-25 NW SE	BUTTON LAKE WELL	0694	1965		Private water right

Pipelines

46N-43E-01 SW SW	MAIDEN SPR PIPELN 0141	1962	Private water right
46N-43E-10 SW NE	MAIDEN SPR PIPELN 0141	1962	" " "
46N-43E-16 SE NW	MAIDEN SPR PIPELN 0141	1962	" " "
46N-43E-17 SE SE	MAIDEN SPR PIPELN 0141	1962	" " "
46N-44E-10 NE NE	MAIDEN SPR PIPELN 0141	1962	" " "

Small waterholes

46N-43E-11 NE NW
46N-43E-11 NE NW
46N-43E-19 SE SE
46N-44E-10 NE NE

Miscellaneous water sources

42N-44E-23 NW SE	MILLIGAN CREEK	Perennial
42N-44E-26 NE	MILLIGAN CREEK MARSH	private land

All waters on BLM land except where noted.

Other projects (Little Owyhee Allotment)

Name	Legal	Proj. No.	Date const.
Gonda Division Fence	41N-41E	0550	
Fairbanks Management Fence	42-45N,43-44E	4711	1975
North Fork Stream Improvement	43N-42E	4397	
Twin Valley Capture Corral	45N-43E-28	4746	
Lake Creek Management Fence	41-46N,43-45E	4693	1977
Button Lake Capture Corral	44N-44E-25		
McCleary #1 Capture Corral	43N-46E-20		
Maiden Springs Pipeline Capture Corral	47N-45E-30		

Proposed projects (Little Owyhee Allotment)

Name	Legal
Twin Valley Well	45N-44/45E
Whiskey Springs Development	42N-43E-7
Gas Pipeline Rd Cattleguard	46N-46E-21

APPENDIX B

Water Sources (Bullhead Allotment)

DRY HILLS FIELD

Reservoirs

Legal location	Name	Project No.	Date Const.	Date Reconst.	Comments
39N-43E-06 NW NE	BULLHEAD #1	4103		1983	
39N-43E-09 NE NE	TOBIN	0412	1946	1981	
39N-43E-10 SW NE	MEYER	0413	1946	1981	
40N-42E-23 NE SE	BULLHEAD #2	4103		1983	
40N-43E-19 SE SW	DRY HILLS	4797		1983	
40N-43E-29 SE NW	MAIN ROAD	4796		1983	

Wells

39N-42E-04 NW NE	HOT SPRINGS WELL	4231	1972		
39N-43E-06 SE NW					
39N-43E-09 SW SW	BULLHEAD SDG WELL	4230	1968	currently inoperative	

Pipelines

40N-42E-21 SW NW	DRY HILLS PIPELN.	4806	1983	attached to H.S. well	
40N-42E-33 NE NW	DRY HILLS PIPELN	4806	1983	(private water right)	

Miscellaneous

39N-43E-1,11,12	KELLY CREEK			Private land	

FIRST CREEK BASIN FIELD

Reservoirs

40N-43E-12 NW	SURPRISE	4814	1983		
40N-44E-03 NE NE	CLEAVAGE	4813	1968	1981	
40N-44E-03 SE NW					
40N-44E-04 SW NE					
41N-44E-14 NE SE	ERNIE	4919	1984		
41N-44E-25 NW SE					
41N-44E-26 NW NW					
41N-45E-19 SE SE					
41N-45E-32 NE SE	RIMROCK	4798	1968	1981	

Seeps

41N-43E-15 SE NE					

Springs

40N-43E-12 NW	SURPRISE SPRING				
41N-43E-11 NE SE	LAYTON SPRING				Private land
41N-44E-14 NE SE	ERNIE SPRING				
41N-44E-15 SW SW					
41N-44E-16 NE SW					

Miscellaneous

41N-45E-15&16	RODEAR FLAT (South Fork Little Humboldt River)				Perennial, partially
41N-45E-23	CASTLE PLACE " " " " "				private land

KINNEY FIELD

Seeps

39N-44E-06 NW NW
40N-43E-25 SE SE
40N-43E-25 SW NE
40N-43E-36 NW SW
40N-44E-11 NE SE
40N-44E-11 SE NE
40N-44E-11 SW NE
40N-44E-12 NW NW
40N-44E-12 SW NW
40N-44E-12 SW SW

Springs

40N-43E-13 SE NE
40N-43E-26 NE SW KELLY CREEK SPRING
40N-43E-36 SW NE
40N-44E-02 SE SE
40N-44E-03 SW NE
40N-44E-06 NW SE
40N-44E-09 NE SW
40N-44E-09 SE SE
40N-44E-11 NE SE
40N-44E-11 NW NE
40N-44E-11 SW NE
40N-44E-11 SW SE
40N-44E-12 NW NW
40N-44E-14 NW NE
40N-44E-16 NW NW
40N-44E-16 NW SW
40N-44E-18 NE NE
40N-44E-18 NE SE
40N-44E-18 NW SW

Miscellaneous

40N-43E-36 KENNY CREEK
40N-44E-1,2,10,11 FIRST CREEK Private land
40N-44E 20-1,29,30 KENNY CREEK " "

KELLY BURN FIELD

Seeps

40N-44E-24 SE NE
40N-44E-32 NW SE
40N-45E-19 SE SW
40N-45E-19 SE SW
40N-45E-19 SE SW
40N-45E-30 SE NE
40N-45E-30 SW SE
30N-45E-31 NE NE

Springs

40N-44E-13	SE	SE
40N-44E-21	SW	NE
40N-44E-23	NE	SW
40N-44E-23	NE	SW
40N-44E-24	NW	SW
40N-44E-24	SE	NE
40N-44E-25	SE	SE
40N-44E-25	SE	SE
40N-44E-26	NE	NE
40N-44E-32	SW	SE
40N-44E-33	NE	NE
40N-44E-33	NE	NE
40N-44E-33	NW	SW
40N-44E-33	NW	SW
40N-44E-33	NW	SW
40N-44E-33	SW	NW
40N-44E-33	SW	NW
40N-45E-18	SE	SE
40N-45E-19	NW	NE
40N-45E-19	NW	NE
40N-45E-19	SE	NW
40N-45E-19	SE	NW
40N-45E-19	SE	SW
40N-45E-19	SE	SW
40N-45E-19	SE	SW
40N-45E-20	SW	NW
40N-45E-30	NE	NE
40N-45E-30	NE	SE
40N-45E-30	NE	SE
40N-45E-30	NW	NE
40N-45E-30	NW	NW
40N-45E-30	NW	NW
40N-45E-30	NW	SE
40N-45E-30	NW	SE
40N-45E-30	SE	NE
40N-45E-30	SE	SE
40N-45E-30	SW	NE
40N-45E-31	NE	NE
40N-45E-31	NE	NE
40N-45E-31	NE	NE
40N-45E-31	NE	NE
40N-45E-31	NW	NE

Miscellaneous

39N-44E 3-6	KELLY CREEK	Private land
40N-44E-12,13}	SNOWSTORM CREEK	" "
40N-45E-7 }		
40N-45E-20	WINTERS CREEK	" "

SNOWSTORM FLAT FIELD

Springs
40N-45E-32 NE NW

Miscellaneous

40N-45E 4-7	SNOWSTORM CREEK	
40N-45E-5,6 }	FIRST CREEK	Partly private land
41N-45E-34,35}		
40N-45E-14,21,22	WINTERS CREEK	" " "
40N-45E 26-7,32-4	POLE CREEK	" " "

All waters are on BLM land except where noted.

Other Projects -- Bullhead Allotment

Name	Legal	Proj. No.	Date const.
Bullhead Seeding Fence	39N-43E	1038	1967
Snowstorm Fire Rehab Fence	40N-45E	4720	1976
North Fork Cattleguard	41N-42E	0546	1964
Bullhead Seeding Cattleguard	39N-43E	1134	1968
Rodear Flat West Cattleguard	41N-45E	4848	1983
Rodear Flat East Cattleguard	41N-45E	4848	1983
Snowstorm Short Fence	40N-44E	4871	1986
Snowstorm Fence	40N,43-45E	4875	1986
South Fork Fence	40,41N-45E	4510	1988
Snowstorm Fire Rehab CGs	40N-45E-20	4721	1976
	40N-44E-12		
First Creek Cattleguard	40N-44E-2	4877	1983
First Creek/Dry Hills Division Fence	40N-42,43E		1989

Proposed projects (Bullhead Allotment)

Name	Legal
Haystack Peak Reservoir	41N-46E-20

APPENDIX E

LITTLE OWYHEE ALLOTMENT
MONITORING PLAN

Paradise-Denio Resource Area
Winnemucca District Office
Bureau of Land Management

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Little Owyhee Monitoring Plan

I. Introduction

The purpose of this plan is to describe the monitoring program that will be implemented in the Little Owyhee Allotment as part of the Little Owyhee Coordinated Resource Management and Planning (CRMP) Plan (Winnemucca CRMP Local #1, 1982). It is intended to provide a basis for assessing the relative success of grazing and wildlife habitat management in achieving the specific objectives set forth in the CRMP Plan. Short and long-term management actions and/or decisions will be based upon the evaluation of the results of these monitoring studies.

The geographical area addressed in this plan includes over .5 million acres of public land located in northeastern Humboldt County and northwestern Elko County. The region is bounded by the Santa Rosa Mountains on the west, the South Fork of the Little Humboldt River on the south, and continues north to the Oregon and Idaho state lines forming a broad plateau known as the Little Owyhee Desert. (See Allotment Map in Appendix.)

Land ownership within the allotment is:

BLM - Winnemucca District	=	361,810 acres
BLM - Elko District	=	204,489 acres
Private	=	13,509 acres
TOTAL	=	579,808 acres

In general, elevation within the allotment increases in a westerly direction varying from 4,500 to 7,500 feet. Two vegetative complexes predominate the region: 1) the eastern half is characterized by shadscale (Atriplex confertifolia), budsage (Artemisia spinescens), Wyoming big sagebrush (Artemisia tridentata var. wyomingensis), ricegrass (Oryzopsis hymenoides), squirreltail (Sitanion hysterix), and cheatgrass (Bromus tectorum) and 2) the western half is dominated by low sagebrush (Artemisia arbuscula), bluegrass (Poa spp.), bluebunch wheatgrass (Agropyron spicatum), Thurber's needlegrass (Stipa thurberiana), squirreltail (Sitanion hysterix), and rabbitbrush (Chrysothamnus spp).

The Paradise-Denio Unit Resource Analysis (URA, BLM 1980) identified the following resources which should be considered in the management of this allotment: fisheries, watershed, wild horses, livestock grazing, riparian areas, wildlife habitat, recreation, mining, [illegible] resources.

II. Public Involvement and Interdisciplinary Approach

The multidisciplinary approach that will be used in this plan is based on guidelines established by the Winnemucca District Coordinated Monitoring Plan (BLM 1984a, Sect. V). Because any single management

decision affects diverse resources, specialists and/or interested parties representing wildlife, wild horses, livestock grazing, watershed, range, and other interests will be involved in monitoring planning, placement of key management areas and studies, and evaluation of current studies.

Public participation to date has included: 1) Winnemucca CRMP Local #1, which recommended on February 12, 1982 a management plan for the Little Owyhee Allotment including objective #17, "Establish an on-going monitoring system for all objectives", and 2) Nevada First Corporation, base property owner to which grazing privileges are attached for the Little Owyhee Allotment.

Participation of public land users and other interests will be encouraged during all planning, initiating, and implementation of monitoring activities.

III. Historical Use

The CRMP process recommended the following stocking rates as objectives to meet forage demand for livestock, wildlife and wild horses:

	Livestock	44,882 AUMs
	Deer	200 AUMs
	Antelope	1,233 AUMs
(when introduced)	Bighorn Sheep	72 AUMs
	Wild Horses	3,840 AUMs
	TOTAL	50,227 AUMs

Normal livestock season of use has been from April 1 through September 30. Following is a summary of Actual Use for 1981-86.

Year	AUMs
1981	17,861
1982	4,910
1983	11,857
1984	16,943
1985	14,609
1986	8,213

IV. Allotment Issues

Major issues concerning the Little Owyhee Allotment as outlined by CRMP #1 are listed below (Winnemucca CRMP #1, 1982). The issues shown in this section are limited to resource problems that can be affected by grazing management and that can be evaluated through a monitoring system.

1. Proper long range stocking rate.
2. Present condition of the riparian habitats.
3. Wildlife problems as delineated by NDOW.
4. Watershed problems

5. Constraints placed upon livestock user and the riparian areas by the wilderness study area.
6. Lack of management and population control of wild horses.
7. Lack of range improvements.
8. Development of native meadows.

V. List of Allotment Objectives

Allotment objectives developed by the CRMP committee for the Little Owyhee Allotment are listed below (Winnemucca CRMP #1, 1982). These are objectives for which monitoring can be used to evaluate their status and are limited to resource concerns to which grazing management practices may be applied. Pertinent issues (listed under Sec. IV) which these objectives address are shown in parenthesis.

1. Establish proper long range stocking rates for livestock, wild horses, and wildlife (issue no. 1).

2. Establish proper initial stocking rates, season of use and pasture schedule for livestock (issue no. 1).

3. Establish a wild horse management plan.

   a. Perpetuate a viable herd which is manageable and compatible with livestock operations, wildlife, and resources available (issues nos. 1, 6).

   b. Preserve unique types and primitive mustang markings (issues no. 6).

   c. Reduce internal barriers to herd migration within wild horse herd area (issue no. 6).

4. Improve condition of riparian habitats (issues nos. 2.5).

5. Improve ecological status on the allotment to a level which provides for optimum use by livestock, wild horses and wildlife (all issues).

6. Develop range improvement programs to:

   a. Repair and up-grade current improvements (issue No. 8).
   b. Increase range capacities to achieve objective #1 (issues nos. 1,8).
   c. Control pests and noxious weeds (issues nos. 7,8).
   d. Control watershed problems (issues nos. [illegible]).
   e. Enhance and protect wildlife areas (issues nos. 3,8).

7. Establish reasonable numbers for wildlife demand (issue no. 3).

8. Design grazing system to protect and enhance shrub, forb, winterfat, and meadow areas critical to wildlife populations (issues nos. 1, 2, 3, 9).

9. Protect sage grouse strutting grounds (issue no. 3).

10. Develop potential waterfowl habitats (issue no. 3).

11. Establish an on-going monitoring system for all objectives (all issues).

VI. Intensity and Type of Studies, and Key Management Area Objectives

A. Monitoring Objectives

Table 1 lists the types of monitoring studies established, their locations, and baseline ecological condition data.

Table 2 outlines specific interim, short-term and long-term objectives for each key management area.

Additional monitoring studies and key areas will be implemented on special habitat features including meadows, riparian, aspen and mahogany. When these studies and implemented, these tables will be revised to include the additional studies.

B. Allotment Categorization

The Selective Management categorization process in the Paradise-Denio Resource Area has identified the Little Owyhee as an "I" allotment. It is ranked number 1 in priority in the Resource Area's management/monitoring effort. See Winnemucca District Coordinated Monitoring Plan (BLM 1984a).

C. Intensity and Type of Studies

All studies will comply with the "Nevada Rangeland Monitoring Handbook" (N.R.T.F., 1984), the "Winnemucca District Coordinated Monitoring Plan" (BLM, 1984a), and BLM manuals (BLM 1984b, 1984c, 1984d, 1985).

1. Climatological

Climatological data (including daily temperature and precipitation) for the Paradise Valley station is available through the National Oceanic and Atmospheric Administration (N.O.A.A., 198_). Additional "local" climatic data may be obtained from selected locations using rain cans and/or hygrothermographs.

2. Actual Use

Actual use records will be submitted by the permittee(s) at the end of each grazing season. These records will include numbers, locations, and dates of livestock placement and removal, and other information that may be pertinent to the permittee's livestock operation or to grazing management

Forage usage by wildlife (mule deer, antelope, bighorn sheep) will be figured based on annual population estimates as determined by the Nevada Department of Wildlife (NDOW). Wild horse forage use will be based on aerial census data. These combined data (livestock, wildlife and wild horses) will be used to figure overall forage consumption within the allotment.

3. Trend

Frequency will be used to detect changes in species composition over time. It provides a reliable and relatively unbiased estimate of the population. Data will be collected as described in "Nevada Rangeland Monitoring Handbook" (N.R.T.F., 1984). It will then be stored and analyzed using program "Object", a Bureau computer program, and statistical procedures as outlined by Nevada Range Task Force, 1984. As statistically significant changes in species composition are noted, the current ecological status will be reevaluated.

Key area objectives will be reviewed and/or adjusted based on ecological condition and measured trend status.

4. Utilization

The key forage plant method as described in the "Nevada Rangeland Monitoring Handbook" (N.R.T.F., 1984) will be used to collect wildlife, livestock, and wild horse utilization data. Wire cages will be placed on key areas as references for calibration purposes. Where key browse species (i.e., mtn. mahogany or bitterbrush) are prevalent, browse inventory procedures will be used in accordance with the Winnemucca District Wildlife Study Procedures (BLM, 1983).

5. Use Mapping

Use patterns will be mapped using utilization data as well as information obtained through consultation with permittees. Light (21-40%), moderate (41-60%), and heavy (61-80%) utilization classes will be used in mapping livestock use.

6. Ecological Status

Ecological status will be determined for each key area using the double sampling technique as described in the National Range Handbook (SCS, 1976). Ecological status is defined as the seral stage, i.e., early seral, mid-seral, late seral, or potential natural community (PNC), occupied by a community at a specified point in time.

The ecological site for a given location and community is based on species and life-form composition, vegetative production, soils, topography, and climate. Ecological site descriptions are written and developed by the Soil Conservation Service (SCS) for ecological sites within a Major Land Resource Area (MLRA).

7. Wild Horse and Burro Distribution

Range used by wild horses can effectively be monitored in pastures rested from livestock use, using the same studies implemented to monitor livestock use. When livestock and wild horses use the same pasture, differentiating the user can be difficult. Aerial census and other observation data will be helpful in determining areas of use and the relation to forage use. An aerial census of the Little Owyhee Herd Use Area will be done every third year at a minimum. The inventory data will also be used to plot distribution and document animal condition.

8. Wildlife Habitat

Key management areas are selected and established using an interdisciplinary (coordinated) approach. Hence, ecological status, trend, and utilization studies involving wildlife habitat can be evaluated using the methods described in 3, 4, and 6 (above) for most key areas. In cases where wildlife key areas and other studies must be established independently, these studies will be established and monitored in accordance with the Winnemucca District Wildlife Study Procedures (BLM, 1983).

VII. Schedule for Conducting Studies

Scheduling of studies will be done in accordance with monitoring priorities established in the Resource Area. Dates of interim, short-term, and long-term time periods are as follows:

Interim (first 5 years):	1986 to 1990
Short-term (first 10 years):	1986 to 1995
Long term (35 years):	1986 to 2020

Table 3 summarizes the schedule for when each type of monitoring study will be read during the interim and short-term periods. During the evaluation at the end of each time period, a new utilization and frequency schedule will be established.

A. Climatological

Climatological data is collected daily by NOAA for the Paradise Valley station. Data will be analyzed annually to estimate the effects of crop-year precipitation on herbage production and to correlate with forage utilization studies and general observations.

B. Actual Use

Actual use records will be submitted annually by each livestock operator and compiled in the allotment studies file. Wild horse actual use will be figured based on inventory totals and recorded in the allotment studies file. Wildlife forage use will be determined on an "as needed" basis.

C. Use Mapping

Livestock, wild horse and wildlife use patterns will be mapped initially prior to location and establishment of key management areas. Subsequently use pattern mapping will be performed to evaluate suitability of key area locations, the value of range improvements, and changes in management which may alter livestock distribution.

D. Frequency

1. Interim: All studies will be read the first and fifth year. Thereafter, frequency will be read when an evaluation is to be conducted or every fifth year.

2. Short-term: Read every fifth year.

3. Long-term: Read every fifth year until a statistically significant change in trend is noted. After short-term objectives have been accomplished, monitor every five years.

F. Ecological Status

Ecological status transects will be reevaluated upon measurement of a statistically significant change in frequency (trend) data to determine progress towards accomplishment of management objectives. Sampling should occur when the pasture involved has been rested.

G. Utilization

1. Interim - read whenever the pasture is used by livestock, wildlife or wild horses at the end of the scheduled grazing use, or as needed to differentiate between animal users.

2. Short-term - Studies will be read every year until allowable utilization levels have been achieved for a full grazing cycle. At this point future scheduling will be evaluated and determined.

3. Long-term - if allowable utilization levels have not been achieved, continue short-term scheduling.

VIII. Schedule for Conducting Allotment Evaluation

A. Evaluation Process

Monitoring data will be summarized and analyzed in accordance with the Winnemucca District Coordinated Monitoring Plan (BLM, 1984a). It will then be included into the appropriate section of the Little Owyhee Study file. The summarized data will be analyzed and interpreted by the area range conservationist and/or by those persons selected by the area supervisory range conservationist.

The Bureau computer program "Object" will be used to determine significant changes in percent frequency.

Analyses will be based on the attainment of key area and overall allotment objectives, identifying which objectives were not met and why the objectives were not met (if known). Analysis and interpretation will be done in consultation with the supervisory range conservationist and staff monitoring specialist. The supervisory range conservationist will submit a recommendation for further action (if required) to the Area Manager.

Subsequent analysis and changes to the grazing system or Monitoring Plan will be made on a case by case basis, as directed by the Area Manager and supervisory range conservationist in consultation with the permittees and other affected interests. In 1991 a formal management decision for the Little Owyhee Allotment will be issued based on the available data collected during the interim period. However, if no change is indicated then no decision will be issued and data will be collected according to the following schedule.

B. Evaluation Schedule

Evaluation schedules of monitoring data will be based on Resource Area priorities. A basic schedule is shown below, with specific dates to be filled in on approval of this plan and after a decision to monitor has been issued.

1. Interim: Evaluate on the third year and at the end of the first five years

1988	(year 3)
1990	(year 5)

2. Short-term: Evaluate at end of eight and tenth year.

1993	(year 8)
1995	(year 10)

3. Long-term: After interim and short-term, evaluate every five years.

2000	(year 15)
2005	(year 20)
2010	(year 25)
2015	(year 30)
2020	(year 35)

C. Management Alternatives

Table 4 lists possible management actions available to the BLM, when monitoring indicates objectives are met or not met on the allotment.

IX. Coordination of Work Force and Authority to Initiate Plan

The Paradise-Denio Resource Area range conservationist, wildlife biologist and/or these persons appointed by the Area Manager and supervisory range conservationist shall be responsible for the coordination and carrying out of this plan.

Monitoring and evaluation are authorized under various laws, including: The Taylor Grazing Act of June 28, 1934, as amended; The Federal Land Policy and Management Act of October 21, 1976, as amended; The Public Rangeland Improvement Act of October 25, 1978; and The National Environmental Policy Act of 1969.

Table 1. Monitoring Studies Locations and Baseline Data

Little Owyhee 1

AREA NO. (PASTURE)	KEY AREA NAME	LOCATION	TYPE OF STUDY(S)	ECOLOGICAL SITE[1]	ECOLOGICAL STATUS[2]
0101 (Antelope)	Greely Crossing	T.45N., R.42E., Sec. 32 SE SE	Trend Utilization	025x22N (cobbly claypan 8-12" p.z.)	63% Late Seral
0102 (Antelope)	Forks Ranch	T.45N.,R.41E., Sec. 22 NW NW	Trend Utilization	025x19N (loamy 8-10" p.z.)	63% Late Seral
(Antelope)	Antelope Spring	T.45N., R.42E., Sec. 29 NE NE	Utilization	N/A	N/A
0201 (Calico)	Maiden Spring	T.45N., R.42E., Sec. 3 NE NE	Trend Utilization	025x19N (loamy 8-10" p.z.)	52% Late Seral
0202 (Calico)	Calico Ranch	T.46N., R.42E., Sec. 4 SE SE	Trend Utilization	025x19N (loamy 8-10" p.z.)	29% Mid-Seral
0301 (Capitol)	Capitol Peak	T.46N., R.42E., Sec. 7 SE SE	Trend Utilization	025x14N (loamy 10-12" p.z.)	42% Mid-Seral
0401 (Fairbanks)	Fairbanks Creek	T.41N., R.42E., Sec. 4 SE NW	Utilization	N/A	N/A
0402 (Fairbanks)	Mud Spring	T.42N., R.42E., Sec. 21 NE SE	Trend Utilization	025x19N (loamy 8-10" p.z.)	68% Late Seral
0403 (Fairbanks)	North Fairbanks	T.44N., R.42E., Sec. 8 SE NW	Trend Utilization	025x18N (claypan 10-12" p.z.)	57% Late Seral
0501 (Lake)	Northern Lake Creek	T.47N., R.45E., Sec. 32 NE NW	Trend Utilization	024x4N (silty 4-8" p.z.)	25% Early Seral
0502 (Lake)	McCleary No. 2A	T.42N., R.45E., Sec. 12, SW NE	Trend Utilization	025x19N (loamy 8-10" p.z.)	40% Mid-Seral
0503 (Lake)	McCleary No. 1	T.43N., R46E., Sec. 7 SW SE	Utilization	N/A	N/A

1 Ecological sites listed here can be referenced to SCS Ecological Site Descriptions (SCS 1983)

2 Ecological status is referred to here in terms of the percent potential natural plant community (PNC) present on the site

Table 1. Monitoring Studies Locations and Baseline Data

Little Owyhee 2

Y AREA NO. PASTURE)	KEY AREA NAME	LOCATION	TYPE OF STUDY(S)	ECOLOGICAL SITE[1]	ECOLOGICAL STATUS[2]
0504 ake)	Lake Creek	T.44N., R.45E., Sec. 36 SE SE	Trend Utilization	025x19N (loamy 8-10" p.z.)	36% Mid-Seral
0505 ake)	Corral Lake	T.44N., R.46E., Sec. 4 SW SW	Utilization	N/A	N/A
0506	Pipeline	T.45N., R45E., Sec. 13 NW SE	Trend Utilization	024X20AR ~~025x19N~~ (loamy 8-10" p.z.)	LATE SERAL AC ~~37% Mid-Seral~~
0507 ake)	McCleary No.2B	T.42N., R.45E., Sec. 12 NE NE	Utilization	N/A	N/A
0601 Rock Springs)	Mahogany Ridge	T.47N., R.42E. Sec. 13 NE NE	Utilization	N/A	N/A
0602 Rock Springs)	Piccolo	T.47N., R.42E., Sec. 30 SE SE	Trend Utilization	025x19N (loamy 8-10" p.z.)	34% Mid-Seral
0603 Rock Springs)	Rock Spring	T.47N., R.41E., Sec. 22 NE NW	Trend Utilization	025x14N (loamy 10-12" p.z.)	SD MID SERAL ~~Mid-Seral~~
0701 Twin)	Fourmile	T.43N., R.44E., Sec. 36 SW SE	Trend Utilization	025x19N (loamy 8-10" p.z.)	73% Late-Seral
07 Twin)	Button Lake	T.44N., R.44E., Sec. 23 SW SE	Trend Utilization	025x19N (loamy 8-10" p.z.)	33% Mid-Seral
0703 Twin)	Maiden Pipeline	T.46N., R.43E., Sec. 16 NW NE	Trend Utilization	024x20N (Droughty loam 8-10" p.z.)	56% Late-Seral

[1] Ecological sites listed here can be referenced to SCS Ecological Site Descriptions (SCS 1983)
[2] Ecological status is referred to here in terms of the percent potential natural plant community (PNC) present on the site

Table 2. Key Management Area Objectives

Little Owyhee 1

KEY AREA NUMBER	KEY SPECIES[1]	ALLOWABLE USE LEVELS[2]	DESIRED ECOLOGICAL STATUS[3]	INTERIM (5 YEARS) FREQUENCY TREND[4]	SHORT TERM (10 YEARS) FREQUENCY TREND	SHORT TERM (10 YEARS) ECOLOGICAL STATUS OBJECTIVES	LONG TERM (35 Years) FREQUENCY TREND	LONG TERM (35 Years) ECOLOGICAL STATUS OBJECTIVES
0101	CRKPI	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Seral
	$STTH_2$	40						
	SIHY	40						
.02	CRKPI	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Seral
	SIHY	40						
	$STTH_2$	40						
0103	SIHY	40	Utilization Study Only					
	$STTH_2$	40						
0201	LUPIN	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Seral
	SIHY	40						
	$STTH_2$	40						
0202	CRKPI	50	Late Seral	Static	Upward	Mid-Seral	Upward	Late Seral
	SIHY	40						
	$STTH_2$	40						

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Table 2. Key Management Area Objectives

Little Owyhee 2

KEY AREA NUMBER	KEY SPECIES[1]	ALLOWABLE USE LEVELS[2]	DESIRED ECOLOGICAL STATUS[3]	INTERIM (5 YEARS) FREQUENCY TREND[4]	SHORT TERM (10 YEARS) FREQUENCY TREND	SHORT TERM (10 YEARS) ECOLOGICAL STATUS OBJECTIVES	LONG TERM (35 Years) FREQUENCY TREND	LONG TERM (35 Years) ECOLOGICAL STATUS OBJECTIVES
0301	CREPI	40	Late Seral	Static	Upward	Late Seral	Upward	Maintain Late Seral
	FEID	40						
	$STTH_2$	40						
0401	SIHY	40	Utilization Study Only					
402	AGSP	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Seral
	CREPI	50						
	SIHY	40						
	$STTH_2$	40						
0403	AGSP	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Seral
	CREPI	50						
	SIHY	40						
	$STTH_2$	40						
0501	$EULA_5$	50	Late Seral	Static	Upward	Mid-Seral	Upward	Late Seral
	ORHY	50						
	SIHY	40						

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Table 2. Key Management Area Objectives

Little Owyhee 3

KEY AREA NUMBER	KEY SPECIES[1]	ALLOWABLE USE LEVELS[2]	DESIRED ECOLOGICAL STATUS[3]	INTERIM (5 YEARS) FREQUENCY TREND[4]	SHORT TERM (10 YEARS) FREQUENCY TREND	SHORT TERM (10 YEARS) ECOLOGICAL STATUS OBJECTIVES	LONG TERM (35 Years) FREQUENCY TREND	LONG TERM (35 Years) ECOLOGICAL STATUS OBJECTIVES
0502	ORHY	50	Late Seral	Static	Upward	Mid-Seral	Upward	Late Seral
	POSE	50						
	SIHY	40						
0503	SIHY	40	Utilization Study Only					
	$STTH_2$	40						
0504	ORHY	50	Late Seral	Static	Upward	Mid-Seral	Upward	Late Seral
	POSE	50						
	SIHY	40						
0505	ORHY	50	Utilization Study Only					
	SIHY	40						
0506	$EULA_5$	50	Late Seral	Static	Upward	Mid-Seral	Upward	Late Seral
	ORHY	50						
	SIHY	40						

[1] Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2] Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3] This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4] Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Table 2. Key Management Area Objectives

Little Owyhee 4.

KEY AREA NUMBER	KEY SPECIES[1]	ALLOWABLE USE LEVELS[2]	DESIRED ECOLOGICAL STATUS[3]	INTERIM (5 YEARS) FREQUENCY TREND[4]	SHORT TERM (10 YEARS) FREQUENCY TREND	SHORT TERM (10 YEARS) ECOLOGICAL STATUS OBJECTIVES	LONG TERM (35 Years) FREQUENCY TREND	LONG TERM (35 Years) ECOLOGICAL STATUS OBJECTIVE
0507	ORHY	50	Utilization Study Only					
	$STTH_2$	40						
	SIHY	40						
0601	FEID	40	Utilization Study Only					
	$STTH_2$	40						
0602	CREPI	50	Late Seral	Static	Upward	Mid Seral	Upward	Late Sera
	ELCI	50						
	$STTH_2$	40						
0603	CREPI	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Sera
	SIHY	40						
	$STTH_2$	40						
0701	AGSP	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Sera
	CREPI	50						
	$STTH_2$	40						

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded when all monitoring objectives for that key area should be reevaluated.

Table 2. Key Management Area Objectives

Little Owyhee 5

KEY AREA NUMBER	KEY SPECIES[1]	ALLOWABLE USE LEVELS[2]	DESIRED ECOLOGICAL STATUS[3]	INTERIM (5 YEARS) FREQUENCY TREND[4]	SHORT TERM (10 YEARS) FREQUENCY TREND	SHORT TERM (10 YEARS) ECOLOGICAL STATUS OBJECTIVES	LONG TERM (35 Years) FREQUENCY TREND	LONG TERM (35 Years) ECOLOGICAL STATUS OBJECTIVES
0702	CREPI	50	Late Seral	Static	Upward	Mid-Seral	Upward	Late Seral
	ORHY	50						
	SIHY	40						
0703	ERIOG	50	Late Seral	Static	Static	Maintain Late Seral	Static	Maintain Late Seral
	ORHY	50						
	SIHY	40						

[1]Plant abbreviation codes are used here. These codes are identified in the Plant List (See Appendix).
[2]Allowable use levels are the objectives established for utilization. They are derived from the Paradise-Denio Grazing Environmental Impact Statement (BLM 1981).
[3]This is the Seral stage that would have the greatest value for all resources (livestock, wild horses, and wildlife).
[4]Frequency identified as static or upward. If an important plant forage species appears on a study that previously was not recorded, then all monitoring objectives for that key area should be reevaluated.

Table 3. Schedule for Reading Monitoring Studies — Little Owyhee 1

KEY AREA NO.	YEAR 1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
FREQUENCY	Based on phenology stages of key and associated species, frequency studies should generally be read from May to July, allowing for seasonal variation and site location.										
0101	X	X				X					X
0102	X	X				X					X
0201	X	X				X					X
0202	X	X				X					X
0301	X	X				X					X
0402	X	X				X					X
0403	X	X				X					X
0501	X	X				X					X
0502	X	X				X					X
0504	X	X				X					X
0506	X	X				X					X
0602	X	X				X					X
0603	X	X				X					X
0701	X	X				X					X
0702	X	X				X					X
0703	X	X				X					X

UTILIZATION

Utilization checks and use pattern mapping should be done when the livestock are removed or the end of the growing season, whichever comes first, or both if time and manpower permit.

TABLE 4. POSSIBLE MANAGEMENT ACTIONS THROUGH MONITORING EVALUATION

[illegible]	Livestock Distribution[2]	Climate[3]	Utilization Objectives[4]	Frequency Objectives[1]	Ecological Status Objectives[1]	Management Actions[5]
[illegible]	Good	Favorable	All.	N/A	N/A	May indicate understocking. [illegible] livestock [illegible] or periods-of-use.
	Poor	Favorable	All.	N/A	N/A	Indicates poor distribution. [illegible] distribution through [illegible] improvements, [illegible], etc.
	Good	Unfavorable	All.	N/A	N/A	Indicates unfavorable climatic conditions. If [illegible] for more than 2 years adjust livestock numbers or periods-of-use until climatic conditions, range [illegible] and utilization are favorable.
	Good	Favorable	All.	N/A	N/A	May indicate overstocking. Adjust livestock numbers or periods-of-use.
Short-term and Long-term	Good	Favorable	All.	Met	Met	Indicates understocking. Adjust livestock numbers or periods-of-use.
	Poor	Favorable	All.	Met	Met	Indicates poor distribution. [illegible] distribution through [illegible] improvements, [illegible], etc.
	Poor	Favorable	All.	Met	Met	Indicates poor distribution. [illegible] distribution [illegible]
	Good	Unfavorable	All.	Not Met	Not Met	Indicates unfavorable climatic conditions. If [illegible] exist for more than two years adjust livestock numbers or periods-of-use until monitoring indicates conditions are [illegible] favorable.
	Good	Favorable	All.	Not Met	Not Met	May indicate overstocking. Adjust livestock numbers or periods-of-use.
	Good	Favorable	All.	Not Met	Not Met	Trend and condition objectives not being met, [illegible] reasons. Reevaluate monitoring procedures and/or intensify monitoring.

1 Specific time frames and objectives are outlined in Section VI of this plan.

2 Distribution is identified as "good" (livestock well distributed throughout pasture) and as "poor" (livestock concentrated near riparian, watering sites, on flats, etc.).

3 Climate is identified as "favorable" or "unfavorable." Favorable and unfavorable conditions can be derived from deviations in normal temperature and precipitation patterns.

4 All. - less than the allowable use levels on any key species as shown in the monitoring plan.
All. - greater than the allowable use levels on any key species as shown in the monitoring plan.

5 This column shows the conclusions that can be derived from the combination of monitoring results from the other columns, as well as what management actions could be used to help the range meet monitoring objectives.

APPENDIX 1. Glossary of Terms

Allowable use level (AUL): Percent of above-ground [illegible] removed by grazing animals established to achieve [illegible]. Also referred to as "proper use factor (PUF)." [illegible]

Climax: See "potential natural community."

Double sampling method: Study method used for determining the plant composition of a vegetative community. It involves a transect where several plots are estimated as to the weight per species of current year's forage production, then representative plants are clipped and weighed to determine actual weight of material being produced (SCS 1976).

Ecological Site: A land designation identifying a specific potential natural plant community and specific physical site characteristics, differing from other kinds of land in its ability to produce vegetation and respond to management (SRM 1983). Also referred to as "range site" and "ecological range site."

Ecological Status: The present state of a vegetation and soil surface protection of an ecological site related to the potential natural plant community for that site (SRM 1983). Ecological status may be expressed in terms of a seral stage or as a percentage of species found in the potential natural community. This term is also referred to as "ecological range condition."

Frequency: A numerical expression of the presence or absence of individuals of a species in a population (BLM 1983). Frequency is shown as a percentage of a species occurrence within a series of samples (see quadrat-frequency method).

Key forage plant method: Study method used to determine utilization of key plant species. The method involves a transect where several plots are estimated as to the use being made on plants within each plot. In order to eliminate small variations in figures between different observers viewing the same plot, utilization classes are used instead of specific percentages (BLM 1981).

Key management area or key area: An area used as a monitoring point of grazing use because of its location, use and grazing value (BLM 1983). It is assumed that the key area will reflect the impacts of management over the rangeland.

Key species: (1) a forage plant species whose use [illegible] an indicator to the degree of use on other species or (2) [illegible] its importance, be considered in a management [illegible]

Phenological stage: Refers to the growth stage of individual plants.

Plant Code: An abbreviated method of identifying plant species. The method takes the first two letters of the genus (e.g., SI from Sitanion) and the first two letters of the species (e.g., HY from hystrix) for the plant code (e.g., SIHY = Sitanion hystrix). When more than one plant species has the same code, numbers are used to [illegible]

distinguish between them. The first five letters of a genus may be used if the species is not known (e.g., ARTEM = Artemisia sp.) or [illegible]. The SCS has published a standardized list of plant codes [illegible] 1982).

Plant Community: An assemblage of several species of plants in a common arrangement. Communities are usually expressed in terms of their most visually dominant plant species (e.g., Wyoming big sagebrush-bottlebrush squirreltail community, shadscale-bud sagebrush community).

Potential natural community (PNC): The plant community that would eventually become established under current environmental conditions without human interference (SRM 1983). PNC differs from "climax" in that climax is composed entirely of native plant species while PNC also takes into effect certain introduced plant species.

Quadrat-frequency method: Study method used to determine frequency. It uses a series of transects ran off a center line (baseline), each transect being composed of plots (quadrats) placed one after another in a line (BLM 1981). Frequency is expressed as the number of plots where a species is represented (number of plants of a species within each plot is not used) compared to the total number of plots in the study [e.g., of 50 out of 200 plots contained squirreltail, the frequency of squirreltail is (50 divided by 200) X 100 or 25%].

Seral stage or seral community: A plant community that represents a stage in an ecologcial site development as it approaches the potential natural community. Four seral stages are commonly used, each stage determined by the percent of the potential natural community represented in a particular plant community:

early seral	= 0-25% PNC
mid-seral	= 26-50%
late seral	= 51-75%
potential natural community	= 76-100%

Trend: The direction of change in ecological status or resource value observed over time (SRM 1983).

Usable forage: That portion of forage that can be grazed without damage to the basic resouces (SRM 1983). Allowable use levels are generally based on usable forage.

Utilization: The amount of plant material grazed off by animals. Generally referred to in terms of % utilization or by utilization classes:

Class	% Utilization
Slight	0-20
Light	21-30
Moderate	41-60
Heavy	61-80
Severe	81-100%

Utilization cage: A wire cage used to protect a plot from being grazed. Cages are placed on key areas so observers doing utilization studies will have ungrazed plants for calibration.

APPENDIX 2. Plant List[1]

Plant Code	Scientific Name	Common Name
BRTE	Bromus tectorum	Cheatgrass
AGSP	Agropyron spicatum	Bluebunch wheatgrass
ARAR$_5$	Artemisia arbuscula	Low sagebrush
ARSP$_8$	Artemisia spinescens	Bud sagebrush
ARTR	Artemisia tridentata	Big sagebrush
ATCO	Atriplex confertifolia	Shadscale
CHRYS	Chrysothamnus spp.	Rabbitbrush
CREPI	Crepis spp.	Hawks beard
ELCI	Elymus cinereus	Basin wildrye
ERIOG	Eriogonum spp.	Eriogonum
EULA$_5$	Eurotia lanata	Winterfat (white sage)
FEID	Festuca idahoensis	Idaho fescue
LUPIN	Lupine spp.	Lupine
ORHY	Oryzopsis hymenoides	Indian ricegrass
POTR$_5$	Populus tremuloides	Trembling aspen
POA	Poa spp.	Bluegrass
SIHY	Sitanion hysterix	Bottlebrush squirreltail
STTH$_2$	Stipa thurberiana	Thurber's needlegrass
SYOR	Symphoricarpos oreophilus	

[1] Codes and scientific names based on SCS (1982).

APPENDIX 3. Literature Cited

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APPENDIX E

Bullhead Allotment Monitoring Plan

July 1986

Paradise/Denio Resource Area
Winnemucca District Office
Bureau of Land Management

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Appendix 1. 20

I. Introduction

The purpose of this plan is to describe the monitoring program that is being implemented in the Bullhead Allotment.

The geographical center of the Bullhead Allotment is approximately 40 air miles northeast of Winnemucca, Nevada (See Map A).

The topography varies greatly throughout the allotment from relatively level greasewood flats in the southwest corner to mountainous terrain (Snowstorm Mountains) on the east side of the allotment.

There are a wide variety of species and types of vegetation. Generally, the vegetation ranges from salt desert shrub to the sagebrush vegetative complexes. Grass species associated with these complexes are squirreltail, Sandberg bluegrass, Thurber needlegrass, and Indian ricegrass. The vegetative types in the higher elevations are predominately big sagebrush-grass, aspen-grass, dry and wet meadows; bluebunch wheatgrass, Idaho fescue, and Thurber needlegrass. Of particular interest is the occurrence of the hybrid bunchgrass (Agrositanion saundersii (Saunder's wheatgrass). This grass is a hybrid of bluebunch wheatgrass and squirreltail, and is quite abundant in the Dry Hills and Kelly Spring areas.

Land ownership within the allotment is:

BLM - Winnemucca District	=	89,775 acres
BLM - Elko District	=	55,259 acres
Private	=	25,440 acres
Total		170,456 acres

The Paradise-Denio Unit Resource Analysis (URA) identified the following resources which should be considered in the management of this allotment: fisheries, watershed, wild horses, livestock grazing, riparian areas, wildlife habitat, recreation, mining, and cultural resources.

II. Background/Public Involvement/Interdisciplinary Approach

Monitoring studies were first established in the Bullhead Allotment in 1981. Utilization studies were the first method established in 1981 by the BLM and the permittee, Nevada Vaca, Inc. Key areas and trend plots were also established in 1984, 1985, and 1986 by the BLM and Resource Concepts, Inc. (RCI), using an interdisciplinary approach.

Public involvement has included the involvement by the permittee, Nevada Vaca in 1981. Resource Concepts, Inc., a private consulting firm from Carson City representing the current permittee, SECO, Inc., and representatives of SECO have been involved since 1983.

CRMP committee #1 approved a plan for the Bullhead Allotment on July 23, 1982, which included objective #17, "Establish a monitoring system for all objectives" for the Bullhead Allotment.

This monitoring plan is written as an interdisciplinary document considering livestock, watershed, wildlife and wild horse resource values.

Participation of public land users and other interested parties will be encouraged during all planning and initiation of monitoring activities.

III. Historical Use

Bullhead Allotment Actual Use for 1980

Date	Number	Days	AUMs	Pasture
03/06 to 03/12	304 C	7	71	No pasture schedule available for this year.
03/13	405 C	1	13	
03/14 to 03/16	543 C	3	54	
03/17	672 C	1	22	
03/18 to 03/31	812 C	14	379	
04/01 to 04/17	1,188 C	17	673	
04/18 to 05/23	1,588 C	36	1,906	
05/24 to 08/15	1,615 C	82	4,414	
08/16 to 09/11	1,248 C	27	1,123	
09/12 to 09/26	829 C	15	415	
09/27 to 11/07	343 C	41	469	
11/08 to 11/13	135 C	6	27	
11/14 to 11/15	42 C	2	3	
11/16 ----	24 C	1	1	
			9,570	

Bullhead Allotment Actual Use for 1981

Date	Number	Days	AUMs		Pasture
03/01 to 03/14	400 C	14	187	-	Seeding
03/15 to 03/17	1,314 C	3	131	-	Dry Hills
03/18 to 05/14	1,478 C	27	2,808	-	Dry Hills
05/15 to 08/24	1,587 C	100	5,290	-	Summer Pastures/Burn
08/25	1,272 C	1	42	-	Summer Pastures/Burn
08/26 to 09/27	1,089 C	32	1,162	-	Summer Pastures/Burn
09/28 to 10/02	1,016 C	5	169	-	Summer Pastures/Burn
10/03 to 10/09	358 C	7	84	-	Summer Pastures/Burn
10/10 to 10/11	148 C	2	10	-	Summer Pastures/Burn
10/12	24 C	1	1	-	Summer Pastures/Burn
			9,884		

Bullhead Allotment Use for 1982

No Livestock Use

Bullhead Allotment Actual Use for 1983

Date	Number	Days	AUMs		Pasture
04/15 to 05/30	890 C	16	475	-	Dry Hills
05/01 to 06/30	780 C	60	1,560	-	Dry Hills
07/01 to 07/25	780 C	25	650	-	First Creek
07/26 to 09/30	778 C	65	1,686	-	Kelly Burn
10/01 to 10/18	778 C	18	467	-	Bullhead Seeding
			4,838		

Bullhead Allotment Actual Use for 1984

Date	Number	Days	AUMs		Pasture
03/24 to 4/14	160 C	26	139	-	Dry Hills
04/15 to 04/21	421 C	7	98	-	Dry Hills
04/22 to 06/17	537 C	56	1,002	-	Dry Hills
03/25 to 04/20	243 C	27	219	-	Bullhead Seeding
04/21 to 04/24	354 C	4	47	-	Bullhead Seeding
04/25 to 06/17	428 C	53	756	-	Bullhead Seeding
10/08 to 10/29	854 C	22	448*	-	Bullhead Seeding
06/18 to 06/30	965 C	13	418	-	Dry Hills
07/01 to 07/31	960 C	31	960	-	Kinney Creek
08/10 to 08/15	810	15	405	-	Kinney Creek
08/16 to 09/30	860	45	1,290	-	Kelly Burn
12/06 to 01/15	424 C	40	565	-	Dry Hills
12/06 to 01/15	260 C	40	347	-	Rabbit
03/01 to 02/28	Wild Horses		3,092	-	Entire Allotment except Kelly Burn/ Seeding
			9,786		

*Trespass cattle, spent approximately 28% of time and animals on private meadows used in conjunction with seeding.

Bullhead Allotment Actual Use for 1985
(Summary - Detailed Info in District Studies File)

Date	Livestock	AUMs	Pasture
04/16 to 07/02		3,306	First Creek
07/02 to 09/05		495	Kinney Creek
07/02 to 09/05		495	Kelly Creek (Upper)
01/17 to 02/28			Rabbit
03/01 to 02/28	Wild Horses	1,553	Entire Allotment except Kelly Burn/ Seeding

Mule deer, pronghorn antelope, and bighorn sheep have made historical use of the Bullhead Allotment. Although bighorn sheep do not presently occur in the allotment provisions have been made through CRMP to provide forage to meet the future AUM demand of a reintroduction. (Refer to Section V.) Forage was also provided to meet the AUM demand of reasonable numbers of mule deer and pronghorn as shown in Section VI of this plan. For more information, see the Paradise URA Step III for the Bullhead Allotment.

IV. Allotment Issues

Major issues concerning the Bullhead Allotment that were established by the CRMP #1 are listed below. These issues are limited to resource problems that can be effected by grazing management and that can be evaluated through a monitoring system.

A. List of Major Problems/Issues

1. Heavy use in summer area by livestock and wild horses.
2. Proper long-term stocking rate and season of use.
3. Present condition of riparian habitats.
4. Watershed problems, South Fork Little Humboldt, First Creek, Snowstorm Creek.
5. Lack of range management and water developments.
6. Provisions for wildlife populations.
7. Possible sage grouse areas.
8. Wild horses unmanaged, uncontrolled numbers.

V. Allotment Management Objectives

Objectives developed by the CRMP committee, Bullhead AMP, and draft HMP are listed below. These are objectives which monitoring can be used to evaluate. They are limited to resource problems affected by grazing; are measurable within a reasonable time frame, do not conflict with each other, are feasible and capable of accomplishment.

A. Establish proper initial and long-term stocking rate, season of use, and pasture schedule for livestock.

B. Increase forage availability from 8,350 AUMs to 12,050 AUMs by 1992 through use of the rest-rotation grazing system for livestock.

C. Improve the fisheries habitat from poor to good condition on:

   a. South Fork, Little Humboldt River
   b. Pole Creek
   c. First Creek

D. Maintain and improve wildlife and fisheries habitat to a good condition on:

   a. Kelly Creek
   b. Kinney Creek
   c. Snowstorm Creek
   d. Winters Creek

E. Improve aspen stands to a good ecological condition, and insure that the number of stands are maintained or increased.

F. Manage rangeland habitat and forage condition to sustain sage grouse and reasonable numbers of wildlife demand as follows: (improve upland sites to late seral ecological condition)

a. Deer - 1,029 AUMs
b. Antelope - 101 AUMs
c. Bighorn Sheep - 370 AUMs
* Potential Bighorn Sheep forage demand

G. Protect and preserve wild horses as a self-sustaining healthy population. Set an initial level of 600 AUMs.

H. Maintain or improve meadows to mid seral ecological condition.

VI. Intensity, Monitoring Objectives, and Types of Studies

A. Monitoring Objectives

Table I lists key areas, utilization plots, stream survey studies and their location and base data.

Table IIA shows studies to be used on Key Management areas established and the specific monitoring objective for each area. Table IIB lists objectives for stream survey studies. Interim, short-term and long-term objectives are shown for each study. Items listed in this table are explained as follows.

Interim, Short-term and Long-term Objectives

Time period for each study is listed below.

Interim - 5 years
Short-term - 10 years
Long-term - 35 years

1. Ecological Site and Ecological Status

Each key area will be evaluated by qualified personnel to determine the ecological status according to the Ecological Inventory Method (USDI 1983a). Each site will be verified by the BLM soils and ecological site crew in correlation with the SCS during the condition classification survey.

2. Key Plant Species

These are plant species that serve as indicators of use on associated plant species. Key species are cited in this table by Data Element Dictionary Symbols which are identified as follows:

6. Condition

Ecological status will be determined initially in 1985, 1986, and 1987, using the Ecological Inventory Method (USDI 1983a).

7. Wild Horse Numbers

Aerial census of the Little Owyhee/Snowstorm Herd Use Area will be done every third year at a minimum. An animal condition survey will be done concurrently.

8. Wildlife Studies

Wherever possible wildlife habitat studies will be coordinated with range, and wild horse and burro resources during the key area selection process. Ecological condition status, utilization and trend data will be shared as will the workload. In instances where wildlife key areas and studies must be established separate from range these studies will be established in accordance with the Wildlife Habitat Studies Program Procedures for the Winnemucca District and associated BLM Manuals.

VII. Schedule for Conducting Studies

Table III shows when each study will be read during the interim time and short term period.

A. Utilization

1. Interim - read wherever the pasture is used by livestock, wildlife, or wild horses at the end of the scheduled grazing use, or as needed to differentiate between animal users.

2. Short-term - studies will be read until allowable utilization levels have been achieved for a full grazing cycle. Then studies will be read every other year during critical growing periods, or when the pasture is used.

3. Long-term - if allowable utilization levels have not been achieved, continue short-term scheduling. After objectives have been achieved, read studies during critical growing periods, when the pasture is used.

B. Frequency

1. Interim - all studies will be read every year for the first three years, then every third and fifth year starting in 1985.

2. Short-term - read every third and fifth year.

3. Long-term - read every third and fifth year until an upward trend is indicated. After short-term period objectives have been accomplished, monitor every five years.

C. Ecological Status

Read when frequency data indicates a significant change in trend. Ecological status should be sampled only in rested pastures when feasible. When not feasible, production can be adjusted based on utilization.

D. Actual Use Records

Actual use records will be submitted annually by operators.

E. Climatological Data

Data will be computed annually from NOAA documentation and a rain can location at the Bullhead Ranch.

F. Stream Habitat Survey

Aquatic habitat will be monitored in accordance with BLM Manual Supplement 6671.

VIII. Schedule for Conducting Allotment Evaluation

A. Evaluation Schedule

Evaluation schedules of monitoring data will be based on Resource Area priorities. A basic schedule is shown below, specific dates are to be filled in on the approval of this plan.

1. Interim: Evaluate on the third year and at the end of the first five years.

1988 (year 3)

1990 (year 5)

2. Short-term: Evaluate at the eight and tenth year.

1993 (year 8)

1995 (year 10)

3. Long-term: After interim and short-term, evaluate every five years.

2000 (year 15)

2005 (year 20)

2010 (year 25)

2015 (year 30)

2020 (year 35)

B. Evaluation Process

Monitoring data will be summarized in accordance with the Coordinated District Monitoring Plan when completed by person(s) gathering the data and included into the appropriate section of the Bullhead Study file. The summarized data will be analyzed and interpreted by the monitoring specialist or by those persons selected by the Area Supervisor Range Conservationist. Computer program OBJECT will be used to determine significant changes in percent frequency. Analysis and interpretation will be submitted as a short narrative to the Supervisory Range Conservationist and Staff Monitoring Coordinator. The Supervisory Range Conservationist will submit a recommendation of further action (if needed) to the Area Manager.

Analysis will be based on the attainment of key area objectives, in relation to overall allotment objectives, identifying which objectives were not met and identifying why the objectives were not met (if known).

Subsequent analysis and changes to the grazing system or Monitoring Plan will be made on a case by case basis, as directed by the Area Manager and Supervisory Range Conservationist in consultation with the affected permittees.

C. Schedule

As discussed in the previous section, data will be evaluated each year that data is gathered. This will provide guidance for a year to year effort to improve management. In 1990 a formal management decision for the Bullhead Allotment should be issued. Evaluation will continue as long as data is collected as discussed in Section VIII.

D. Management Alternatives Table IV for Variances

Table IV provides possible management actions available to the BLM, when monitoring indicates objectives are met or not met on the allotment.

IX. Coordination of Work Force and Authority to Initiate Plan

The Paradise-Denio Resource Area monitoring specialist or those persons appointed by the Area Manager and Supervisory Range Conservationist shall be responsible for the coordination and carrying out of this plan.

Costs as far as manpower and supplies needed for monitoring, processing of data, and evaluation of monitoring results should be projected at the beginning of each fiscal year. Actual costs of monitoring should then be computed at the end of the fiscal year. The information should be presented on Form NV-0920-6630-8 to aid in planning monitoring activities for the allotments.

Monitoring and evaluation are authorized under various laws, including The Taylor Grazing Act of June 28, 1934, as amended; The Federal Land Policy and Management Act of October 21, 1976, as amended; The Public Rangelands Improvement Act of October 25, 1978; and implementing regulations of The National Environmental Policy Act of 1969. See also BLM Manual Section 1734 and 43 CFR 4100.

Table 2B. Stream Survey Objectives

Key Area Number	Study Name	Key Habitat Factors	Desired Habitat Rating	Interim (5 Years)	Short Term (10 Years)	Long Term (25 Years)
0404	Kelley Creek	Bank Stability Bank Cover Habitat Condition	Good/Excellent	Upward trend	Good/Excellent	Good/Excellent
0903	First Creek	Bank Stability Bank Cover Habitat Condition	Good/Excellent	Upward trend	Good/Excellent	Good/Excellent
0904	Pole Creek	Bank Stability Bank Cover Habitat Condition	Good/Excellent	Upward trend	Good/Excellent	Good/Excellent
0905	South Fork	Bank Stability Bank Cover Habitat Condition	Good/Excellent	Upward trend	Good/Excellent	Good/Excellent

Table 3. Schedule for Reading Monitoring Studies **Bullhead 1**

KEY AREA NO.	YEAR 1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
FREQUENCY	Based on phenology stages of key and associated species, frequency studies should generally be read from May to July, allowing for seasonal variation and site location.										
0201	X	X	X		X			X		X	
0202	X	X	X		X			X		X	
0203	X	X	X		X			X		X	
0204	X	X	X		X			X		X	
0301		X	X	X		X			X		X
0302		X	X	X		X			X		X
0401	X	X	X		X			X		X	
0402		X	X	X		X			X		X
0403		X	X	X		X			X		X
0404		X			X					X	
0503		X	X	X		X			X		X
0601	X	X	X		X			X		X	
0602		X	X	X		X			X		X
0603		X	X	X		X			X		X
0801	X	X	X		X			X		X	
0802	X	X	X		X			X		X	
0901		X	X	X		X			X		X
0902		X	X	X		X			X		X
0903			X		X					X	
0904			X		X					X	
0905	X	X	X	X	X		X		X		X

UTILIZATION

Utilization will be read whenever the allowment/pasture is scheduled to be grazed. Utilization checks and use pattern mapping should be done when the livestock are removed or the end of the growing season, whichever comes first, or both if time and manpower permit.

TABLE 4. POSSIBLE MANAGEMENT ACTIONS THROUGH MONITORING EVALUATION

Evaluation Period[1]	Livestock Distribution[2]	Climate[3]	Utilization Objectives[4]	Frequency Objectives[1]	Ecological Status Objectives[1]	Management Actions[5]
Interim	Good	Favorable	AUL	N/A	N/A	May indicate understocking. Adjust livestock numbers or periods-of-use.
	Poor	Favorable	AUL	N/A	N/A	Indicates poor distribution. Change distribution patterns through range improvements, saltings, etc.
	Good	Unfavorable	AUL	N/A	N/A	Indicates unfavorable climatic conditions. If conditions exist for more than 2 years adjust livestock numbers or periods-of-use until climatic conditions, range condition, and utilization are favorable.
	Good	Favorable	AUL	N/A	N/A	May indicate overstocking. Adjust livestock numbers or periods-of-use.
Short-term and Long-term	Good	Favorable	AUL	Met	Met	Indicates understocking. Adjust livestock numbers or periods-of-use.
	Poor	Favorable	AUL	Met	Met	Indicates poor distribution. Change distribution patterns through range improvements, salting, etc.
	Poor	Favorable	AUL	Met	Met	Indicates poor distribution. Change distribution patterns.
	Good	Unfavorable	AUL	Not Met	Not Met	Indicates unfavorable climatic conditions. If conditions exist for more than two years, adjust livestock numbers or periods-of-use until monitoring indicates conditions are more favorable.
	Good	Favorable	AUL	Not Met	Not Met	May indicate overstocking. Adjust livestock numbers or periods-of-use.
	Good	Favorable	AUL	Not Met	Not Met	Trend and condition objectives not being met, for unknown reasons. Reevaluate monitoring procedures and/or intensify monitoring.

[1] Specific time frames and objectives are outlined in Section VI of this plan.

[2] Distribution is identified as "good" (livestock well distributed throughout pasture) and as "poor" (livestock concentrated near riparian, watering sites, on flats, etc.).

[3] Climate is identified as "favorable" or "unfavorable." Favorable and unfavorable conditions can be derived from deviations in normal temperature and precipitation patterns.

[4] AUL - less than the allowable use levels on any key species as shown in the monitoring plan.
AUL - greater than the allowable use levels on any key species as shown in the monitoring plan.

[5] This column shows the conclusions that can be derived from the combination of monitoring results from the other columns, as well as what management actions could be used to help the range meet monitoring objectives.

WILD HORSES AND BURROS		
Existing Use (AUMs)	Management Objectives 1/	Identified Monitoring Plan Components 2/
600	Initial reduction of wild horse numbers to 600 AUMs. Provide adequate forage for wild horses of 900 AUMs. Adjustments in wild horse AUMs, upward or downward, will be based upon monitoring of available forage for wild horses in the same proportion as the initial stocking rates for livestock and wild horses. Perpetuate a viable herd which is manageable and compatible with other resources. Preserve unique types and markings. Reduce internal barriers to herd migration.	1. Identify key areas 2. Identify ecological range sites for key areas Establish: 3. Utilization plots, studies 4. Photo & measured trend plots 5. Frequency transects 6. Condition transects 7. Monitoring schedules 8. Management actions for the following resources: wildlife habitat, range, wild horses, watershed, riparian, and aquatic wildlife

APPENDIX F

Allotment Vegetation Objectives

Little Owyhee Allotment

The following are the multiple use management objectives under which grazing on the Little Owyhee Allotment will be monitored and evaluated.

Short Term:

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

2) The objective for utilization of key streambank riparian plant species (CAREX, JUNCUS, POA, SALIX, ROWO) on the East Little Owyhee River is 30%. Utilization will be collected at the end of the grazing period.

3) The objective for utilization of key streambank riparian plant species (CAREX, JUNCUS, POA, SALIX, ROWO) on the North Fork of the Little Humboldt River is 30%. Utilization data will be collected at the end of the grazing period.

4) The objective for utilization of key upland plant species will be 50% for STTH2, SIHY, and FEID and it will be 40% for CREPIS, ELCI, POSE, AGSP, EULA5, ORHY, and LUPIN. Utilization data will be collected at the end of the grazing period.

Long Term:

1) Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with an initial stocking level of 27,800 AUMs.

2) Improve to and maintain the ecological status per key management area as determined in the Little Owyhee Monitoring Plan.

3) Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 288 AUMs for mule deer, 1,233 AUMs for pronghorn and 72 AUMs for bighorn sheep.

   a) Improve to and maintain 2,756 acres in Paradise Valley DY-1, 29,612 acres in Santa Rosa DY-10, and 44,210 acres in Santa Rosa DS-1 in good or excellent mule deer habitat condition.

   b) Improve to and maintain 2,490 acres in Mahogany Ridge PS-8, 25,837 acres in Santa Rose PS-7 and 21,608 acres in Little Owyhee PS-10 to good condition. Improve to and maintain 457,963 acres in Owyhee Desert PY-9, 17,847 acres in Maiden Butte PW-9, 2,306 acres in Evans Lake PW-10, 7,762 acres in Button Lake PW-11, 4,939 acres in Button Lake PS-9, 8,322 acres in Evans Lake PS-11, and 7,469 acres in Bullhead PW-13 in fair or good pronghorn habitat condition.

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

   a) Manage, maintain and improve public rangeland conditions to provide an initial level of 3,578 AUMs of forage on a sustained yield basis.

   b) Maintain and improve wild horse habitat by assuring free access to water and development of new permanent water sources.

5) Improve to and maintain 594 acres of riparian and meadow habitat types in good condition.

6) Improve to and maintain 21 acres of aspen habitat types in good condition.

7) Improve to and maintain 60 acres of mahogany habitat types in good condition.

8) Improve to and maintain the following stream habitat conditions on the North Fork of the Little Humboldt and the East Little Owyhee from 26% on the North Fork, unknown on the East Little Owyhee to an overall optimum of 60% or above.

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

9) Protect sage grouse strutting grounds and brooding areas. Maintain a minimum of 30% canopy cover of sagebrush for nesting and winter use.

10) Improve to or maintain the water quality of the North Fork Little Humboldt River and East Little Owyhee River to the State criteria set for the following beneficial uses: livestock drinking water, cold water aquatic life, wading and wildlife propagation and sport fishery.

Bullhead Allotment

The following are the multiple use management objectives under which grazing on the Bullhead Allotment will be monitored and evaluated.

(To be included following issuance of the final MUD for the Bullhead Allotment)

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