



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

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

IN REPLY REFER TO:

4000  
(NV-241.2)

December 13, 1993

Dear Interested Party:

Please find enclosed the draft Jackson Mountain Evaluation, which includes technical recommendations.

A draft Jackson Mountain Evaluation which did NOT include technical recommendations was mailed to interested parties on May 13, 1993. Participating interested parties provided information and ideas used to develop technical recommendations through written comments and at meetings.

Please provide your input on the enclosed draft evaluation by **January 14, 1994**. Please feel free to contact Lynnda Jackson of my staff if you have any questions or concerns regarding the enclosed draft evaluation. She can be reached at (702) 623-1500.

Sincerely yours,

Area Manager  
Paradise-Denio Resource Area

Enclosure

The reduction in stocking level under this alternative would be expected to allow upland utilization levels to be met. However, continuation of grazing during the hot summer months generally results in cattle congregating in riparian areas which may result in continued failure to meet riparian utilization objectives even with reduced numbers and further reductions may be needed.

In addition, the carrying capacity calculations were calculated to attain a 50% utilization level. It is recommended in this document that a utilization level of 30% (or a 4"-6" stubble height) of streambank riparian vegetation be implemented for Jackson, Mary Sloan and upper Trout Creeks. Because separate actual use data for this relatively small but important area is not available, separate carrying capacity calculations for this specific area can not be made. In order for this alternative to result in achievement of the streambank utilization objective of 30%, livestock use in those creek areas would be adjusted yearly based upon monitoring data from the previous year, until the stocking rate were determined that would allow the 30% utilization objective to be met. This would require that accurate actual use data be collected for this specific area. Again, hot season use tends to result in concentrated use on riparian areas and a lower carrying capacity is expected under hot season grazing than under early season use.

In summary, the advantages of this grazing system are that it will allow short term objectives to be met and therefore progress is expected towards meeting long term objectives. It would require no expenditures for new range improvements and no change in the permittee's livestock operation except in numbers of cattle. The disadvantage is that it would result in significant reductions in both horses and cattle use. In addition, with continued hot season use riparian areas may continue to be grazed above objective utilization levels and further reductions may be needed.



objectives are not identical to the objectives listed in either of the 1988 evaluation or the draft livestock use agreement nor is there a requirement that they be identical. The objectives listed have been a useful tool in evaluating past management. Future management will be designed to meet objectives established by decision or approved livestock management agreement. Please see page 42 for recommended objectives.

Comment- It should be noted that willow is a key species with an "allowable use level" of 30% utilization.

Response- This comment refers to the 30% allowable use level for willow displayed on Table 4 of the draft Paradise-Denio EIS. The EIS is an analysis document. The recommendation in MFP I and MFP II (W-3.2) to establish proper use levels for utilization was rejected in the MFP III for the reason that these levels may vary when other resources are adequately considered. No allowable use levels have been incorporated into the land use plan, MFP III.

Comment- Data should establish population estimate and recruitment rate to support an appropriate management level for the technical recommendations. These data should provide some insight as to how fast the herd will recruit and reestablish numbers after a gather.

Response- Population estimate and recruitment rate are included in this evaluation (see page 19 and Appendix 4). This data will be used to determine management action needed to maintain or obtain the appropriate management level when it is determined.

Comment- Range land monitoring data are absent for 1989 and 1990. We request the use pattern mapping data for these years be expressed in the final document.

Response- Use pattern mapping was not conducted in 1989 and 1990.

Comment- Mule deer utilize bitterbrush. Mule deer and cattle compete for bitterbrush during summer and early fall. According to the literature, "Improvement of Great Basin Winter Range with Livestock Grazing", Neal 1981, cattle prefer bitterbrush to perennial grasses during and after seedripeness. According to Bureau monitoring procedures, form class data and mule deer pellet counts are required to determine actual use of mountain browse by mule deer. Please provide supporting data and analysis to estimate mule deer use of bitterbrush in the final document.

Response- Form class data and mule deer pellet counts have not been collected. While these methods can suggest the principle

Calculation of Desired Stocking Level based on 1988 data:

$$\frac{8624^* \text{ AUMs}}{70\%} = \frac{\text{Desired Stocking Level (AUMs)}}{50\%}$$

Desired Stocking Level = 6160 AUMs

\* 8624 AUMs is the actual use at the time utilization studies were conducted. See page 21.

Calculation on Desired Stocking Level based on 1992 data:

$$\frac{7334^{**} \text{ AUMs}}{70\%} = \frac{\text{Desired Stocking Level (AUMs)}}{50\%}$$

Desired Stocking Level = 5289 AUMs

\*\* 7334 AUMs is the actual use at the time utilization studies were conducted. See page 25.

$$\text{Average Desired Stocking Level} = \frac{6160 \text{ AUMs} + 5289 \text{ AUMs}}{2 \text{ years}}$$

$$= 5725 \text{ AUMs}$$

The 5725 AUMs available would be apportioned between livestock and wild horses. Utilizing the proportions calculated from the land use plan the forage would be apportioned as follows:

Wild Horses:

$$5725 \text{ AUMs} \times 0.18 = 1031 \text{ AUMs}$$

$$\frac{1031 \text{ AUMs}}{12 \text{ months}} = 85.9 \text{ or } 85 \text{ horses}$$

Cattle:

$$5725 \text{ AUMs} \times 0.82 = 4695 \text{ AUMs}$$

Under this alternative the AML would be 85 horses. It is not known what affect this low AML would have on the genetic integrity of the population. Genetic baseline data will be collected through blood testing during gathers and will be monitored through future gathers.



**CONCLUSION**

Condition data has not been collected to evaluate obtainment of this objective.

Riparian class condition ratings, which evaluate cover and streambank stability, showed Trout Creek and Jackson Creek rated as "good." Mary Sloan Creek was rated "excellent."

Areas of heavy use on some riparian areas and meadows suggests that progress is not being made towards meeting this objective on portions of the allotment.

**9. OBJECTIVE**

Improve to or maintain the following stream habitat conditions from 55% on Mary Sloan Creek, 57% on Trout Creek and 53% on Jackson Creek to an overall optimum of 60% or above.

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

**CONCLUSION**

During stream surveys conducted by the Nevada Department of Wildlife (NDOW) brook trout were found in Jackson Creek and rainbow trout were found in Mary Sloan Creek. No fish were found in Trout Creek.

**JACKSON CREEK**

Results from stream survey data collected since 1976 for Jackson Creek show that although improvements in stream condition have been made since 1982, 1992 conditions were below acceptable levels of 60 percent for overall stream habitat condition. While several components of the overall habitat optimum met or exceeded desired levels, pool quality did not. Low stream flows resulting from the sixth consecutive year of drought have had a direct effect on pool quality ratings (by lowering them). Low to intermittent flows are also indirectly caused by other activities within the watershed. Jackson Creek had several sections that are below desirable habitat levels which will require several

DRAFT DOCUMENT WITH TECHNICAL RECOMMENDATIONS INCLUDED

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**Jackson Mountain Allotment Evaluation****I. Introduction**

- A. Jackson Mountain Allotment (00058)
- B. Permittee - DeLong Ranches, Inc.
- C. Evaluation Period - 10/14/83 to present
- D. Selective Management Category M

**II. Initial Stocking Level****A. Livestock Use**

- 1. Grazing Preference (AUMs)
  - a. Total Preference - 11,880 AUMs
  - b. Suspended Preference - 3,023 AUMs
  - c. Active Preference - 8,857 AUMs
- 2. Season of Use - 3/1 to 2/28
- 3. Kind and Class of Livestock - Cattle (cow/calf)
- 4. Percent Federal Range - 98%
- 5. Grazing System

- a. The permittee's grazing practices vary slightly each year depending upon livestock operations, weather conditions and water availability. The permittee's general grazing practice is to use the allotment predominantly during the spring and summer with some fall use and a limited amount of winter use. There are no interior pasture fences on the allotment. Natural barriers such as the steep mountain terrain of the Jackson Mountains, distance between waters and trailing livestock to various use areas help control



livestock use on the allotment. The following information outlines the permittee's general grazing practices by livestock use areas. Adequate information is not available to determine accurate actual use (AUMs) by use area:

(1) Winter Use Areas

Winter use occurs at the lower elevations on the south end of the allotment from Jungo Point Windmill to Hot Springs.

30-50 C 11/01 to 03/15

(2) Spring/Summer Use Areas

Approximately 1,525 head of cattle are trailed in different herd sizes on various days during the early spring months (03/15 to 04/30) from private land to several use areas throughout the allotment. The following information is a general description of livestock numbers by use areas, period of use and livestock management practices:

- (a) Cattle trailed from private land are scattered between Winter Camp, Salt Water Springs and Little Buck Brush Springs. The livestock move up slope along the west facing slopes of the south Jackson Mountains. In the first part of June, cattle that have not moved up slope are moved by riders. Cattle stay in this general location until July at which time cattle drift back towards private land. Between the middle of July and first of August gates are opened on private land.

300-335 C - 03/16 to 07/31

- (b) Cattle trailed from private land are scattered from the Buck Brush Springs area to as far north as the allotment boundary fence. As the season progresses, cattle drift up the mountain to higher elevations (Mary Sloan Basin, Upper Trout Creek, Iron King Mine and upper portion of Jackson

Creek). In the first part of June cattle that have not moved up slope are moved by riders. Cattle drift back to private land beginning in July.

225-275 C 04/01 to 08/15

- (c) Cattle are trailed from private land to the Jungo Hills Area where they scatter throughout the area.

125-150 C 04/01-04/05 to 08/15

- (d) Throughout the evaluation period cattle were trailed from the Seven Troughs Allotment, and from the area south and west of Hot Springs to Sulfur, to the Lewis Mine troughs, Railroad, Trail, Hidden, Sleep Camp, Smokey and Fox Springs. On 11/01 cattle were trailed back to Seven Troughs (240 cows) and Jackson Mtn. winter areas (30 to 50 cattle).

270-290 C 04/15 to 11/01

- (e) Throughout the evaluation period cattle were trailed from Blue Mountain and Humboldt Valley Allotments into the Donna Schee Pass area the latter part of April. Approximately half of these cattle move from the lower fans up to the higher elevations on their own between mid-May and mid-June. In June the remaining cattle were moved up the mountain to the Shawnee, Bull, Cedar, Clover and lower Trout Creek areas. Approximately August 1 gates on private land (Trout Creek Ranch) are opened and cattle drift in.

400-500 C - 04/24 to 08/15



(3) Summer/Fall

From the end of July through the beginning of August, cattle are gathered and put into private land at the same time they are drifting in as stated above. The number of cattle remaining varies on a yearly basis, but generally does not exceed 400 head.

300-400 C 08/15 to 09/30

4) 1993 Grazing Season

As the result of transfer of grazing privileges, beginning in the 1993 grazing season the permittee no longer has grazing privileges in the Humboldt Valley or Seven Troughs Allotments, and has acquired grazing privileges in the Mormon Dan Allotment. Livestock use of Jackson Mountain Allotment is scheduled to be similar to the use which occurred during the evaluation period. The permittee has been authorized to adjust cattle numbers and take additional non-use during the 1993 grazing season. The permittee identified excess wild horses as the reason for non-use.

B. Wild Horse Use

The Jackson Mountains Herd Management Area (HMA) encompasses a portion of the Jackson Mountain Allotment (see Appendix 5 for map of Jackson Mountains HMA). The Paradise-Denio Land Use Plan identifies 160 wild horses and 0 burros as a starting point for monitoring for the Jackson Mountain Allotment portion of the HMA. Portions of the Bottle Creek, Deer Creek, Wilder-Quinn, and Happy Creek Allotments are also included in the Jackson Mountains HMA. An appropriate management level (AML) will be established based on resource monitoring as required by the June 1989, Interior Board of Land Appeals (IBLA) decision. This AML may be more or less than 160 horses.

**C. Wildlife Use**

Mule deer and pronghorn antelope summer and winter range as well as bighorn sheep yearlong habitats have been identified in the Jackson Mountain Allotment.

1. Reasonable numbers developed in conjunction with Nevada Department of Wildlife (NDOW) personnel for the Jackson Mountain Allotment are:

Mule deer	378 AUMs
Pronghorn antelope	60 AUMs
Bighorn sheep	275 AUMs

2. The following Key or Critical Management areas have been identified within the allotment.

a. Mule Deer:

deer summer-	13,889 acres (DS-8; DS-9)
deer winter-	12,794 acres (DW-13)
deer yearlong-	76,245 acres (DY-19; DY-20)

b. Pronghorn Antelope:

pronghorn summer-	13,658 acres (PS-14)
pronghorn winter-	15,562 acres (PW-15)
pronghorn yearlong-	157,303 acres (PY-13)

c. Bighorn Sheep:

bighorn yearlong-	34,324 acres (BY-5)
	14,105 acres (BY-6)

d. Sage Grouse:

General sage grouse distribution areas have been identified in the northern most portion of the Jackson Mountain Allotment.

e. Other/Game Species:

Several other upland bird and mammal species occur on this allotment.



f. Other/Non-Game Species:

Various species of nongame birds and mammals occur in the Jackson Mountain Allotment.

D. Riparian/Fisheries

There are three major streams located within the Jackson Mountain Allotment; Jackson Creek, Mary Sloan Creek, and Trout Creek. These creeks were identified by the Winnemucca District of the BLM as "proposed" Lahontan cutthroat trout habitats. Mary Sloan Creek has been identified in the US Fish and Wildlife Service publication "Technical/Agency Draft Recovery Plan for Lahontan Cutthroat Trout, Oncorhynchus clarki henshawi (Salmonidae)," as a potential recovery site.

During stream surveys conducted by the Nevada Department of Wildlife (NDOW) brook trout were found in Jackson Creek and rainbow trout were found in Mary Sloan Creek. No fish were found in Trout Creek.

III. Allotment Profile

A. Narrative Description

The Jackson Mountain Allotment is located in the southwestern portion of Humboldt County. The allotment is approximately 30 air miles west, northwest of Winnemucca. It includes the majority of the Jackson Mountain Range, portions of the Black Rock Desert to the west and portions of Desert Valley to the east. Elevations range from 4,000 feet to 8,900 feet. The lower elevations are dominated by greasewood and shadscale. As elevations increase, sagebrush is dominant. Riparian and meadow, juniper, aspen and mountain browse vegetation types are also included within the allotment. Soils are basalt and granitic in origin.

B. Acreage

1. Allotment Total - 366,090 acres
2. Public land - 355,255 acres
3. Private land - 10,835 acres

C. Allotment Specific Objectives

1. Land Use Plan Objectives

a. Objective RM-1

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

b. Objective WLA-1

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

c. Objective WL-1

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

d. Objective WH/B-1

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

e. Objective W-1

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

f. Objective W-2

Provision of adequate water to support public land uses.



g. Objective W-3

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

## 2. Rangeland Program Summary Objectives

In the Rangeland Program Summary the information displayed under Jackson Mountain Allotment includes both Jackson Mountain Allotment and Bottle Creek Allotment. This evaluation covers the Jackson Mountain Allotment only. Therefore, the objectives displayed below exclude Bottle Creek Allotment.

- a. Increase available forage for livestock to maintain an active preference of 8,857 AUMs.
- b. Improve range condition from poor to fair on 355,225 acres.
- b. Improve water quality for fisheries.
- c. Develop a livestock grazing plan that will alleviate the following problems:
  - (1) Improper season-of-use
  - (2) Inadequate livestock distribution
  - (3) Livestock drift
  - (4) Excessive stocking rate
- d. Manage rangeland habitat and forage condition to support reasonable numbers of wildlife demand as follows:
 

Deer	378 AUMs
Antelope	60 AUMs
Bighorn Sheep	275 AUMs
- e. Protect known sage grouse strutting grounds and associated breeding complexes, and future grounds as identified.
- f. Improve and maintain the condition of aquatic habitat having the potential to support a sport fishery on Jackson, Trout and North Fork of Jackson Creek.





**4. Allotment Objectives**

The allotment specific objectives tie the Land Use Plan and Rangeland Program Summary and Habitat Management Plan objectives together into quantified objectives for this allotment.

**a. Short Term Objectives**

- (1) Manage for moderate (41-60%) utilization of key species on streambank riparian habitats on Jackson, Trout and Mary Sloan Creeks with a preferred use level of 50%.
- (2) Manage for moderate (41-60%) utilization of key plant species in wetland riparian habitats with a preferred use level of 50%.
- (3) Manage for moderate (41-60%) utilization of key plant species in upland habitat with a preferred use level of 50%.

**b. Long Term Objective**

- (1) Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 378 AUMs for mule deer, 60 AUMs for pronghorn and 275 AUMs for bighorn sheep.
  - (a) Improve to and maintain 102,930 acres in good or excellent mule deer habitat condition.
  - (b) Improve to and maintain 186,523 acres in fair to good pronghorn habitat condition.
  - (c) Improve to and maintain 48,429 acres in good to excellent bighorn sheep habitat condition.
- (2) Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with an initial stocking level of 8,857 AUMs.

- (3) Improve range condition from poor to fair on 355,225 acres.
- (4) Maintain and improve free roaming behavior of wild horses by protecting and enhancing their home ranges.
- (5) Improve to and maintain 1 acre of ceanothus habitat types in good condition.
- (6) Improve to and maintain 447 acres of mahogany habitat types in good condition.
- (7) Improve to and maintain 65 acres of aspen habitat types in good condition.
- (8) Improve to and maintain 967 acres of riparian and meadow habitat types in good condition.
- (9) Improve to or maintain the following stream habitat conditions from 55% on Mary Sloan Creek, 57% on Trout Creek and 53% on Jackson Creek to an overall optimum of 60% or above.
  - (a) Streambank cover 60% or above.
  - (b) Streambank stability 60% or above.
  - (c) Maximum summer water temperatures below 70°F.
  - (d) Sedimentation below 10%.
- (10) Protect sage grouse strutting grounds and brooding areas. Maintain a minimum of 30% canopy cover of sagebrush for nesting and winter use.
- (11) Improve to and maintain the water quality of Jackson, Trout, and Mary Sloan Creeks to the state criteria set for the following beneficial uses: stockwater, cold water aquatic life, water contact recreation and wildlife propagation.

The applicable state criteria are displayed in Appendix 1. The criteria can also be found in Chapter 445 of the Nevada Administrative Codes (Nevada Division of Environmental Protection).



## D. Key Species Monitored

## 1. Upland Habitat

<u>Symbol</u>	<u>Scientific Name</u>	<u>Common Name</u>
SIHY	<u>Sitanion hystrix</u>	bottlebrush squirreltail
POSE	<u>Poa secunda</u>	Sandberg's bluegrass
ELCI2	<u>Elymus cinereus</u>	Great Basin wildrye
STTH2	<u>Stipa thurberiana</u>	Thurber's needlegrass
AGSP	<u>Agropyron spicatum</u>	bluebunch wheatgrass
PPGG	<u>Agrositanion saundesii</u>	Saunders' wheatgrass
ORHY	<u>Oryzopsis hymenoides</u>	Indian ricegrass
EULA5	<u>Eurotia lanata</u>	winter fat
EPHED	<u>Ephedra sp.</u>	ephedra
ATCO	<u>Atriplex confertifolia</u>	shadsnail
PUTR2	<u>Purshia tridentata</u>	bitterbrush
CELE	<u>Cercocarpus ledifolius</u>	curlleaf mountain mahogany
CEANO	<u>Ceanothus sp.</u>	ceanothus
AMAL2	<u>Amelanchia alnifolia</u>	serviceberry

## 2. Riparian Habitat

<u>Symbol</u>	<u>Scientific Name</u>	<u>Common Name</u>
PONE3	<u>Poa nevedensis</u>	Nevada bluegrass
POPR	<u>Poa pratensis</u>	Kentucky bluegrass
JUNCU	<u>Juncus spp.</u>	rush
CAREX	<u>Carex spp.</u>	sedge
POMO5	<u>Polypogon monspeliensis</u>	rabbit's foot grass
DISTI	<u>Distichlis sp.</u>	saltgrass
ROWO	<u>Rosa woodsii</u>	Wood's rose
POPR5	<u>Populus tremuloides</u>	aspen
SALIX	<u>Salix spp.</u>	willow
RIBES	<u>Ribes spp.</u>	currant

## F. Wilderness Study Areas (WSAs)

Portions of the following WSAs occur within the Jackson Mountain Allotment:

- NV-020-620 - Black Rock Desert WSA
- NV-020-606 - North Jackson Mountains WSA
- NV-020-603 - South Jackson Mountains WSA

The trail up McGill Canyon to King Lear Peak is a popular hiking route within the South Jackson WSA. McGill Canyon has been designated as a Wildlife Viewing Area.

#### IV. Management Evaluation

##### A. Purpose

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

##### B. Summary of Studies Data

###### 1. Actual Use

###### a. Livestock

###### Grazing

<u>Year</u>	<u>Actual Use</u>
1984	8,857 (1)(2)
1985	8,684 (1)
1986	7,465
1987	7,357
1988	7,050
1989	8,093
1990	7,099
1991	7,009
1992	5,411

(1) Licensed use, actual use not available.

(2) In 1984 Jackson Mountain (8,857 AUMs) and Bottle Creek (3,409 AUMs) Allotments were licensed together under the name Jackson Mountain Allotment. This evaluation covers Jackson Mountain Allotment only. Therefore, AUMs licensed for use on Bottle Creek Allotment are not displayed.

Note- The permittee identified excess wild horses as the reason for non-use in the 1993 grazing season.

###### b. Wildlife (existing numbers)

The Jackson mountain allotment lies within Nevada Department of Wildlife (NDOW) hunt unit 035. According to data collected by NDOW over the last twenty years, and evaluated in this allotment over the last five years, mule deer populations in unit 035 have decreased. Pronghorn estimates for unit 035 have increased over the last five years.



The Jackson Mountain allotment is one of five allotments which include some portion of the Jackson Mountain range. Deer and antelope populations in the Jackson Mountain range primarily migrate elevationally between winter/yearlong and summer ranges (Jeffress, 1993). Considerable lateral movement occurs throughout the seasonal range as a function of weather/vegetation conditions and competition, therefore, actual deer and pronghorn use each year will vary significantly. The final population estimate for hunt unit 035, as derived from modelling, is also influenced yearly due to differing sample sites, as a result of weather conditions at the time of the survey which impacts animal observations.

With this in mind, an estimate of allotment specific numbers of deer and pronghorn on the Jackson Mountain allotment is highly variable from year to year and may not be a clear indicator of habitat condition and trend relative to mule deer or pronghorn.

To estimate existing numbers on an allotment, first the percent of hunt area 3 encompassed by unit 035 was determined. Winter and yearlong habitat area was calculated in each allotment and compared to the total habitat in hunt unit 035. From this calculation, a decimal percent of the total use area acreage in unit 035 is arrived at for the allotment. Using this decimal factor, and the population estimate for hunt unit 035, and assuming normal distribution of each species in the yearlong and winter range, and that species remain in the same location throughout the season, the following estimate of existing numbers for the past five years was derived.

	<u>Mule Deer</u>		<u>Pronghorn</u>	
	<u>Number</u>	<u>AUMs</u>	<u>Number</u>	<u>AUMs</u>
1988	608	1824	Not Available	
1989	445	1335	Not Available	
1990	Not Available		565	1356
1991	348	1043	721	1730
1992	363	1089	857	2057

The Nevada Department of Wildlife reported that the mule deer fawn to doe ratio in the western part of



Humboldt County in March 1993, was 8.5:100, and that in order to maintain a deer population, it is desirable to end the winter with an average of 30-35 fawns per 100 does. Heavy snowfall following drought conditions has had a tremendous impact on wildlife. Antelope and bighorn sheep survived the winter relatively well, with "antelope numbers seeing the first decrease in five years and sheep numbers actually rising a bit." (Humboldt Sun, 1993)

California bighorn sheep were released in this allotment south of McGill Canyon on the west face of King Lear Peak in January 1983, and just north of Mary Sloan Creek on the west face of Parrot Peak in the winter of 1986-1987. The sheep have since begun to use much of the suitable habitat in the northern portion of the allotment. The following population estimates, which include all age classes, were published by the Nevada Department of Wildlife in the annual "Big Game Status and Hunting Recommendations":

<u>Year</u>	<u>King Lear Peak Number</u>	<u>Parrot Peak Number</u>
1989	60-67	23-27
1990	70-80	30-35
1991	80-100	30-40
1992	90-100	40-50

The 1992 "Big Game Status and Hunting Recommendations" states:

The Jackson Mountain bighorn herd continues to expand in both density and distribution.

In January of 1989, the permittee observed 34 bighorn sheep on the west slopes of the Jackson Mountain range, and on January 17, 1992, observed 62 sheep in the same general vicinity.

c. Wild Horses

1) Aerial Count Data

The Jackson Mountains Wild Horse Herd Management Area (HMA) is found within the Jackson Mountain, Bottle Creek, Deer Creek, Wilder-Quinn and Happy



Creek Allotments. Records indicate that the Jackson Mountains HMA has had census or distribution flights conducted 13 times since 1977. These flights were conducted with a helicopter for census flights or a fixed wing aircraft for distribution flights. Total numbers observed for the Jackson Mountains Allotment are as follows.

<u>Year</u>	<u>Date</u>	<u># Horses(Ad./Yng)</u>	<u>Aircraft</u>
1977	March 31	124 (120/4)*	H (Bell B-1)
1980	July 25**	166 (135/31)*	H (Bell B-1)
1986	June 13	125 (103/22)	H (Bell B-1)
1988	Sept. 28	273 (216/57)	H (Bell B-1)
1989	July 19	243 (188/55)	H (Bell Soloy)
1990	Feb. 28	78 (78/0)	FW (Cessna 210)
1991	Feb. 1	81 (81/0)	FW (Cessna 210)
1991	July 30	82 (71/11)	FW (Maule 5)
1992	March 4	105 (102/3)	FW (Maule 5)
1992	May 20	94 (77/17)	FW (Maule 5)
1992	July 24	21 (18/3)	FW (Maule 5)
1992	Sept. 27	23 (19/4)	FW (Maule 6)
1993	Jan. 18	275 (237/38)	H (Bell Soloy)

H = Helicopter, FW = Fixed wing

\* Total number for the whole HMA; distribution by allotment not available.

\*\* Census began 7/25/80, continued 7/30/80 and ended 8/19/80.

A helicopter census is an attempt to count as accurately as possible all horses in a given area. A distribution flight is made with a fixed wing aircraft and is an attempt to locate horses seasonally, while counting as many as possible. Use of helicopters results in a more accurate count due to the slower speed and greater maneuverability of this type of aircraft.

Distribution flights at all seasons show the majority of horses are concentrated in the foothill country south of Red Butte Canyon, Brush Basin and Shawnee Creek.

2) Gather Data

One gather, which took place during December 1988 and January 1989, has been conducted on the Jackson Mountains HMA. Out of 225 animals removed from the entire HMA, 108 were removed from the Jackson Mountains Allotment. The remaining horses were removed from the Happy Creek and Wilder-Quinn Allotments.

3) Actual Use

<u>Grazing Year</u>	<u>No. Adults</u>	<u>AUMs</u>
1988 (pre-gather)	225 (1)	2250
1988 (post-gather)	138 (2)	276
1989	188 (3)	2256
1990	217 (4)	2604
1991	233 (4)	2796
1992	251 (4)	<u>3012</u>
Total		13104
Average 1988-92		2621

- (1) Based on census of 9/28/88 (10 months)
- (2) The percentage of young-of-the-year (1988) removed during the gather was 27.4%. Applying this percentage to the Jackson Mountains portion gives 78 adults, 30 young removed; 138 adults, 27 young remaining for 2 months of the grazing year.
- (3) Based on census of 7/19/89, following gather in winter 1988-89
- (4) Projected number, see Appendix 4 for calculation

Accurate data is not available to determine actual use prior to 1988.



## 2. Climatological Data (1983-1992)

The National Oceanic and Atmospheric Administration (NOAA) climatological station, Leonard Creek Ranch, is located approximately 10 miles north of Jackson Mountain Allotment. Precipitation data collected at that station follow:

<u>Year</u>	<u>Precipitation (inches)</u>	
	<u>Growing Season</u> <u>March-August</u>	<u>Annual</u>
1983	6.64 M	17.74 M
1984	3.00	8.50
1985	2.48	6.82 M
1986	4.85	9.60
1987	5.42	9.30
1988	2.94	8.11
1989	3.98	7.48
1990	4.67	7.19
1991	5.06	9.04
1992	2.38	5.29 M

M - Insufficient or partial data

1983 - Partial data for May

1985 - No data for October

1992 - No data for November or October (not published as of 04/93)

Unseasonably low precipitation occurred in April (0.26 inches) and May (0.00) of 1992.

## 3. Utilization Data

Utilization studies were conducted with the following use ratings of the current year's growth:

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

### a. 1988

Actual use by cattle and wild horses at the time when utilization data was collected follows. Actual use

for the entire grazing period (March 1 through the end of February) can be found in Section IV-B (page 15) of this document.

Cattle	03/01/88 to *10/26/88	6849 AUMs
Wild Horses	03/01/88 to *10/26/88	<u>1775 AUMs</u>
	Total	8624 AUMs

\* 10/26/88 is the mid-point of the time period when utilization data was collected.

Use pattern mapping was conducted on October 19, 20, 25, 26, 27, 31, and November 1, 2, 3, 1988.

(1) Winter Use Areas (11/01 to 3/15)

(a) Jungo Point Windmill to Hot Springs:

Slight grazing use covered a high percentage of this area.

A long, narrow strip of light use was mapped from Woodcamp Spring, south to the Lewis Mine troughs. Small, scattered, light use areas were also mapped north of Fox Spring, south of Smokey Spring, north and south of Railroad Spring, and in the southwest corner of the allotment just north of Sulphur.

Small scattered areas of moderate use were found around water sources, including Sulphur Windmill, Lewis Mine troughs, Trail Spring, Railroad Spring, South Spring, Rattlesnake Spring, and between Fox and Smokey Springs.

(2) Spring/Summer Use Areas

(a) Salt Water Spring, Winter Camp and Little Buckbrush Spring area and the adjacent west facing slopes of the Jackson Mountains:

Slight grazing use covered a high percentage of this area between water sources.



Light use was mapped along the lower end of the Red Butte Canyon drainage.

Moderate use was found around Salt Water Spring, along Red Butte Mine Road and Red Butte Canyon, east of Winter Camp, at the upper portion of Brush Basin, and between Fish Pond and Rock Springs.

A few, small, scattered areas of heavy use were found near water sources in Black Rock and Red Butte Canyons, and at several springs to the south.

- (b) Buckbrush Spring, Mary Sloan Basin, upper Trout Creek, Iron King Mine and the upper portion of Jackson Creek:

Slight use was mapped east and west of the road from the Buckbrush Springs area, continuing several miles north to the first drainage past the gravel pit. Light use was also mapped at the higher elevations and steep slopes around Iron King and Redbird Mines.

Light use was found southwest of the Buckbrush Spring area, west of the road towards Jackson Creek Slough, south of Jackson Creek Ranch, east and west of the road down to the first drainage north of the gravel pit; and along the lower end of Jackson Creek. Several fingers of light use were found in the canyon areas and at the higher elevations west of Iron King Mine.

A narrow strip of moderate use was observed southwest of Buckbrush Springs, west of the road.

Several small areas of moderate use were observed along Jackson Creek, the North Fork of Jackson Creek, Mary Sloan Creek, the upper end of Trout Creek just south of Redbird Mine, and at the higher elevations

north of Iron King Mine. A large area of moderate use was also found just north and west of the private land along Trout Creek.

Light use was observed in the Donna Schee and Nobel Springs area. A large area of light use was found at the lower elevations in the vicinity of Bull Creek Ditch and Louse Creek. A small area of light use was found between the private land along Trout Creek and the Desert Valley Allotment boundary fence.

Several small areas of heavy use were observed along Mary Sloan Creek, Jackson Creek, the North Fork of Jackson Creek, and upper end of Trout Creek south of Red Bird Mine.

Small, narrow strips of severe use were mapped along portions of Mary Sloan Creek, Jackson Creek, and the North Fork of Jackson Creek.

(c) Jungo Hills Area

A large strip of light use was mapped east and west of the road south of Five Mile Well, parallel to the boundary between Jackson Mountain Allotment, and Desert Valley and Mormon Dan Allotments.

(d) Noble and Donna Schee Spring area; and Shawnee, Bull, Cedar, Clover and lower Trout Creek areas:

A large area of slight use was found north of Fox Spring, extending northward several miles to the vicinity of the private land near Bull Creek. Large intermittent areas of slight use were mapped along the lower slopes north of Bull Creek, extending northward to Big Boy Mine Road. Slight use was also found along the lower slopes from Clover Creek to Trout Creek.



Light use was found in the Donna Schee and Noble Springs area. A large area of light use was also found at the lower elevations in the vicinity of Bull Creek Ditch and Louse Creek. A small area of light use was found between the private land along Trout Creek and the Desert Valley Allotment boundary fence.

Several small moderate use areas were mapped near water sources, including Donna Schee Spring, Noble Spring, Shawnee Creek, Bull Creek, Big and Little Cedar Creeks, Clover Creek and upper Louse Creek.

Small, scattered, heavy use areas were mapped along Shawnee Creek, Big and Little Cedar Creeks east of King Lear Peak, Louse Creek and Clover Creek. Most of these small, heavy use areas were along the upper ends of these creeks and on associated upland areas.

b. 1991

Actual use by cattle and wild horses at the time utilization was observed follows. Actual use for the entire grazing period (March 1 through the end of February) can be found in Section IV-B (page 15) of this document.

Cattle	03/01/91 to *10/10/91	6775 AUMs
Wild Horses	03/01/91 to *10/10/91	1716 AUMs
	Total	8491 AUMs

\* 10/10/91 is the mid-point of the time period when utilization was observed.

Use pattern mapping was not conducted in 1991, however the following observations of utilization were made on October 4 and 17, 1991:

Utilization of upland perennial grasses (Thurber's needlegrass, Idaho fescue, bluebunch wheatgrass, squirreltail) was slight to light in the vicinity of the upper reaches of Jackson Creek and Mary Sloan Basin. Use of herbaceous streambank vegetation

(bluegrass, sedges, rushes) was heavy. Utilization of bitterbrush was heavy (bitterbrush had a hedged appearance).

Utilization of squirreltail was moderate on the uplands adjacent to upper Trout Creek.

Utilization of Indian ricegrass was moderate in the area south of Bill DeLong Well.

c. 1992

Actual use by cattle and wild horses at the time when utilization data was collected follows. Actual use for the entire grazing period (March 1 through the end of February) can be found in Section IV-B (page 15) of this document.

Cattle	03/01/92 to *10/25/92	5362 AUMs
Wild Horses	03/01/92 to *10/25/92	1972 AUMs
	Total	7334 AUMs

\* 10/25/92 is the mid-point of the time period when utilization data was collected.

Use pattern mapping was conducted on October 19, 20, 21, 27, 28 and November 4, 19, 1992. Observations of utilization were also made on October 1, 14, 15, 20, during stream survey.

Use Pattern Mapping

The lower elevations on the eastern portion of the allotment are composed of greasewood dominated sodic flats and shadscale dominated lake terraces. Very few perennial grasses are present with the exception of Indian ricegrass dominated sand dunes which comprise approximately 15% of the area. Desert saltgrass occurs in wet areas. Utilization of Indian ricegrass was light in the area south of Winter Camp, moderate from the area around Hot Springs to the area south to Bill DeLong Well, and heavy in the area south. Use of desert saltgrass was moderate at Hot Springs and heavy at the well north of Sulphur. The well area showed signs of heavy use by cattle. The dunes showed evidence of horse use.



The dominant upland perennial grasses from Brush Basin south to Antelope are squirreltail, Sandberg's bluegrass, and in lower density, Thurber's needlegrass and Indian ricegrass. Upland utilization ranged from slight to moderate from Brush Basin to Rattlesnake Canyon and was light from Rattlesnake Canyon to Woodcamp Spring. From south of Rattlesnake Canyon to north of Smokey Spring, utilization was heavy. From Smokey Spring to Antelope utilization was moderate with areas of heavy use. Utilization was heavy at Woodcamp Spring, Smokey Spring, and Fish Pond Spring. Both horses and cattle utilize these areas. Cattle use was most apparent in the vicinity of watering facilities where use on vegetation was heavy and vegetative cover has apparently reduced by trampling and grazing. Watering facilities include well traveled, powdery trails to and from water. Away from watering facilities, horse sign was evident with little cattle sign.

In the area north of Jungo, use on winterfat was slight to light. Utilization of squirreltail was slight to moderate. In the vicinity of the upper reaches of Jackson Creek and the North Fork of Jackson Creek utilization of herbaceous riparian vegetation (bluegrass, sedges, rushes) ranged from slight to severe, and was predominantly heavy. Limited horse sign was found in the vicinity. Some use of the herbaceous vegetation probably occurred due to deer and horse use, however, the great majority is probably by cattle. Although there were small localized areas of heavy use of upland perennial grass species (bluebunch wheatgrass, Idaho fescue, Thurber's needlegrass, squirreltail), utilization was predominantly light to slight. Utilization of serviceberry was light. Utilization of curlleaf mountain mahogany was heavy. Years of heavy use was evidenced by the absence of a variety of age classes. Plants were either approximately 6 inches tall and very hedged, or over 7 feet tall, with most vegetation removed up to approximately 5.5 feet. Utilization of bitterbrush was heavy. Years of heavy use was evidenced by the very hedged appearance of the plants. Readily accessible ceanothus immediately adjacent to the allotment received heavy utilization. No ceanothus within the allotment boundaries was observed. Although some use of these browse species



probably resulted from cattle grazing, the great majority probably resulted from deer use. This is evidenced by the low use of perennial grass species in the vicinity of the browse species. Aspen use was variable, ranging from slight to heavy. Utilization of aspen appears to have resulted from both cattle and deer use. Evidence of beaver use of aspen within the past several months was also present. No beaver were found.

#### Utilization Observed During Stream Survey

Observations of utilization recorded on Jackson Creek, including the north fork of Jackson Creek, during stream survey indicated use of riparian vegetation ranged from slight to severe with predominantly heavy use. Species recorded included sedges, rushes, Kentucky bluegrass, willow and Wood's rose.

#### 4. Trend

Current trend data is not available for the Jackson Mountain Allotment. The Paradise-Denio EIS indicated an apparent downward trend.

#### 5. Range Survey Data

- a. A Phase I Watershed Inventory was conducted between 1971 and 1974. Livestock forage condition was determined based upon data extrapolation and computations from this inventory. This data extrapolation resulted in the following condition classification for the Jackson Mountain Allotment:

<u>Good Condition</u>	<u>Fair Condition</u>	<u>Poor Condition</u>
0 acres	0 acres	355,255 acres

Appendix G, pg 28, of the Paradise-Denio EIS provides more discussion on livestock forage condition.

- b. In 1978 a range survey was conducted using the Ocular Reconnaissance Method to provide baseline data for analysis purposes in the Paradise-Denio EIS. This survey, along with suitability criteria, indicated that 5,332 AUMs were available in 1978 for livestock and wild horses on Jackson Mountain Allotment (Jackson Mountain Allotment and Bottle Creek Allotment were



managed together under the name Jackson Mountain Allotment at the time of the survey. The survey showed 5,332 AUMs were available on Jackson Mountain and Bottle Creek Allotments).

6. Ecological Status

Soil survey (order 3) has been completed on Jackson Mountain Allotment. Ecological Status Inventory has not been completed on this allotment.

7. Wildlife Habitat Inventory

- a. Priority Species: Mule deer, sage grouse, bighorn sheep, pronghorn, and trout.
- b. Other Species: Chukar, hungarian partridge, and California quail.
- c. A special habitat features inventory was conducted in September and October, 1977. This inventory identified locations and acres of special habitats, listed observed plant and wildlife species, and documented ocular observations of the condition and utilization of these habitats. This information was analyzed in the Paradise-Denio EIS.
  1. Riparian and meadow habitat - 967 acres located predominantly in the northern portion of the Jackson Mountain Range.
  2. Aspen - 65 acres located in the northern part of the Jackson Range.
  3. Curlleaf mountain mahogany - 447 acres located scattered throughout the mountain range at the higher elevations usually in association with juniper.
  4. Ceanothus - 1 acre scattered throughout the northern portion of the allotment at higher elevations.
  5. Bitterbrush - Identified as a component in 1,435 acres of various ecological sites.

d. **Habitat Evaluation**

In the absence of baseline big game habitat condition and trend data, a habitat evaluation has not been completed.

8. **Riparian/Fisheries Habitat**

Jackson Creek

Jackson Creek originates from the west slope of the Jackson Mountains at an elevation of 7,600 feet, in Humboldt County, Nevada. The stream is approximately 8.2 miles in length and flows into the Jackson Creek Slough which then flows to the Quinn River. Water is usually diverted at the Jackson Creek Ranch from the main channel for irrigation purposes. A north fork tributary intersects the main stem stream at an elevation of 5,260 feet. This tributary has a total length of 3.5 miles and usually does not provide surface flowing water to Jackson Creek during late summer or drought periods. Water flow for both Jackson Creek and the north fork tributary stream is mainly from springs and late spring season snow melt. The headwaters for these streams begin in very steep, mountainous terrain and are densely covered with shrubs (NDOW, 1989).

Jackson Creek flows through 6.2 miles of BLM land and 2.0 miles of private land. The main stem has an average stream gradient of 4.1 percent and ranges from 2.0 to 15.0 percent. The north fork tributary ranges from 2.5 to 15.0 percent and has a mean gradient of 6.2 percent. The mean valley bottom width for the main stem stream is 209 feet. The north fork tributary has an average valley width of 61 feet. In 1992, the main stem stream had an average water width of 5.2 feet and an average water depth of one to two inches, while the north fork had an average water width of 2.4 feet and a mean water depth of 2 inches.

Jackson Creek was first surveyed by the BLM in 1976 and again in 1978, 1980, 1982, 1984, 1986, 1989, and 1992. NDOW also surveyed this system in 1989. Data on habitat parameters were collected during all surveys, while fish population data was collected in 1989 by NDOW. Brook trout was the only fish species found during the 1989 NDOW survey.



### Stream Habitat Conditions

A comparison of changes in percent habitat optimum and the riparian condition class between 1976 and 1992 show that habitat conditions, once poor in 1982 through 1984, improved to a "good" rating in 1989, and has since slightly declined to fair (58%) in 1992 (Table 1). The major limiting factor was poor pool quality (11%) in 1992.

Table 1. Changes in stream and riparian habitat condition ratings for Jackson Creek between 1976 and 1992.

<u>YEAR OF SURVEY</u>	<u>% OPTIMUM</u>
<u>Stream Habitat Condition</u>	
1976	66
1978	63
1980	60
1982	40
1984	48
1986	52
1989	61
1992	58
<u>Riparian Condition Class</u>	
1976	67
1978	66
1980	76
1982	44
1984	43
1986	56
1989	86
1992	64

Riparian condition class is an average of bank cover and bank stability. The stream habitat condition and riparian condition class ratings are classified as follows:

<u>% Optimum</u>	<u>Classification</u>
70-100%	Excellent
60-69%	Good
50-59%	Fair
0-49%	Poor

### 1992 Stream Survey

As a consequence of the sixth consecutive year of drought and existing grazing practices, stream habitat conditions are in somewhat poorer conditions than if normal precipitation levels had occurred. Nearly all observed pools have filled in with either sand or silt, and fine gravels. Insufficient runoff has prevented scouring of pools. These conditions directly affect pool quality ratings which decrease the overall percent of habitat optimum.

While the overall riparian condition class for Jackson Creek was acceptable (64%), there were several sections of the stream which have improved little over the past 13 to 15 years. The narrow valley bottom combined with the road in close proximity to the stream tends to "funnel" livestock up and down the creek. Very few AUMs are present in these areas, although damage to the stream banks and increased width to depth ratios (wide and shallow riffles) appear to be increasing. The area where the north fork enters the mainstem does afford more grazing, however, moderate to heavy use of riparian vegetation (grasses and forbs) was observed during the October 1992 stream survey.

### Trout Creek

Trout Creek originates from the east slope of the Jackson Mountains, in Humboldt County, Nevada at an elevation of 8,240 feet. It is a second order stream that is approximately 11.5 miles in length and terminates into Big Cedar Creek Ditch near an elevation of 4,260 feet. There is a pipeline diversion located on private land that diverts water to the valley floor. Water flow for Trout Creek and its main tributary is primarily from springs and snow melt. Surveyed portions of Trout Creek flow through 7.0 miles of private land and 2.8 miles of BLM land. The average stream gradient is 4.9 percent and ranges from 3.0 to 10.0 percent. The mean valley bottom width and riparian zone width is 193 feet and 60 feet respectively. The 1990 stream survey data collected by NDOW indicated that average water width was 3.8 feet and the mean water depth was 1.4 inches.

Trout Creek was first surveyed by the BLM in 1976 and again in 1987. As noted above, the Nevada Department of Wildlife



conducted a stream survey in 1990. Data on habitat parameters was collected during all surveys, while fish population data was collected in 1990. No fish were found at any of the habitat stations or in the drainage in 1990.

#### Stream Habitat Conditions

A comparison of changes in percent habitat optimum and the riparian condition class between 1976, 1987, and 1990 show that habitat conditions have improved from a poor rating of 48 percent in 1976 to fair (58%) in 1990. No additional stream survey data is available for Trout Creek. While the overall stream habitat condition has improved to 58 percent, the riparian condition class (RCC), a major component of percent habitat optimum, declined from 79 percent in 1989 to 68 percent in 1990 (Table 2).

Table 2. Changes in stream and riparian habitat condition ratings for Trout Creek between 1976, 1987, and 1990.

<u>YEAR OF SURVEY</u>	<u>% OPTIMUM</u>
<u>STREAM HABITAT CONDITION</u>	
1976	48
1987	57
1990	58
<u>RIPARIAN CONDITION CLASS</u>	
1976	77
1987	79
1990	68

Riparian condition class is an average of bank cover and bank stability. The stream habitat condition and riparian condition class ratings are classified as follows:

<u>% Optimum</u>	<u>Classification</u>
70-100%	Excellent
60-69%	Good
50-59%	Fair
0-49%	Poor

#### 1990 Survey

Although the 1990 stream survey indicates that overall stream habitat conditions have improved since 1976, they are still below objective levels of 60 percent. A decline in

RCC combined with an almost non-existent number of quality pools has contributed significantly to existing conditions (NDOW, 1990).

The principal limiting factors for Trout Creek were pool-riffle ratio and poor pool structure (quality pools). Riffles appeared to be of greater number than pools throughout the BLM reach. Bank cover and stability ratings were considered good. According to the NDOW survey, "Overall damage from livestock use was considered light." Some cattle were observed in the drainage with the heaviest concentration found in the headwaters (public land).

#### Mary Sloan Creek

Mary Sloan Creek originates from the west slope of the Jackson Mountains, in Humboldt County, Nevada, near an elevation of 7,280 feet. During the 1991 NDOW stream survey, the creek was found to be either dry or with very shallow flows throughout most of drainage. The very upper drainage was found to be totally dry. The stream is approximately 5.0 miles in length. Water flow for the stream is primarily from springs and snow melt. Mary Sloan Creek runs in a northwesterly direction and has its terminus in the Black Rock Desert at an elevation of 4,100 feet.

Mary Sloan Creek flows through 3.8 miles of public land and approximately 1.1 miles of private land. The upper portion of the creek has an average stream gradient of 8.5 percent and ranges from 8.0 to 9.0 percent. The mean valley bottom width and riparian zone width is 10 feet and 18 feet respectively. According to the 1991 NDOW stream survey, the average water width was 2.5 feet and the mean water depth was 3.1 inches.

Mary Sloan Creek was first surveyed by the BLM in 1976 and by NDOW in 1991. Data on habitat parameters was collected for both surveys, with fish population data collected in 1991. Rainbow trout and hybrid trout were the only salmonids found. Both populations were found to be in low numbers.



**Stream Habitat Conditions**

A comparison of changes in percent habitat optimum and the RCC between 1976 and 1991 show that habitat conditions have remained at good condition (67%) for percent habitat optimum and excellent for RCC (Table 3).

Table 3. Changes in stream and riparian habitat condition ratings for Mary Sloan Creek between 1976 and 1991.

<u>YEAR OF SURVEY</u>	<u>% OPTIMUM</u>
<u>Stream Habitat Condition</u>	
1976	65
1991	67
<u>Riparian Condition Class</u>	
1976	83
1991	90

Riparian condition class is an average of bank cover and bank stability. The stream habitat condition and riparian condition class ratings are classified as follows:

<u>% Optimum</u>	<u>Classification</u>
70-100%	Excellent
60-69%	Good
50-59%	Fair
0-49%	Poor

**1991 Survey**

According to the 1991 NDOW stream survey, the principal limiting factor for Mary Sloan Creek was pool-riffle ratio, which appeared to be related to low stream flow. Pool-riffle ratios were poor throughout the drainage, while pool structure (quality) rated good to excellent. Stream bottom substrate, bank cover and bank stability also rated good to excellent. Overall, stream habitat conditions for Mary Sloan Creek were considered good.

It appears that the high gradient nature of Mary Sloan Creek combined with areas of dense vegetative cover have prevented livestock and wild horses from accessing most of this drainage. These circumstances are generally favorable for good stream conditions.

## 9. Water Quality

For the three perennial streams within the allotment, Jackson Creek, Trout Creek and Mary Sloan Creek, water quality data is limited for the evaluation period. Jackson Creek was sampled in 1983, 1984, 1985 and \*1989. Trout Creek was sampled in \*1990. Mary Sloan Creek was sampled in \*1991.

Results of these samplings and baseline data collected prior to the evaluation period can be found in Appendixes 2 and 3.

\* NDOW Stream Survey

## V. Conclusions

### A. Short Term Objectives

#### 1. OBJECTIVE

Manage for moderate (41-60%) utilization of key species on streambank riparian habitats on Jackson, Trout and Mary Sloan Creeks with a preferred use level of 50%.

#### CONCLUSION

Use pattern mapping conducted in 1988 indicated several small areas of heavy use along Mary Sloan Creek, Jackson Creek (including the north fork of Jackson Creek) and the upper end of Trout Creek. Small, narrow strips of severe use were mapped along portions of Mary Sloan Creek, Jackson Creek (including the north fork) in 1988. Observations of utilization in 1991 showed heavy use of herbaceous streambank vegetation on Jackson Creek. 1992 use pattern mapping and observations during stream survey indicated predominantly heavy utilization of herbaceous vegetation on some reaches of Jackson Creek, including the north fork.

This objective is not being met along portions of these creeks.

Wild horse use is limited in this portion of the allotment. Cattle tend to congregate in the creek bottoms due to topography and the presence of green feed, water and shade. Although some utilization is a result of use by wildlife species, the great majority of the use appears to be the result of cattle grazing.



**2. OBJECTIVE**

Manage for moderate (41-60%) utilization of key plant species in wetland riparian habitats with a preferred use level of 50%.

**CONCLUSION**

Use pattern mapping in 1988 indicates heavy use occurred at several springs and on wetland riparian vegetation associated with several creeks. 1992 use pattern mapping also showed heavy use at several springs.

This objective is not being met on portions of the allotment.

From the Brush Basin area, south, heavy utilization is due to use by both wild horses and cattle. Cattle appear to "camp" more at the water sources. North of this area wild horse numbers are limited and the heavy use is due primarily to cattle use.

**3. OBJECTIVE**

Manage for moderate (41-60%) utilization of key plant species in upland habitat with a preferred use level of 50%.

**CONCLUSION**

Use pattern mapping in 1988 indicated that except for limited areas, this objective was being met.

Use pattern mapping in 1992 indicated this objective is not being met on some areas in the southern end of the allotment. Evidence of horse use was present throughout those areas, however, cattle also contributed to the use.

Leonard Creek Ranch reported low levels of precipitation in April (0.26 inches) and May (0.00 inches) 1992. Low precipitation during periods of growth is expected to result in lower than normal vegetative production. Although precipitation patterns vary locally, low production may have resulted in herbivores consuming a higher percentage of annual growth than would have been consumed if production were normal.



Utilization of bitterbrush was heavy in 1991 and 1992. Utilization of mountain mahogany was heavy in 1992 (no record of use in 1991). Plant form indicates heavy use has occurred over a period of years. Low utilization of the perennial grasses in the vicinity of the browse species suggests that although some use of the browse probably resulted from cattle grazing, the great majority probably resulted from mule deer use.

**B. Long Term Objectives**

**1. OBJECTIVE**

Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for big game, with an initial forage demand of 378 AUMs for mule deer, 60 AUMs for pronghorn and 275 AUMs for bighorn sheep.

- a. Improve to and maintain 102,930 acres in good or excellent mule deer habitat condition.
- b. Improve to and maintain 186,523 acres in fair to good pronghorn habitat condition.
- c. Improve to and maintain 48,429 acres in good to excellent bighorn sheep habitat condition.

**CONCLUSION**

Habitat condition data is not available to evaluate the achievement of these objectives. However, heavy utilization of browse species by mule deer within the Jackson Mountain Allotment is expected to result in a decline in vegetative conditions if that use continues suggesting that progress toward meeting this objective is not occurring on portions of the allotment.

Existing number estimates indicate the allotment supported 363 mule deer (1089 AUMs) and 857 pronghorn antelope (2057 AUMs) in 1992. These numbers are well above the initial forage demand of 378 AUMs for mule deer and 60 AUMs for pronghorn. However, estimated existing numbers show an overall decline since 1988. A decline in the mule deer population is also indicated by low fawn-doe ratios recorded for western Humboldt County in March 1993. This may be the



result of the combination of 1) low vegetative production due to drought conditions which resulted in low fat reserves going into winter, and 2) severe snow conditions which reduced the availability of forage.

The Jackson Mountain California bighorn sheep herd has "continued to expand in both density and distribution," in both the King Lear Peak area and Parrot Peak area. Those sheep in the Parrot Peak area also range outside the Jackson Mountain Allotment.

2. OBJECTIVE

Manage, maintain and improve public rangeland conditions to provide forage on a sustained yield basis for livestock, with an initial stocking level of 8,857 AUMs.

CONCLUSION

Heavy utilization of forage species by wild horses and cattle in the south end of the allotment is expected to result in a decline in vegetative conditions if that use continues suggesting progress toward meeting this objective is not occurring on portions of the south end of the allotment.

3. OBJECTIVE

Improve range condition from poor to fair on 355,225 acres.

CONCLUSION

Ecological Site Inventory has not been conducted on Jackson Mountain Allotment. This objective will be redefined/quantified utilizing desired plant communities as information becomes available.

4. OBJECTIVE

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



**CONCLUSION**

Fencing in this allotment is restricted to allotment boundary fences and fences associated with privately owned land. There are no fences (corrals and exclosures excepted) within the Jackson Mountain Allotment portion of the herd management area preferred by wild horses (south end).

5. **OBJECTIVE**

Improve to and maintain 1 acre of ceanothus habitat types in good condition.

**CONCLUSION**

Baseline data has not been collected to evaluate obtainment of this objective.

6. **OBJECTIVE**

Improve to and maintain 447 acres of mahogany habitat types in good condition.

**CONCLUSION**

Condition studies have not been established. However, plants observed during use pattern mapping were either mature high-lined plants over 7 feet tall, or very hedged plants approximately 6 inches tall. The lack of intermediate height classes and the rounded growth form of the low growing plants indicate that the objective is not being met.

7. **OBJECTIVE**

Improve to and maintain 65 acres of aspen habitat types in good condition.

**CONCLUSION**

Baseline data has not been collected to evaluate obtainment of this objective.

8. **OBJECTIVE**

Improve to and maintain 967 acres of riparian and meadow habitat types in good condition.



years to recover. These sections currently are not recovering under the existing grazing system. Undesirable bank cover and stability was documented in these areas. In addition, residual herbaceous plant height was no more than one to two inches at the time of the October stream survey for several of the surveyed stations along Jackson creek. A minimum of four to six inches of stubble is recommended to meet the requirements of plant vigor maintenance, bank protection, and sediment entrapment (Clary and Webster, 1989). While Jackson Creek may not be a priority stream for the recovery of LCT, it will still be a priority to recover this system to benefit riparian/stream values as well as livestock, wildlife, and human purposes.

#### TROUT CREEK

The most recent stream survey data for Trout Creek suggests that a change in the existing grazing system should be considered so that objectives for stream/riparian habitat would be met. While there has been some improvement towards meeting the overall 60 percent of optimum level for stream habitat, the existing data suggests that Trout Creek still has a long way to go to achieve complete recovery which would benefit not only the stream system but the livestock operation as well.

#### MARY SLOAN CREEK

The most recent stream survey data collected for Mary Sloan Creek indicated that stream habitat objectives were met. With Mary Sloan Creek being considered as a potential LCT recovery stream, this stream should be closely monitored to ensure that habitat conditions remain above acceptable levels.

#### 10. OBJECTIVE

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

#### CONCLUSION

Baseline data has not been collected to evaluate obtainment of this objective.



**11. OBJECTIVE**

Improve to and maintain the water quality of Jackson, Trout, and Mary Sloan Creeks to the state criteria set for the following beneficial uses: stockwater, cold water aquatic life, water contact recreation and wildlife propagation.

The applicable state criteria are displayed in Appendix 1. The criteria can also be found in Chapter 445 of the Nevada Administrative Codes (Nevada Division of Environmental Protection).

**CONCLUSION**

Alkalinity measurements, as determined by the NDOW Stream Survey, exceeded the state criteria for wildlife propagation at all but one station (see Appendix 2). The elevated alkalinity may be due to the lithology of the area. The typical geology of the Jackson Mountain Allotment area is andesitic in nature. This situation normally leads to natural conditions which are alkaline.

Turbidity measurements on Jackson Creek taken on 5/17/83 and 5/7/85 exceeded the state criteria for propagation of cold water aquatic life.

Data is insufficient to determine whether water quality on Jackson, Trout and Mary Sloan Creeks meets the remaining state criteria. Therefore, there is insufficient data to evaluate whether or not these objectives are being met.

**VI. Technical Recommendations****A. Recommended Objectives****1. Short Term Objectives**

The short term objectives are designed to ensure progress toward meeting the long term objectives. The following utilization objectives are to be read at the end of the growing season. That does not preclude determining utilization at other times including during the grazing season. The following short term objectives are recommended:

- a. The objective for utilization of key woody species (POPUL, SALIX) on streambank riparian habitat on Trout Creek, Jackson Creek and Mary Sloan Creek is 30%.



**Rationale:** Achieving the above objective would promote successful recruitment of suckers and saplings in the community.

- b. The objective for utilization of key herbaceous species (POA, JUNCUS, CAREX, POLYP2) on streambank riparian habitat on the public land portions of Trout Creek, Jackson Creek and Mary Sloan Creek is a stubble height of 4"-6".

An alternative to the above objective follows:

The objective for utilization of key herbaceous species (POA, JUNCUS, CAREX, POLYP2) on streambank riparian habitat on the public lands portions of Trout Creek, Jackson Creek and Mary Sloan Creek is 30%.

**Rationale:** Achieving the above objectives would provide adequate stubble height by the beginning of the spring runoff period to disperse flood waters, filter sediment, maximize bank water storage and dry season flows, and would provide for sage grouse cover and maintenance of plant vigor. The use of the stubble height objective has the additional advantage of being a direct measurement not requiring calibration of the observer. It is particularly useful when examining areas where regrowth has occurred. It would also help the permittee accurately monitor progress toward meeting the objective.

The above objectives are to be read at the end of the growing season. If utilization were read in the summer a higher utilization level (40-50%) could be recommended provided adequate regrowth followed to leave a stubble height of 4"-6" at the end of the growing season.

- c. The objective for utilization of key species (POA, JUNCUS, CAREX, POLYP2, DISTI) on wetland riparian habitat is 50%.

An alternative to the above objective follows:

The objective for utilization of key species on wetland riparian habitat is a stubble height of 3"-4".



**Rationale:** Achievement of the above objective would ensure adequate stubble height during the grazing season for sage grouse cover, and after the grazing season to maximize plant vigor and minimize headcutting and erosion.

- d. The objective for utilization of key species (SYMPH, AMELA, CEANO, PURSH, SIHY, POSE, STTH2, AGSP, ORHY, EULA5, EPHEd, ATCO) on upland habitat is 50%.

**Rationale:** Achieving the above objective would promote successful reproduction and recruitment, promote plant vigor and provide watershed protection.

## 2. Long Term Objectives

The long term objectives listed beginning on page 12 are recommended with the following modifications:

- a. Improve or maintain 967 acres of riparian and meadow habitat types in good condition with maximum species diversity, reproduction and recruitment for maintenance of herbaceous and woody riparian species.
- b. Improve or maintain 65 acres of aspen stands in good condition by allowing reproduction and recruitment within the stand and maximizing wnderstory diversity.
- c. Improve or maintain 447 acres of mahogany stands in good condition by allowing successful reproduction and recruitment in the stand.
- d. Improve or maintain 1 acre of ceanothus in good condition by allowing for successful reproduction and recruitment in the stand.
- e. Improve or maintain bitterbrush, snowberry and serviceberry by maximizing reproduction in the community.

**Rationale for changing the five objectives listed above:** The above objectives expand upon the existing objectives by describing factors used to define good condition of the habitat types included.



- f. Improve to or maintain the following stream habitat conditions from 67% on Mary Sloan Creek, 58% on Trout Creek and 58% on Jackson Creek to an overall optimum of 60% or above.
- a) Streambank cover to 60% or above.
  - b) Streambank stability 60% or above.

**Rationale:** The percent stream habitat condition for each creek was changed to reflect the most current data collected in 1990, 1991 or 1992.

Bureau stream survey methodology does not quantifiably measure sedimentation. Water temperature is included under state water quality standards. Therefore, it is recommended that 1) maximum summer water temperatures below 70°F and 2) sedimentation below 10% no longer be included under this objective.

B. Herd Management Area Boundary

It is recommended that the Jackson Mountains Herd Management Area (HMA) boundary be adjusted to reflect historic use areas as indicated by distribution and census data. Two horse populations occupy two geographically separate areas within or near the Jackson Mountain HMA. The population at the north end of the Jackson Mountains inhabits an area outside the Jackson Mountain Allotment. The southern population inhabits the area approximately from Navaho Peak, south and east to the allotment boundary and west to Bottle Creek Road. See Appendix 5 for map.

Review of herd management boundaries, including the Jackson Mountains HMA is expected during the Resource Management Planning process which is scheduled to begin in 1996.

C. Management Actions

1. Introduction

Three management alternatives are included in this document. In addition to those alternatives, management related specifically to wild horses only is included which can be implemented in concurrence with any of the three management alternatives.



The following information was consolidated from other portions of this evaluation to facilitate development of the management alternatives. Other information obtained through the consultation with interested parties is also included.

**ADJUSTMENT OF CATTLE AND WILD HORSE USE THROUGH THE EVALUATION PERIOD:**

The actual use by livestock and wild horses throughout the evaluation period is displayed below:

Year	Livestock Use		Wild Horse Use		Total AUMs
	AUMs	%	AUMs	%	
1984	8,857 (1)	--	(2)	--	--
1985	8,684 (1)	--	(2)	--	--
1986	7,465	--	(2)	--	--
1987	7,357	--	(2)	--	--
1988	7,050	.74	2,436	.26	9,486
1989	8,093	.78	2,256	.22	10,349
1990	7,099	.73	2,604	.27	9,703
1991	7,009	.71	2,796	.29	9,805
1992	5,411	.64	3,012	.36	8,423

(1) Licensed use, actual use not available.

(2) Accurate data not available to determine wild horse actual use prior to 1988.

In the winter of 1988-89, 108 wild horses were removed from the Jackson Mountain Allotment. The actual use data displayed above shows that the permittee voluntarily reduced grazing use yearly until that horse removal. In 1989 he resumed grazing at a higher level (764 AUMs below active preference) and then voluntarily reduced grazing use yearly in subsequent years. The permittee has stated that he reduced use to compensate for forage used by increasing numbers of wild horses and in response to drought conditions.

It is the permittee's view that the increase in horse numbers has resulted in part from a migration of horses from the Black Rock Mountain Range area that occurred as a result of efforts to remove wild horses from that area in January 1988. This opinion is based on his observation that prior to that time the colors of horses in Jackson Mountain Allotment were approximately 6% sorrel, 5-6% brown and the remainder were dark bay (calvary type). Following the Black Rock Mountain Range area removal he noticed additional



colors including sorrel with flaxen mane and tail, black, "off color" browns with beige along the flanks, greys, bays with lighter tails (not blood bay, calvary type), and more white on some horses (bald face, blazes and white socks).

**LAND USE PLAN PROPORTION AND CARRYING CAPACITY:**

The starting point for monitoring within Jackson Mountain Allotment was established by the land use plan as 8,857 AUMs for livestock and 1,920 AUMs (160 head yearlong) for wild horses. The starting point proportions follow:

Livestock-	$\frac{8,857 \text{ AUMs}}{8,857 \text{ AUMs} + 1,920 \text{ AUMs}} \times 100 = 82\%$
Wild Horses-	$\frac{1,920 \text{ AUMs}}{8,857 \text{ AUMs} + 1,920 \text{ AUMs}} \times 100 = 18\%$

The starting point for monitoring of 8,857 AUMs is the permittee's active preference. 8,857 AUMs is the carrying capacity of Jackson Mountain Allotment as determined by the range survey completed in 1965. Although some overlap of forage use exists between cattle and wildlife species, forage preferences of cattle and horses are very similar. The allocation of forage for cattle and wild horses based on the 1965 range survey follows:

Cattle	8,857 AUMs
Wild Horses	0 AUMs
Total	8,857 AUMs

If 8,857 AUMs were allocated based on the starting point proportions the results would be:

Cattle	$8,857 \text{ AUMs} \times 0.82 = 7,263 \text{ AUMs}$
Wild Horses	$8,857 \text{ AUMs} \times 0.18 = 1,594 \text{ AUMs}$
Total	8,857 AUMs

1,594 AUMs would provide forage for 132 horses calculated as follows:

$$\frac{1,594 \text{ AUMs}}{12 \text{ months}} = 132.8 \text{ horses}$$

The carrying capacity for Jackson Mountain Allotment will be determined through evaluation of monitoring data with consideration of the management selected for the allotment,



not from the 1965 range survey, and may differ from the carrying capacity derived from that survey. However, the above information is useful towards acquiring a perspective of what may be a "fair" allocation of forage within the allotment.

#### AREAS USED BY HORSES:

The Jackson Mountains Herd Management Area (HMA) extends throughout the Jackson Mountains and includes portions of Bottle Creek, Deer Creek, Happy Creek and Wilder Quinn Allotments, as well as Jackson Mountain Allotment. The HMA boundaries do not accurately reflect the areas used by horses. Census data shows two separate populations occur within the HMA. One population occurs in the north end of the HMA in Deer Creek and Happy Creek Allotments. The other occurs in the south end of Jackson Mountain Allotment from Navaho Peak, south. The area used by the southern population also extends outside the HMA to the west and south.

2. Alternative 1- Continue Present Management Except Adjust AUMs Harvested by Livestock and Wild Horses

Under this alternative no change in management of livestock or wild horses would be implemented except numbers of both would be reduced to a level expected to meet short term objectives for the allotment.

Because no management action other than adjustment of stocking level would be implemented to insure that the short term objectives would be met, calculation of carrying capacity under this alternative is based upon areas of heavy use.

The following formula was used to calculate the desired stocking level for the years in which use pattern mapping was conducted. The results were averaged to determine the carrying capacity under this alternative.

$$\frac{\text{Actual Use (AUMs)}}{\text{Actual \% Utilization}} = \frac{\text{Desired Stocking Level (AUMs)}}{\text{Desired \% Utilization}}$$



3. **Alternative 2- Adjust Season of Use on Streambank Riparian Areas Utilizing Fencing, Fence Meadows, and Adjust Stocking Rates**

Under this alternative the following management action would be implemented:

- 1) Fence would be constructed to control use on Jackson Creek, Mary Sloan Creek and Basin, upper Trout Creek, the north fork of Jackson Creek and the area east of King Lear Peak. Cattle would be rotated through these areas to provide rest during a portion of the growth period.
- 2) Cattle would be removed from the above areas by July 15.
- 3) Selected meadows would be enclosed to exclude livestock and/or wild horse use.
- 4) Livestock and wild horse numbers would be adjusted.

**SEASON OF USE**

The season of use on Jackson Mountain Allotment would be spring-summer (04/01-08/15) except in the southern portion occupied by wild horses, which would continue to receive yearlong use.

The Jackson/Mary Sloan/upper Trout Creek area would be used May 15 to July 15. Cattle would also be removed from the area east of King Lear Peak (upper Big Cedar Creek area) by July 15.

**RANGE IMPROVEMENTS**

Range improvements under this alternative include fencing to control livestock use of riparian areas, exclosures to exclude livestock and wild horses from wetland riparian areas and water developments to improve livestock distribution and decrease grazing pressure on riparian areas. Construction of range improvements is dependent upon Bureau funding and priorities, and upon contributions by the permittee and other interested parties.



**1) Fencing**

The permittee proposes to fence portions of the privately owned land in 1) the vicinity of the confluence of the north fork of Jackson Creek and Jackson Creek, 2) east of King Lear Peak and 3) mid-Trout Creek. These fences, used in conjunction with drift fences on public land, would be used to control livestock use of public riparian areas.

Approximately two miles of drift fences constructed in the following locations would be used to control livestock use of the Jackson Creek, Mary Sloan and upper Trout Creek areas:

Section 34, T40N, R31E  
Section 26, T40N, R31E

The drift fences would be constructed within the Jackson Mountains Herd Management Area, but outside the areas of historic and present wild horse use as indicated by distribution and census data. Therefore, construction of the drift fences would not impede the movement or free roaming behavior of wild horses.

**2) Spring/Meadow Exclosures**

Exclosures would be constructed around selected springs and associated meadows to eliminate wild horse and livestock use. The exclosures would be constructed to protect and enhance water quality and wildlife values. Wild horses would not be eliminated from current watering sources unless other sources were available. Exclosure sites would be selected in coordination with the Nevada Department of Wildlife, the permittee and other interested parties who express an interest in site selection. Sites to be considered include, but may not be limited to, those springs and meadows listed on Appendix 7.



**3) Water Developments**

The following springs are recommended for consideration for development:

Section 36, T40N, R31E (two springs)  
Section 34, T40N, R31E  
Section 2, T39N, R31E  
Section 11, T36N, R31E

In addition, a pipeline off Donna Schee Spring (Sec. 30, T37N, R32E, located on private land) should be considered to provide water to Sec. 15, T37N, R32E.

**STOCKING RATE**

Different methods were used to determine the stocking level for wild horses and livestock. The appropriate management level for wild horses was derived from 1992 data which reflects drought conditions. The number derived from this method is expected to allow utilization objectives, and consequently long term objectives to be met even under drought conditions without removing additional horses.

The carrying capacity of the allotment, and consequently the stocking level for livestock, was derived from 1988 data which reflects a more typical precipitation year.

The different methods were used because the permittee has demonstrated the ability and willingness to reduce the stocking level in response to vegetative conditions (see page 46). It is therefore reasonable to base the cattle stocking level on a typical year. Setting horse levels based on an unfavorable precipitation year is expected to maintain the natural ecological balance even under drought conditions without further adjustment of horse numbers. Because horse numbers are based on drought conditions, if any further reduction in stocking level is needed within the portion of the allotment used by horses, that reduction should be made in cattle use unless the need to specifically reduce horse numbers exists.

**APPROPRIATE MANAGEMENT LEVEL FOR WILD HORSES:**

Use pattern mapping conducted in 1992 shows areas of heavy use on upland species south of Rattlesnake Canyon, which includes the southwest and south-central portion of the



allotment. For clarity this area will be referred to as the "Rattlesnake-south" area in this document. In 1988 heavy use was recorded in some watering areas, but not in extensive upland areas.

Actual use by livestock and wild horses in the "Rattlesnake-south" area at the time utilization data was collected follows:

Year	<u>Actual Use (AUMs)</u>		Total
	Cattle	Wild Horses	
1988	2372	1018	3390
1992	1099	1092	2191

1988 and 1992 census data shows over 50% of the wild horses in the allotment in the "Rattlesnake-south" area. Cattle and wild horses share the forage base within that area and within the remainder of the allotment where horse use occurs. Under this alternative the AML for horses is based upon all forage available for horses and cattle in the "Rattlesnake-south" area as determined from the 1992 data. For calculation purposes cattle are not provided with forage within the "Rattlesnake-south" and horses are not provided with forage outside the "Rattlesnake-south" area. This is for calculation purposes only and does not mean that cattle or horses will be excluded from either area. Free access by horses will continue to occur. Reduction in cattle use may occur if monitoring indicates the need.

The appropriate management level based upon 1992 data on the "Rattlesnake-south" area was calculated as follows:

Where: Actual use by wild horses and cattle = 2191 AUMs  
 Actual % utilization = 70%  
 Desired % utilization = 50%

Then:  $\frac{2191 \text{ AUMs}}{70\%} = \frac{\text{AML}}{50\%}$

AML in AUMs = 1565 AUMs

$\frac{1565 \text{ AUMs}}{12 \text{ months}} = 130.4 = 130 \text{ horses}$

The AML of 130 horses is expected to provide a thriving natural ecological balance provided livestock management, including stocking levels, is appropriate.



Note that page 47 shows that if the carrying capacity of 8857 AUMs determined from the 1965 range survey were apportioned based on the proportion derived from the land use plan, 1594 AUMs would be apportioned to wild horses. Those AUMs would support 132 horses. While the 1965 range survey has not been used to determine carrying capacity in this evaluation, this information may be useful in judging fair allocation of forage within the allotment, and it does lend support to providing forage for 130 horses.

#### LIVESTOCK STOCKING LEVEL:

1988 use pattern mapping indicates upland utilization objectives were met at a stocking rate of 8624 AUMs. Under this alternative change of season of use (and adjustment of stocking level, if needed) would be used to insure riparian streambank objectives are met and exclosures would be used to insure wetland riparian utilization objectives are met.

Under this alternative it is recommended that the carrying capacity of the allotment be based upon the 1988 use pattern mapping. A carrying capacity of 8624 AUMs provides the following forage for cattle and wild horses:

8624 AUMs forage available  
-1565 AUMs apportioned to wild horses  
7059 AUMs available for livestock

A 30% utilization level (or a 4"-6" stubble height) has been recommended in this document for streambank riparian vegetation on Jackson, Mary Sloan and upper Trout Creeks. Because separate actual use data is not currently available for the area of these creeks a separate carrying capacity calculation has not been made for this area. Use in this area is estimated to have been 225-275 cattle, with cattle drifting into the area beginning in late April and most removed by mid-August. Under this alternative, 200 cattle would be moved into the mid-Jackson Creek area (between the upper and lower drift fences) in late May. Cattle would remain in the area for up to 10 days and then be moved above the upper drift fence. The mid-Jackson Creek area would receive rest during the majority of the growing season. Use above the drift fence would begin south of the private land adjacent to the drift fence one year and north of the private land the next. Alternating beginning areas of use would allow periods of rest during the growing season.



Utilization and actual use data would initially be collected yearly for this area. If utilization objectives were not met due to livestock use the stocking rate would be adjusted on a yearly basis until the objectives are met.

The advantages of this grazing system are that it would allow short term objectives to be met and therefore progress would be expected towards meeting long term objectives. Maintenance of the appropriate management level of 130 horses combined with meadow exclosures would allow the population to remain in a natural ecological balance with the other resources through periods of drought. Avoidance of hot season use of riparian areas in the Jackson, Mary Sloan and upper Trout Creek area and the area east of King Lear Peak would allow utilization objectives to be met at a higher stocking rate than under hot season use. In addition, less use of browse species would be expected during the earlier grazing period.

The disadvantage to this management alternative is the cost of constructing and maintaining range improvements.

4. Alternative 3- Remove Cattle When Short Term Objectives are Met

Under this alternative management would be the same as Alternative 2 except that no change in active preference would be made initially. Instead cattle would be removed when short term objectives were met.

Success in implementing this management action during plant growth and regrowth presents some difficulties, particularly on riparian areas where wet conditions can result in growth of rushes and sedges into October. For example, if a 50% utilization level is reached in summer and cattle are removed, continued growth on riparian areas can result in a standing crop of similar amount to the standing crop at a 30% utilization level if adequate soil moisture is present.

Removal of livestock when a 4"-6" stubble height is reached also presents a problem when grazing begins before the plants have reached a height of 4"-6".

In light of the above, determination of utilization 30-45 days (or earlier) prior to the end of the growth period should not be used to determine the need to remove livestock. The exception is when heavy or severe use has



occurred. Heavy to severe use would be expected to result in loss of plant vigor and continued grazing is not recommended when these utilization levels are reached, even during the growing period where continued growth is expected.

Therefore it is recommended under this alternative that utilization be determined periodically beginning in early June at the lower elevation and in late June in the upper elevations. Utilization should be determined monthly, or more frequently if it is judged that utilization objective levels are expected to be met in a shorter period of time. If moist soil conditions indicate continued growth is expected cattle may remain if in the judgement of Bureau personnel the objective levels will be met with continued use. For example, a 30% utilization level on streambank riparian vegetation may not indicate cattle be removed if wet soil conditions are expected to result in continued growth and concentrated use on streambanks is not expected.

Cattle would be removed from the allotment or moved to another part of the allotment if that move were not expected to result in failure to meet allotment objectives.

The advantage to this alternative over Alternative 2 is that the permittee would be able to harvest the maximum amount of AUMs and the stocking rate at which objectives can be met would be more quickly and accurately determined. The disadvantage is that implementation of this alternative would initially require a large commitment of work time on the part of the Bureau.

#### D. Monitoring

Collect the following types of monitoring data to continue the evaluation of management practices.

1. Utilization
2. Actual Use

It is recommended that actual use data be collected by use area where possible, including the Jackson/Mary Sloan/upper Trout basins.



3. Climate
4. Wildlife habitat evaluation
5. Trend
6. Ecological Status
7. Stream habitat inventory
8. Water Quality
9. Wild horse census and distribution

Collection of census and distribution data will be scheduled to better reflect seasonal distribution. That is, data will be gathered in July for summer distribution, December or January for winter distribution, etc.

#### VI. Consultation

##### A. Chronologically Listing of Consultation

- |          |   |
|----------|---|
| 05/13/93 | Draft Jackson Mountain Allotment Evaluation sent to interested parties. This document did not include technical recommendations. A letter was included citing the permittee's intention to put together a committee of interested parties to develop recommendations for management of allotment. |
| 06/01/93 | Permittee's meeting with interested parties.  |
| 06/14/93 | Comments on proposal to put together a committee of interested parties to develop recommendations received from Animal Protection Institute.  |
| 06/16/93 | Comments on draft evaluation received from the Nevada Department of Wildlife.   |
| 06/17/93 | Comments on draft evaluation received from the Commission for the Preservation of Wild Horses.  |
| 06/21/93 | Comments on draft evaluation received from Wild Horse Organized Assistance.   |
| 06/24/93 | Comments on draft evaluation received from the US Fish and Wildlife Service.  |



- 07/12/93 Meeting following up the 06/16/93 meeting held.
- 07/30/93 Meeting with permittee, the Commission for the Preservation of Wild Horse and Wild Horse Organized Assistance.
- 08/13/93 Meeting with the Nevada Department of Wildlife.

B. Summary of Comments

ANIMAL PROTECTION INSTITUTE, RECEIVED 06/14/93

Comment- (In reference to committee of interested parties for development of management recommendations) Essentially we call you to account for your decision under your mandate from Congress. I cannot give away any portion of the law to enter into agreements and other compromises.

I disagree that it is in the best interests of public land management to have "consensus" groups, which may or may not be the product of strong arm persuasion, doubletalk and railroad agendas.

Response- Your concerns related to "consensus" groups have been expressed by others, albeit in milder terms. Because of those concerns facilitators were used at the meetings held to develop management recommendations in order to insure that all parties were heard and treated with respect. Unfortunately, those meetings were poorly attended.

Face to face group problem solving can encourage understanding between individuals and allow interactive work towards solutions. However, in no way does group process relieve the Bureau of its responsibilities under law or policy.

NEVADA DEPARTMENT OF WILDLIFE, RECEIVED 06/16/93

Comment- Short term objectives have been modified to meet the draft livestock agreement in 1988.

Response- The Jackson Mountain and Bottle Creek Allotment Evaluation Summary of 1988 and the draft Livestock Use Agreement for Jackson Mountain Allotment both included initial efforts to establish utilization objectives. Neither were implemented by decision or approved agreement. The management over the evaluation period was evaluated in reference to the objectives listed beginning on page 12 of this evaluation. While similar, those



browser, neither of these methods provide actual use information. Actual use is the amount of forage harvested. Actual use estimates have been made for this allotment (see page 16). These estimates are more reliable as an indicator of general trend in population size than as an accurate report of the actual forage harvested. Please see page 15, Wildlife (existing numbers) for more information.

Recommendations- Reinstate the allotment Short Term Objectives to meet the land use plan allowable use levels for key vegetation.

Response- There are no land use plan allowable use levels for key vegetation. The recommendation in MFP I and MFP II (W-3.2) to establish proper use levels for utilization was rejected in the MFP III for the reason that these levels may vary when other resources are adequately considered. No allowable use levels have been incorporated into the land use plan, MFP III. Please see page 42 for recommended short term objectives for this allotment.

Recommendation- Establish carrying capacities according to proper Bureau of Land Management procedures to meet all allotment specific objectives.

Response- It is the function of the evaluation process to determine management that will allow all allotment specific objectives to be met. Carrying capacity can vary depending on the management implemented.

Recommendation- Adjust livestock season of use to protect critical mountain browse species important to big game species.

Response- Under two of the alternative management actions July 15 has been recommended as the livestock removal date in the area east of King Lear Peak and in the Mary Sloan and Jackson Creek basin areas. This removal date would be expected to benefit key browse species as well as riparian species.

Recommendation- Establish a carrying capacity for mule deer based upon land use plan objectives and monitoring data.

Response- Establishment of carrying capacity for mule deer can be considered when accurate actual use by mule deer data is obtained. Current estimates of actual use by mule deer are more reliable as an indicator of general trend in population size than as an accurate report of the actual forage harvested. Please see page 15, Wildlife (existing numbers) for more information.



## COMMISSION FOR THE PRESERVATION OF WILD HORSES, RECEIVED 06/17/93

Comment- The objectives set for this allotment in 1988 were adjusted without an approved activity plan.

Response- The Jackson Mountain and Bottle Creek Allotment Evaluation Summary of 1988 and the draft Livestock Use Agreement for Jackson Mountain Allotment both included initial efforts to establish utilization objectives. Neither were implemented by decision or approved agreement. The management over the evaluation period was evaluated in reference to the objectives listed beginning on page 12 of the evaluation. While similar, those objectives are not identical to the objectives listed in either of those document nor is there a requirement that they be. Those objectives have been a useful tool in evaluating past management. Future management will be designed to meet objectives established by decision or approved livestock management agreement. Please see page 42 for recommended objectives.

Comment- On page 5, the document briefly explains wild horse management restraints for the allotment. It states a conclusion that the appropriate management level "may be more or less than 160 horses". This section makes no reference to adjustment of other ungulates. It appears to be bias prior to analysis of any data.

Response- The statement "This AML may be more or less than 160 horses," does not relate to adjustment in existing horse numbers. Existing horse numbers are approximately 275 head. This statement is meant to clarify to the reader that the AML may differ from the starting point for monitoring established by the Land Use Plan, that is the AML may differ from 160 horses.

Comment- (suggestion for analysis)- On page 15, the document discusses surveys and data for this herd. We find that survey technique and timing are random data over the past 13 years of monitoring. Recruitment rates range from zero to 29 percent based upon summer surveys. These survey data were not analyzed in relationship to the five gathers conducted since 1988. It would be important that population estimates and recruitment rates be fully explained to support an appropriate management level in a multiple use decision.

Response- Collection of census and distribution data will be scheduled to better reflect seasonal distribution. That is, to the degree permitted by budgetary constraints, data will be gathered in July for summer distribution, December or January for



winter distribution, etc. Population estimates and recruitment rates on this and other allotments will be used to determine management action needed to maintain the appropriate management level when it is determined.

WILD HORSE ORGANIZED ASSISTANCE, RECEIVED 06/21/93.

Comment- I am not aware of any activity plans, HMAP, AMP or HMP's for these areas, if they exist, please advise.

Response- The Jackson Mountain Habitat Plan (Bighorn Sheep Reintroduction) was approved 09/21/79 and the Jackson Mountain Habitat Management Plan was approved 01/06/81. There is no AMP for Jackson Mountain Allotment or HMAP for Jackson Mountains Herd Management area.

Comment- An AML must be established, along with the livestock carrying capacity to meet the LUP objectives. These decisions must be based on monitoring...who ate what, when and where.

On page 30 through 35, we agree that wild horses do not contribute to over grazing of the stream banks, however in this area they can impact the meadows. Since the objective for these have not been met since the monitoring was established in 1982, we would require that you determine through monitoring the grazing animals responsible.

Response- You are correct that these decisions must be based upon monitoring. In this allotment cattle have used the same areas as wild horses throughout the growing season. In areas known to have been used by both cattle and horses determination of precisely which portion of the use was made by cattle and which portion was made by horses can not be made without extensive observations during grazing. Estimates can be made based upon actual use data.

Comment- The data is inconsistent, part of the monitoring data is censusing adult/foal ratios over a period of years in order to document increases; however inconsistency makes the use of random census and estimates comparable to apples and oranges. None of the gathers since 1988 were analyzed with those figures. Please explain in full how those gathers and random censusing led to your conclusions.

Response- Collection of census and distribution data will be scheduled to better reflect seasonal distribution. That is, to the degree permitted by budgetary constraints, data will be gathered in July for summer distribution, December or January for



winter distribution, etc. Population estimates and recruitment rates on this and other allotments will be used to determine management action needed to maintain the appropriate management level when it is determined.

Recommendation- Establish seasons of use for livestock and adjust those animals, establish seasons of use for wild horses and adjust those. You are required by law to PROTECT, manage and control wild horses and burros on public lands; somehow the PROTECT gets lost in the adjustments. You MUST protect their seasonal habitat. It will no longer be accepted that emergencies suddenly cost animals their lives.

Response- Please see Technical Recommendations for management alternatives.

US FISH AND WILDLIFE SERVICE, RECEIVED 06/24/93

Recommendation- We recommend that grazing strategies, such as frequent herding and/or construction of pasture fences, be considered to control animal distribution and to determine accurate actual use per seasonal area.

Response- Recommendations for fencing to control livestock use of Jackson, Mary Sloan and upper Trout Creeks have been included in this document.

Recommendation- The Service (USFWS) recommends utilization levels be adopted for allowable use of riparian habitats along proposed LCT streams which provides for sufficient regrowth to at least a 6 inch stubble height by the end of the growing season.

Response- Mary Sloan Creek, as identified in Appendix D of the draft LCT Recovery Plan, is the only stream within the Jackson Mountain Allotment listed as a "potential" recovery stream. The long term objective for stream habitat condition is currently being met on Mary Sloan Creek. The 4"-6" stubble height (or alternately, 30% use) recommended in the technical recommendations section of this document is expected to meet the requirements of plant vigor maintenance, bank protection and sediment entrapment on this creek.

Comment- We note that stream habitat condition data were inconsistent between the riparian/fisheries management evaluation section and the long-term objectives conclusions section.



Response- This comment refers to the habitat condition indexes which are part of the long term objective for stream habitat condition. The technical recommendations section includes the recommended revised stream habitat condition objective with the most current habitat condition indexes.

Recommendation- We recommend that the monitoring section state that: 1) Mid-season utilization surveys will be conducted, and 2) when maximum allowable utilization limits have been reached, livestock will be removed.

Response- One of the management alternatives requires removal of livestock when short term objectives are met. The others do not.

#### SUPPLEMENT

In response to several questions concerning the evaluation of long term objectives for the improvement and maintenance of special habitats, the following question is submitted:

Question- How will good reproduction and recruitment be determined for big game browse and woody riparian species?

Response- Reproduction and recruitment for upland browse species is evaluated using the Cole Browse Method as identified in the Bureau's "Big Game Studies" manual 6630.

Age class density sampling using permanently established one-tenth and one-hundredth acre circular plots was suggested by University of Nevada, Reno, faculty as a fast and reliable method of evaluating reproduction and recruitment in aspen and willow stands. This method will be used together with photo trend monitoring to evaluate reproduction and recruitment of aspen and willow communities.



## Literature Cited

- Clary, W.P., and B.F. Webster. 1989. Managing grazing of riparian areas in the Intermountain Region. USDA Forest Service, Intermountain Research Station, Ogden, Utah.
- Jeffress, Jim, 1993. Personal communication.
- Humboldt Sun. 1993. Deer losses top records. Humboldt Sun: 22(29):1.
- Nevada Department of Wildlife. 1989. Jackson Creek stream survey. NDOW, Humboldt County, Nevada.
- Nevada Department of Wildlife. 1990. Trout Creek stream survey. NDOW, Humboldt County, Nevada.
- Nevada Department of Wildlife. 1991. Mary Sloan Creek stream survey. NDOW, Humboldt County, Nevada.



## Appendix 1

## NEVADA STATE STANDARDS FOR WATER QUALITY

Constituents	Stock Water	Aquatic Life Propagation (cold)	Water Contact Recreation	Wildlife Propagation
Temperature °C	X	Site Specific	15-34 °C	X
pH	5.0-9.0	6.5-9.0	6.5-8.3	7.0-9.2
Dissolved Oxygen	Aerobic	>5.0 mg/l	Aerobic	Aerobic
Chlorides	<1500 mg/l	X	X	<1500 mg/l
Total Phosphate	X	Site Specific	Site Specific	X
Nitrates (as N)	<100 mg/l	Y	X	<100 mg/l
Nitrites (as N)	<10 mg/l	<0.06 mg/l	X	<10 mg/l
Total Nitrogen (as N)	X	Site Specific	X	X
Un-ionized Ammonia (as NH <sub>3</sub> )	X	<0.02 mg/l	X	X
Total Dissolved Solids (TDS)	<3000 mg/l	X	X	X
Turbidity	X	<10 NTU	X	X
Fecal Coliform (Geometric Mean)	<1000/100ml	X	<200-400/100ml	<1000/100ml
Alkalinity (CaCO <sub>3</sub> )	X	<25% change from natural conditions	X	30-130mg/l
Suspended Solids	X	<25-80mg/l	X	X

X--indicates that a specific standard has not yet been established.

Y--indicates that no standard need be established.

Site Specific--indicates that the activity or the aquatic species will dictate the standard.

NTU--an abbreviation for Nephelometric Turbidity Units, an accepted means of measuring turbidity.

Aerobic--indicates that detectable amounts of oxygen must exist within the water.

Geometric mean-- defined as the mean of "n" positive numbers obtained by taking the "nth" root of the product of the numbers.

The standard presented for Fecal Coliform, as it applies to Water Contact Recreation, is based on a minimum of 5 samples taken over a 30 day period. The level of Fecal Coliform colonies present must not exceed a log mean of 200 per 100 milliliters. Additionally, no more than 10% of the individual samples may exceed 400 colonies per 100 milliliters.

Source: Chapter 445 of the Nevada Administrative Codes (Nevada Department of Environmental Protection)



Appendix 2 - Water Chemistry for Jackson, Trout and Mary Sloan Creeks

JACKSON CREEK 1989

<u>Station</u>	<u>pH</u>	<u>Alkalinity (mg/l)</u>	<u>Conductivity * (UMHOS)</u>	<u>Sulphate (mg/l)</u>
100	8.0	222.3	620	72.0
243	8.5	222.3	550	55.0
378	8.5	222.3	500	<50.0
645	8.0	171.0	350	<50.0
792	7.0	85.5	N/A	<50.0

TROUT CREEK 1990

<u>Station</u>	<u>pH</u>	<u>Alkalinity (mg/l)</u>	<u>Conductivity * (UMHOS)</u>	<u>Sulphate (mg/l)</u>
788	8.0	205.2	350	<50.0
996	8.0	171.0	275	<50.0
001**	7.5	153.9	225	<50.0

MARY SLOAN CREEK 1991

<u>Station</u>	<u>pH</u>	<u>Alkalinity (mg/l)</u>	<u>Conductivity * (UMHOS)</u>	<u>Sulphate (mg/l)</u>
190	8.0	273.6	500	<50.0
250	8.0	188.1	400	<50.0

\* Conductivity is the measure of water's ability to conduct an electrical current. Although it is not a direct measure of total dissolved solids, it is a good indicator of the concentration of ions held in solution. Actual total dissolved solids values can be determined from electrical conductivity if a conversion factor has been determined. This conversion factor normally ranges from 0.5 to 0.75 (dimensionless).

\*\* Tributary 930



Appendix 3 - Water Quality Data for Jackson Creek

CONSTITUENTS	11/76	5/14/79	7/18/79	9/12/79	5/19/82	7/14/82	9/09/82	5/17/83	6/12/84	8/21/84	5/07/85	7/23/85	10/24/89
pH	8.2	8.45	8.4	8.3	8.0	7.5	7.9	7.9	---	---	---	---	7.0
TURBIDITY (JTU's)	0.7	0.0	0.9	1.8	3.7	14.0	1.6	11*	13*	2.0*	16*	3.7*	---
TOTAL DISSOLVED SOLIDS (mg/l)	225	228	200	170	204	201	169	---	---	---	---	---	---
NITRATE (mg/l)	1.1	1.05	1.8	1.1	1.6	1.2	1.1	ND	1.25	---	.70	.30	---
ORTHO-PHOSPHATE (mg/l)	.001	.04	ND	.05	ND	ND	ND	---	---	---	---	---	---
TOTAL PHOSPHATE (mg/l)	---	---	---	---	---	---	---	.30	.14	.12	.10	ND	---
CHLORIDES (mg/l)	11	165	238	158	9.6	7.1	10	18	47	---	34	65	---
ARSENIC (mg/l)	<.001	ND	.031	.002	ND	.12	.034	.003	---	---	---	---	---
CALCIUM (mg/l)	48	26	21	28.7	53	34	32	---	---	---	---	---	---
COPPER (mg/l)	1.05	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---
IRON (mg/l)	.02	.70	.49	ND	ND	.43	.17	---	---	---	---	---	---
MANGANESE (mg/l)	<.02	.06	.06	ND	ND	ND	ND	---	---	---	---	---	---
POTASIUM (mg/l)	1	2.4	1.2	1.4	.89	1	1	---	---	---	---	---	---
SODIUM (mg/l)	18	16	15	15	15	14	13	---	---	---	---	---	---
ZINC (mg/l)	<.01	.10	ND	ND	.006	.005	.012	---	---	---	---	---	---
TOTAL COLIFORM (#/100ml)	262	9	0	10	20	600	---	1800	6838	1578	---	TNTC	---
FECAL COLIFORM (#/100ml)	0	0	0	0	<10	<10	---	---	90	38	---	---	---
SULFATE (mg/l)	12	19	11	15	10	14	12	---	---	---	---	---	50
BICARBONATE (mg/l)	17	114	81	119	150	125	119	---	---	---	---	---	---
CARBONATE (mg/l)	0	16	30	0	0	0	0	---	---	---	---	---	---
TEMPERATURE (°C)	7	12	12	9	6	12	12	---	---	14.4	10	17.7	6.1
MERCURY (mg/l)	---	ND	.0003	ND	ND	ND	ND	---	---	---	---	---	---
MAGNESIUM (mg/l)	---	---	---	---	7.9	5.6	6.4	---	---	---	---	---	---

ND-indicates that no detectable levels were present.

TNTC-Too Numerous To Count

--- indicates that the test was not performed due to lab or sampling error.



Appendix 4 - Determination of Wild Horse Population Increase Following  
the Gather in Winter 1988-89.

Calculations assume (1) an average weighted survival rate of 89.3% for the herd, based on results from the 1992 Black Rock East HMA gather, and (2) a foal crop of 20.4%, which is the average of the percent foals in the censuses of 1986, 1988 and 1989. The figure from the 1993 census (13.8%, 38/275) was not used in the average because of difficulty in distinguishing young-of-the-year (1992) from adults in many cases; therefore the figure is likely to be low.

Fall 1989

188 adults

55 colts

243 x .893 = 217 survived to spring 1990.

Spring 1990

217 adults x .204 = 44 colts born.

Fall 1990

217 adults

44 colts

261 x .893 = 233 survived to spring 1991.

Spring 1991

233 adults x .204 = 48 colts born.

Fall 1991

233 adults

48 colts

281 x .893 = 251 survived to spring 1992.

Spring 1992

251 x .204 = 51 colts born.

Fall 1992

251 adults

51 colts

302 x .893 = 270 survive to spring 1993.

The census in January 1993 counted 275 horses in the Jackson Mountains allotment.

Rate of increase:

Spring 89 to spring 90: 188-217 = 15.4%

Spring 90 to spring 91: 217-233 = 7.3%

Spring 91 to spring 92: 233-251 = 7.7%

Spring 92 to spring 93: 251-270 = 7.6%

Spring 89 to spring 93: 188-270 = 9.5%

Apparently there was a high birth rate following the gather, then it settled down. Drought conditions may have contributed to the lower rates.



Legend

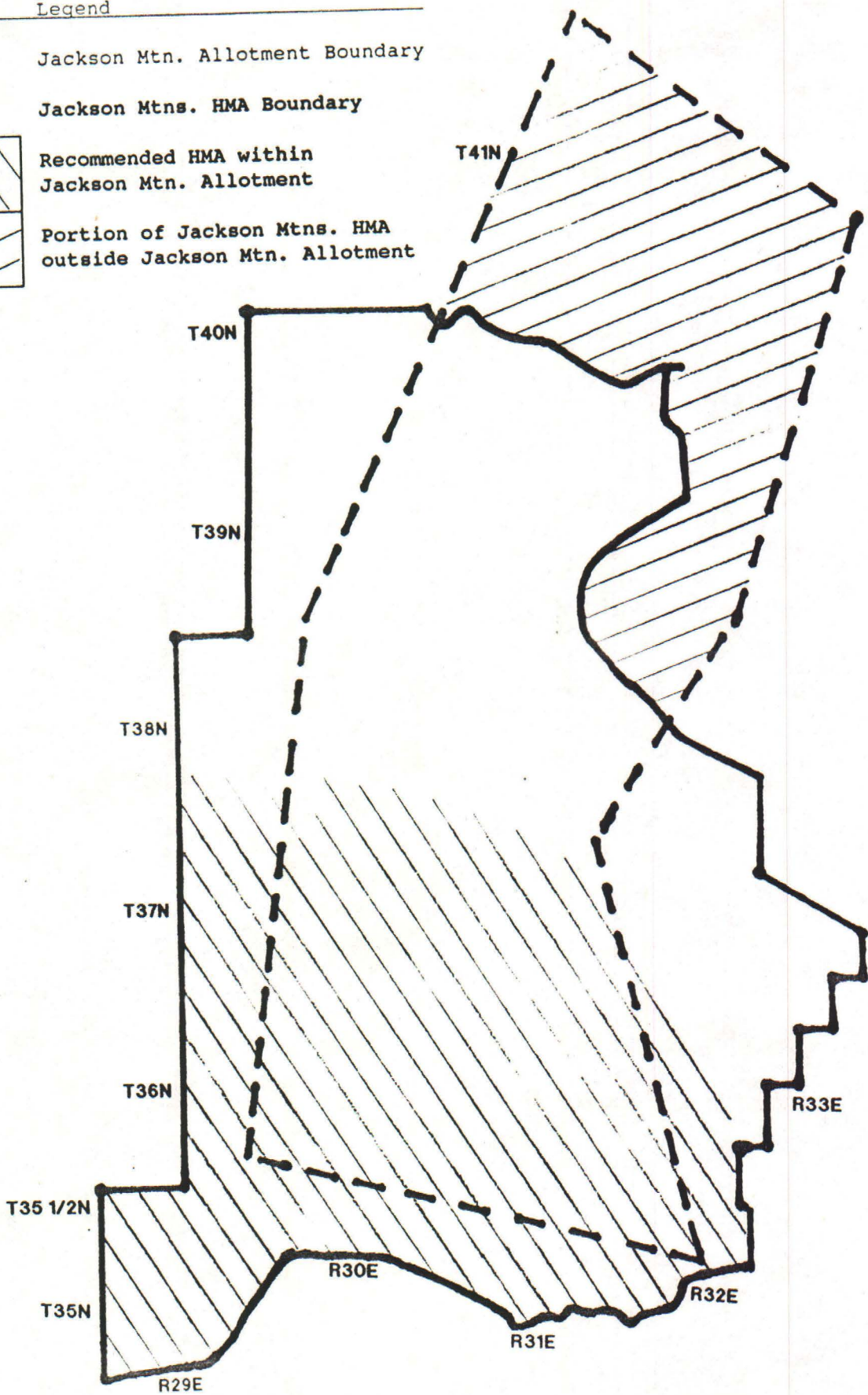
Jackson Mtn. Allotment Boundary

Jackson Mtns. HMA Boundary



Recommended HMA within Jackson Mtn. Allotment

Portion of Jackson Mtns. HMA outside Jackson Mtn. Allotment





Appendix 6 - Potential Spring and Meadow Exclosure Sites

Under Alternative 2 the following sites would be considered for constuction of exclosures to eliminate wild horse and livestock use:

SW $\frac{1}{4}$ NW $\frac{1}{4}$ , Sec. 32, T39N, R32E	} Identified in the Jackson Mtns. HMP approved 01/06/79
NW $\frac{1}{4}$ NE $\frac{1}{4}$ , Sec. 36, T40N, R31E	
SE $\frac{1}{4}$ SW $\frac{1}{4}$ , Sec. 7, T39N, R32E	
SE $\frac{1}{4}$ NE $\frac{1}{4}$ , Sec. 6, T39N, R32E	
SE $\frac{1}{4}$ NW $\frac{1}{4}$ , Sec. 8, T39N, R32E	
NW $\frac{1}{4}$ SW $\frac{1}{4}$ , Sec. 13, T37N, R30E	
NE $\frac{1}{4}$ NE $\frac{1}{4}$ , Sec. 9, T38N, R30E	
NW $\frac{1}{4}$ NE $\frac{1}{4}$ , Sec. 2, T37N, R30E	
SW $\frac{1}{4}$ NE $\frac{1}{4}$ , Sec. 5, T38N, R31E	
NW $\frac{1}{4}$ NE $\frac{1}{4}$ , Sec. 28, T39N, R31E	

Sites to be considered are not restricted to these listed above.



JACKSON MOUNTAIN ALLOTMENT

CARRYING CAPACITY

Year	AUMs Livestock	AUMs Horses	AUMs Total	Measure 70	Desired 50	AUMs Desired
1988	7050	2436	9486	70	50	6776
1989	8093	2256	10349	70	50	7392
1990	7099	2604	9703	70	50	6931
1991	7099	2796	9805	70	50	7004
1992	5411	3012	8423	70	50	6016
Average	6950	2621	9571	(7212)		6824
Percent	.73	.27		(100%)		

Necessary Reduction to Meet Carrying Capacity

Five Year Average Total Use	9571 AUMs
Five Year Average Desired Use	6824 AUMs
Reduction	2747 AUMs

Reduction by User

Livestock	2747 AUMs	X .73	=	1992 AUMs
Wild Horse	2747 AUMs	X .27	=	742 AUMs

Livestock Active Preference

$$6950 \text{ AUMs} - 1992 \text{ AUMs} = 4958 \text{ AUMs}$$

Wild Horse Appropriate Management Level

$$2621 \text{ AUMs} - 742 \text{ AUMs} = 1879 \text{ AUMs}$$

$$\frac{1879 \text{ AUMs}}{12} = 157 \text{ horses}$$

Note: 1992 Wild Horse Population was 251 horses. Actual use for horse are from census on the allotment. If 50 percent of the herd area is on the Jackson Mountain Allotment, then the AML for the herd is 314 horses.



