M 12/1/94

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Carson City District Office
1535 Hot Springs Rd., Ste. 300
Carson City, Nevada 89706-0638

IN REPLY REFER TO:
4130
(NV-03580)

DEC 1 1994

November 30, 1994

Dear Interested Party:

Enclosed for your review are the Eldorado and Hackett Canyon Allotment Evaluations. These are two of the nine allotments contained in the northern Pine Nut Herd Management Area (HMA). In order to allow adequate time for review and comment, the issuance of the remaining allotment evaluations will be spread out over the month of December. Comments on any of the evaluations will not be due until thirty days after the issuance of the last evaluation.

As you may recall from my letter dated February 11, 1994, the Walker Resource Area has been working on the evaluation of monitoring data for grazing allotments in the Pine Nut HMA. During the development of earlier evaluations, a key question asked by the Walker Resource Area Staff was how to meet the requirements of the allotment evaluation process while still recognizing the mandate to manage wild horses within the HMA, not within each allotment. It was decided that the evaluations should not set an Appropriate Management Level (AML) for each allotment but should, instead, set a potential stocking level for each segment of the HMA based on monitoring data and then define an AML for the combined potential stocking levels of all the allotments.

By defining a potential stocking level for each portion of the HMA in lieu of an "AML" for each allotment, provision is made for the movement of horses within the HMA since utilization by wild horses is based on the availability of forage, not on a predetermined number of horses for an allotment. This is the basis for providing nine allotment evaluations before establishing a "due date" for comments. A specific date will be identified in the cover letter which transmits the last evaluation(s).

Sincerely,

J. Matthiessen

John Matthiessen
Area Manager
Walker Resource Area

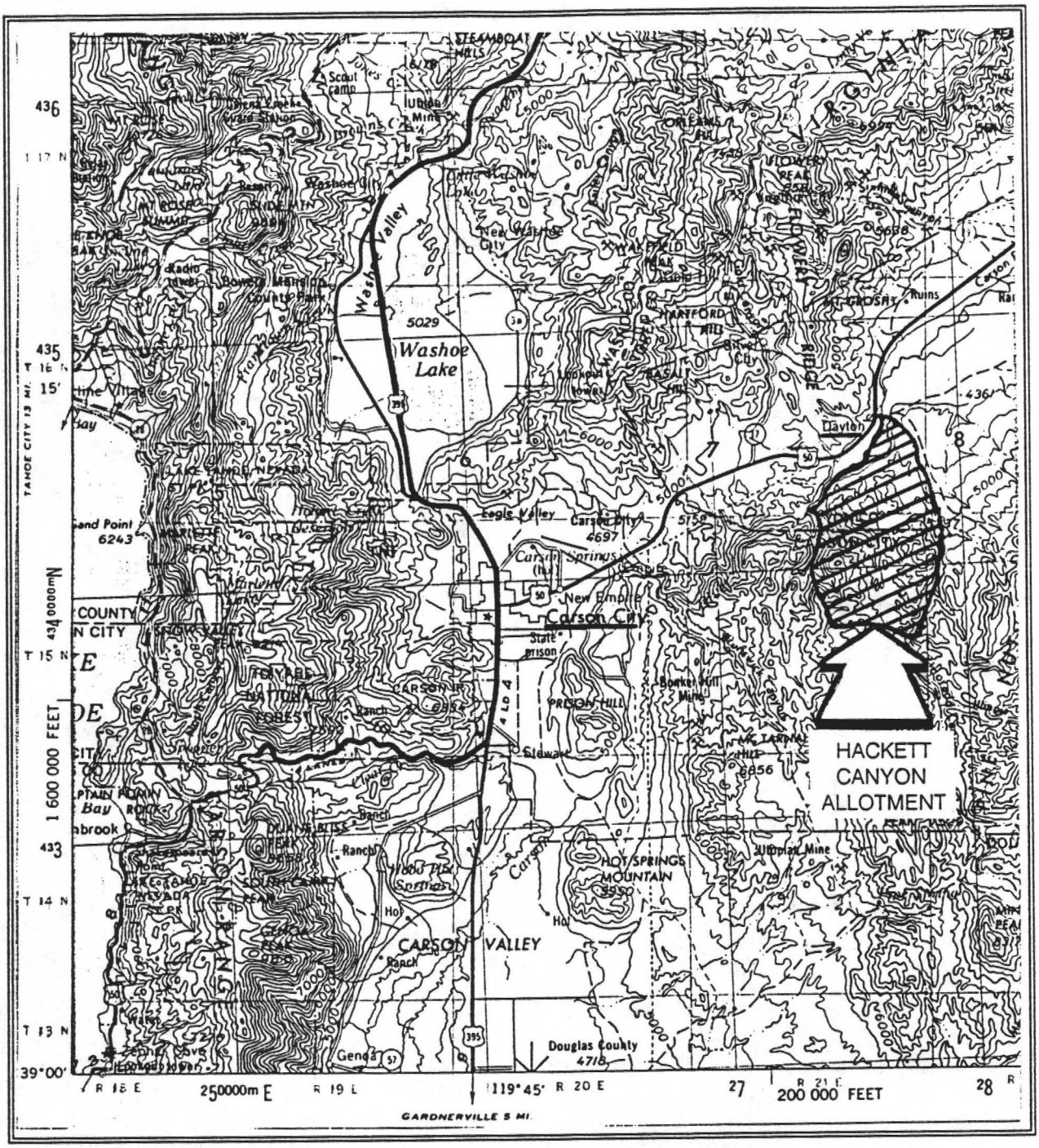
2 Enclosures:
1. Eldorado Allotment Evaluation
2. Hackett Canyon Allotment Evaluation

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carson City District Office
1535 Hot Springs Road, Suite 300
Carson City, Nevada 89706-0638

HACKETT CANYON ALLOTMENT EVALUATION

NOVEMBER 30, 1994



Map No. 1
LOCATION OF HACKETT CANYON ALLOTMENT

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

E. Threatened and Endangered Species 6

IV. Management Evaluation 6

A. Actual Use 6

B. Precipitation 7

C. Utilization 8

D. Trend 9

E. Ecological Status 10

F. Wildlife Habitat 11

G. Riparian Habitat 11

H. Wild Horse Habitat 12

V. Conclusions 13

VI. Technical Recommendations 17
A. Short Term Objectives 17
B. Long Term Objectives 18

Appendices:

I. Ecological Sites in Hackett Canyon Allotment
II. Stocking Level Calculations
III. Single-leaf Pinyon and Utah Juniper in the Northern Pine Nut Mountains of Nevada

Maps:

1. Location of Hackett Canyon Allotment (page i)
2. Hackett Canyon Allotment
3. 10/13/93 to 10/18/93 Use Pattern Mapping

Table of Contents

I. Introduction 1
A. Purpose 1
B. Allotment Name and Number 1
C. Permittee 1
D. Evaluation Period 1
E. Selective Management Category 1

II. Initial Stocking Rate 1

A. Livestock Use 1
1. Preference 1
2. Historical and Current Operations 2

B. Wild Horse and Burro Use 2
1. Herd Management Areas (HMAs) in Allotment 2
2. Management Levels 2

C. Wildlife Use 2
1. Mule Deer (*Odocoileus hemionus*) 2
a. Existing Numbers 2
b. Key Mule Deer Range 3
2. Other Species 3

III. Allotment Profile 3

A. Description 3

B. Acreage 4

C. Allotment Specific Objectives 4
1. Land Use Plan Objectives 4
2. Reno Rangeland Program Summary (RPS) 5
3. Pine Nut Habitat Management Plan (HMP) 5

D. Key Species Identification 5
1. Uplands 5
2. Riparian 5

HACKETT CANYON ALLOTMENT EVALUATION

I. Introduction

A. Purpose

In June, 1992, the Bureau of Land Management issued its *Strategic Plan for Management of Wild Horses and Burros on Public Lands*. One of the objectives is to establish initial Appropriate Management Levels (AMLs) for all herd areas by 1995. In order to establish an AML for wild horses in the Pine Nut Herd Management Area (HMA), it is necessary to evaluate resource management within all the allotments included within the HMA. One of these is Hackett Canyon Allotment.

Specifically, the purpose of the allotment evaluation process is to determine if the current grazing practices are consistent with attainment of the Walker Resource Management Plan (RMP) and allotment specific objectives for the Hackett Canyon Allotment. If current grazing practices are not consistent with attainment of these objectives, then appropriate changes in management needed to meet these objectives will be identified, and appropriate change in management implemented.

B. Allotment Name and Number: Hackett Canyon (03583)

C. Permittee: Joe Ricci Estate

D. Evaluation Period: 1982 (issuance of Reno Record of Decision) to present.[1]

E. Selective Management Category: "C"[2]

II. Initial Stocking Rate

A. Livestock Use

1. Preference

Preference (AUMs)			Kind of Live-stock	Period of Use	Percent Federal Range Use
Active	Suspended	Total			
515	0	515	Cattle & Sheep	04/05 - 06/04	97%

[1]Some data discussed in this evaluation was collected prior to 1982.

[2]"Custodial" management while protecting existing resource values (Final Grazing Management Policy, 1982).

2. Historical and Current Operations

Preference in the Hackett Canyon Allotment was adjudicated in 1963. At that time, the allotment was grazed by two permittees: Joe Ricci (32 AUMs cattle) and William Goni (500 AUMs sheep). In 1987, Goni's preference in Hackett Canyon Allotment was transferred to Joe Ricci. Note that prior to the transfer, the AUMs of both permittees had been reduced through land exchanges. The current period of use was established in an Area Manager's Decision dated December 5, 1986.

B. Wild Horse and Burro Use

1. Herd Management Areas (HMAs) in Allotment

All of the Hackett Canyon Allotment is included as a portion of the Pine Nut HMA (the allotment accounts for approximately 6% of the area within the HMA). The Eldorado Canyon Fence was completed in the winter of 1993 in order to restrict wild horses from drifting onto private lands in the northern portion of the allotment, which would result in their removal when local citizens complained about damage to their property.

2. Management Levels

The Appropriate Management Level (AML) for the Pine Nut HMA will be based on stocking levels for wild horses determined for all the allotments within the HMA. The stocking level for the Hackett Canyon Allotment will be determined through the analysis of monitoring data contained within this document.

C. Wildlife Use

1. Mule Deer (*Odocoileus hemionus*)

a. Existing Numbers

Based on 1991 Nevada Division of Wildlife population estimates and predicted distribution, 75 head of deer use the Hackett Canyon Allotment yearlong, and an additional 90 deer use the allotment in winter. Existing numbers are converted to AUM's below in order to compare to reasonable numbers from the Reno Grazing Environmental Impact Statement discussed in the Conclusions Section.

No. of Deer	Period of Use (Months)	Percent Public Land	AUMs
75	Yearlong (12)	81%	182
90	11/15 to 05/31 (6.5)	81%	118
		Total AUMs =	300

b. Key Mule Deer Range

The majority of the allotment is key mule deer winter range.

2. Other Species

The Hackett Canyon Allotment contains animals typical of the northern Pine Nut Mountain Range in addition to species associated with the Carson River. Mammals include coyote (*Canis latrans*), cottontail rabbit (*Sylvilagus nuttalli*), jack rabbit (*Lepus californicus*), mountain lion (*Felis concolor*), gray fox (*Urocyon cinereoargenteus*), beaver (*Castor canadensis*), spotted skunk (*Spilogale putorius*), striped skunk (*Mephitis mephitis*), Raccoon (*Procyon lotor*) and small rodents. Birds include California quail (*Callipepla californicus*) and various species of song birds, water birds and raptors.

III. Allotment Profile

A. Description

The Hackett Canyon Allotment is located approximately six miles east of Carson City, Nevada, and immediately south of Dayton on the northern end of the Pine Nut Mountain Range (refer to Map No. 1, page i). Elevation varies from approximately 4,400 feet along the Carson River to over 6,100 feet in the southern portion of the allotment. The allotment boundary is not fenced.

Due to its close proximity to human habitation, the allotment is subject to many conflicts associated with urban populations. These include heavy use by off road vehicles (ORVs), illegal dumping, and possible conflicts between public land users and the residential developments occurring on private lands along the northern portion of the allotment.

Based on the Reno Grazing Environmental Impact Statement (1982), the Hackett Canyon Allotment was classified as a category C allotment because:

1. Primarily a woodland allotment with little or no potential to increase ecological condition without major vegetation-type changes.

2. Non-use is normal for this allotment.

B. Acreage

Based on the allotment boundaries established during the 1963 Adjudication, Hackett Canyon Allotment currently contains the following lands:

Land Status	Acres
Public Lands open to Grazing	6,246
Public Lands under Recreation and Public Purposes (R&PP) Lease	80
Permittee Owned or Controlled (Fenced)	155
Permittee Owned or Controlled (Unfenced)	238
Other Private Lands	1,112
Total	7,831

Public and private lands are shown on Map No. 2. The private lands in the northern portion of the allotment were probably considered open rangeland when the allotment boundary was established during the 1963 adjudication. However, these lands are currently being developed for business, industrial, residential, and municipal purposes as the town of Dayton expands.

C. Allotment Specific Objectives

1. Land Use Plan Objectives

All citations below are from the Reno Planning Area Record of Decision (Reno ROD), issued in 1982.

a. Allotments in the C category will be managed to prevent resource deterioration.

b. A Herd Management Plan will be developed in the Pine Nut HMA.

c. 1982 wild horse numbers will be adjusted as indicated through monitoring

or as agreed to by consultation and coordination through a public process.

2. Reno Rangeland Program Summary (RPS) - released May, 1984

   a. Assure ecological condition does not decline in non-woodland sites.

   b. Maintain mule deer habitat so it does not decline.

3. Pine Nut Habitat Management Plan (HMP) - revised in 1987

   a. Protect and improve riparian areas to a good or better condition class with special emphasis on mule deer key areas by May 1989 within the Pine Nut Planning Unit.

   b. Manage big game habitat to fair or good condition to support big game populations.

   c. Improve bitterbrush production and seedling establishment within key deer winter range.

D. Key Species Identification

1. Uplands

Based on their importance to livestock and wild horses, the later seral perennial grasses[3] are considered key species. These include Indian ricegrass (*Oryzopsis hymenoides*), several species of needlegrass (*Stipa* sp), and in some ecological sites, bottlebrush squirrel-tail (*Sitanion hystrix*). Antelope bitterbrush (*Purshia tridentata*) is a key species due to its importance as winter forage for mule deer.

2. Riparian

Riparian vegetation is important to wildlife, wild horses, livestock and humans. Woody species include Freemont cottonwood (*Populus freemontii*), coyote willow (*Salix exigua*), Pacific tree-willow (*Salix lasiandra*), and wild rose (*Rosa woodsii*). Meadow species including Nevada bluegrass (*Poa nevadensis*), Nebraska sedge (*Carex nebrascensis*), silver sedge (*Carex praegracilis*), Baltic rush (*Juncus*

[3]Refer to footnote 9, page 10, for discussion of seral stages.

balticus), tufted hairgrass (*Deschampsia caespitosa*), spikerush (*Eleocharis palustris*), Kentucky bluegrass (*Poa pratensis*), and creeping wildrye (*Elymus triticoides*).

E. Threatened and Endangered Species

No threatened or endangered species have been identified in the Hackett Canyon Allotment. No candidate plant species[4] have been observed in the allotment. The only candidate animals that may occur in the allotment is the loggerhead shrike (*Lanius ludovicianus*), spotted bat (*Euderma maculatum*), and pygmy rabbit (*Brachylagus idahoensis*).

Since the loggerhead shrike is common throughout the Resource Area and occurs in a variety of habitats, the possibility that it may occur in the Hackett Canyon Allotment is high. The shrike generally prefers open areas for hunting insects, and occasionally small vertebrates. They generally will select nesting sites, which includes tall shrubs and trees, near their hunting areas. Based on this description, foraging habitat in the Hackett Canyon Allotment would include old burns and meadows. Since these birds store their prey on thorns, the presence of thorny shrubs would be an advantage. Anderson peach-brush (*Prunus andersonii*) is one such plant species found throughout the allotment.

The spotted bat spends daylight hours and reproduces in caves, cliffs and talus slopes. It generally feeds on flying insects in the vicinity of juniper grasslands and tall sagebrush. The pygmy rabbit reproduces and feeds in sagebrush/grasslands and riparian habitats. Since these habitats occur throughout the Pine Nut Range, there is a possibility that the spotted bat and the pygmy rabbit occur in the Hackett Canyon Allotment.

IV. Management Evaluation

A. Actual Use

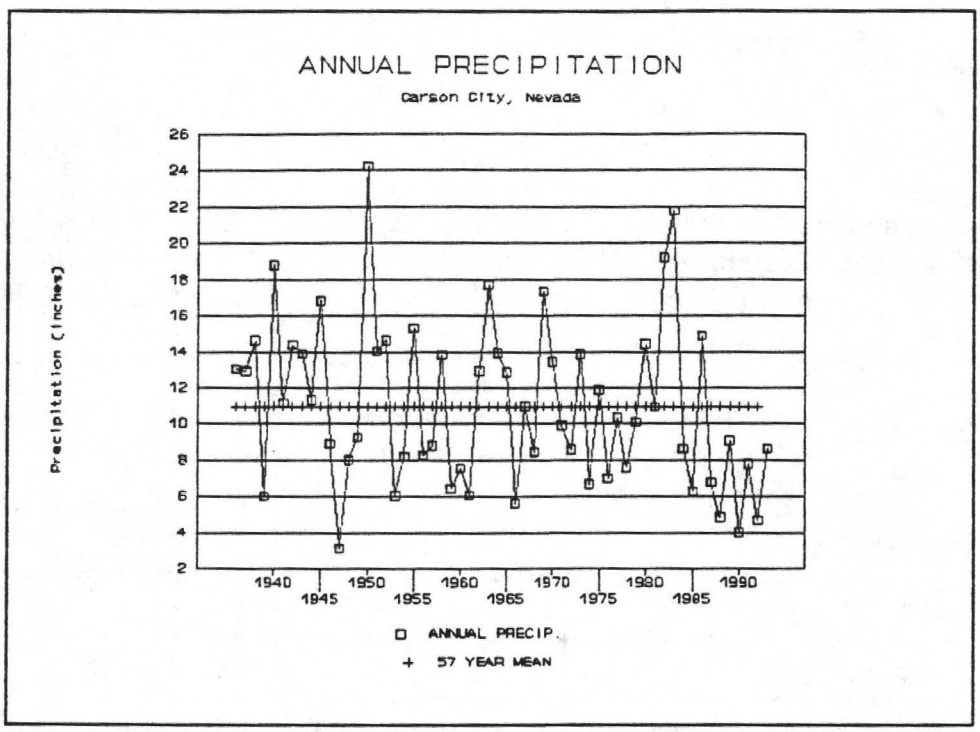
Authorized livestock use is shown below. Refer to page 12 for wild horse census data.

[4]Candidate species include plants and animals on which the currently existing information indicates that listing may be warranted, but which substantial biological information to support a listing is lacking. BLM Manual 6840 requires that management be such as not to require listing of these species.

Year	Permittee (s)	Kind of Livestock	AUMs	Use Period
1982	Joe Ricci	Cattle	32	05/16 - 07/31
1983	Joe Ricci	Cattle	28	06/02 - 07/15
1984	Joe Ricci	Cattle	25	06/01 - 07/31
1985	Joe Ricci	Cattle	31	05/26 - 07/31
1986	Joe Ricci	Cattle	31	05/21 - 07/22
1987	non-use		0	
1988	non-use		0	
1989	non-use		0	
1990	non-use		0	
1991	non-use		0	
1992	non-use		0	
1993	non-use		0	

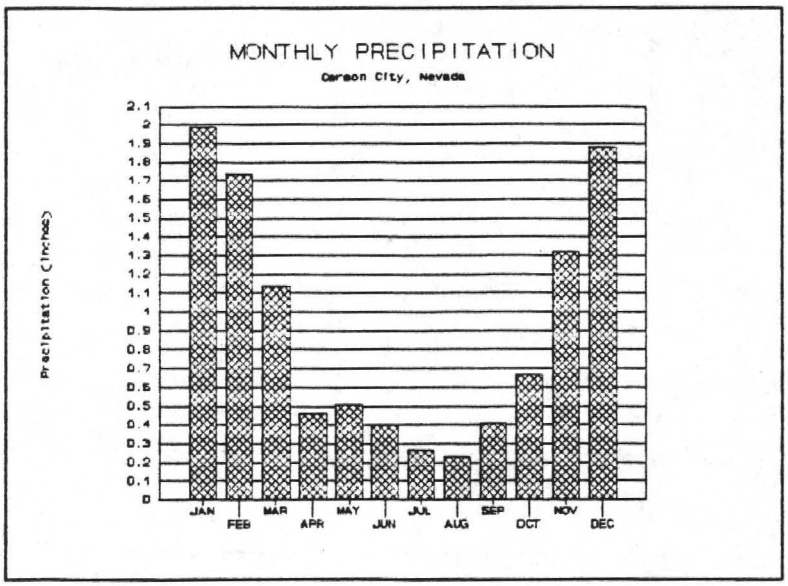
B. Precipitation

The annual precipitation shown below is from Carson City, Nevada, which is the closest station with consistent and reliable data. It is located at 4650 feet elevation. The fifty-seven year mean and median annual precipitation is calculated as 11 inches and 10.4 inches respectively.



Note that the Carson City recording station is at a lower elevation than some of the ecological sites in the allotment (refer to Appendix I). Due to the effects of

orographic lifting[5], sites at a higher elevation will have a higher annual precipitation than the Carson City Recording Station. Although the effect was documented throughout the state in the *Nevada Watershed Studies (1963 to 1980)*[6], the closest recording sites had significantly different precipitation patterns than Hackett Canyon Allotment. Therefore linear regression analysis of these studies probably would not be applicable. Below is the fifty-seven year mean monthly precipitation for the Carson City Station.



C. Utilization

Although use pattern mapping has been completed since 1976, only three years of this data was recorded during the evaluation period. All use is from wild horses except in 1985 (permittee applied for non-use in 1992 and 1993). This data is summarized below. Map No. 3 shows the 1993 use pattern mapping.

Year	Utilization Classes					
	No Use, Slight & Light		Moderate		Heavy and Severe	
	Acres	%	Acres	%	Acres	%
1985	4,613	74	1,633	26	0	
1992	6,174	99	71	1	0	
1993	5,784	93	0		463	7

[5]Orographic lifting: changes associated with the increase in elevation due to the presence of mountains.

[6]Houng-Ming Joung, John H. Trimmer, Richard Jewell (1983). BLM Nevada State Office Technical Publication BLMNVPT830014340.

Additional observations from the 1993 mapping are presented below.

a. No wild horse use was observed on bitterbrush. Yearly production (leader growth) of bitterbrush varied throughout the allotment.

b. Areas dominated by single-leafed pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) had no perennial bunch grasses in the understory. Therefore, many of these areas were recorded as no-use although wild horses sign was seen on roads and trails.

c. The area in the vicinity of Photo Plot No. 1 (refer to Map No. 2) had very few perennial grasses. Slight use was recorded on low sagebrush (*Artemisia arbuscula*).

D. Trend

Hackett Canyon is a "C" category allotment with low priority compared to other grazing allotments in the Walker Resource Area. Therefore quadrat frequency studies have never established[7].

However, photo plots were established in the allotment in 1976 and photographs have been taken frequently since then (the most recent being 1993). Locations of the plots are shown on Map No. 2. Two photo points are recorded at least every three years: a close-up of a five-foot square plot and a wide angle photograph of the area in vicinity of the plot. Observations are summarized below. Note that the density of annual plant species can vary significantly from year to year due to fluctuation of seasonal precipitation. It is more important to observe the long term changes of perennial plant species.

Hackett Canyon No. 1: In 1976, this site was dominated by low sage (*Artemisia arbuscula*) with a sparse understory of Indian ricegrass and bottlebrush squirreltail. A reduction of perennial grasses occurred between 1976 and 1980. In 1983, cheatgrass (*Bromus tectorum*) dominated the site. Between 1983 and 1987, a fire in the portion of the allotment where this plot is located resulted in an almost total elimination of low sage and perennial grasses. Very little change has occurred in the photo plot and on the site since 1987. In 1993, only annual grasses and forbs grew in the plot. Only a few low sagebrush and perennial grass plants could be observed in the vicinity of the plot.

Hackett Canyon No. 2: In 1976, the site was dominated by low sagebrush with a sparse understory of bottlebrush squirrel-tail and Thurber's needlegrass (*Stipa*

[7]Although the Nevada Rangeland Monitoring Handbook (1984) recommends that minimum monitoring data include frequency trend, it also states in relation to implementation and maintaining of monitoring: "budgetary constraints may preclude attaining this goal and necessitate setting priorities and concentrating efforts on allotments where management changes are needed and/or being implemented" (page 2).

thurberana). Several pinyon and juniper trees existed on the site. Other than slight fluctuations of annual grasses and forbs, very little change has occurred within the plot and on the site.

E. Ecological Status

In 1979, a vegetation inventory was completed in the Hackett Canyon Allotment. Weight estimate data was collected on all species of grasses, forbs and shrubs to determine species composition of the existing plant communities. Unfortunately, percent composition was not determined for tree species, even when they were listed as occurring on the site. Based on tree-line depicted on USGS 7.5 minute series maps[8], timber covered approximately 68% of public land (4,256 acres) in the Hackett Canyon Allotment in 1982 (i.e., three years after the survey). This would indicate that percent composition of tree species was an important aspect of existing plant community.

The Soil Surveys for Lyon and Carson City Counties, and the site descriptions for Major Land Resource Area 26 recognized that some soils will support ecological sites with potential natural communities (PNCs)[9] dominated by pinyon-juniper. Based on the analysis of soils data in Appendix I, 6.34% of public land in the Hackett Canyon Allotment should support a PNC dominated by pinyon - juniper woodland (refer to the table below) while 84.13% of the allotment should support a PNC dominated by grasses, shrubs or other tree species. The "barren areas" category identified below includes areas such as rock outcrops that have the potential of supporting only very sparse stands of vegetation.

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[8]1987 Provisional Edition by United States Geological Survey. Information compiled from aerial photos taken in 1982.

[9]Note that the Bureau currently uses concepts and terminology prescribed in the BLM Manual Handbook H-4410-1, National Range Handbook (NRH), released on 7/12/84. H-4410-1 definition of Potential Natural Community (PNC): "The biotic community (potential natural plant community and wild animal community) that would become established if all successional sequences were completed without interferences by man under the present environmental conditions". It is important to remember that the existing vegetation may be quite different from the PNC due to such factors as improper grazing, mechanical vegetative manipulation, etc. A plant community that has not achieved PNC is a seral plant community. If all plants were killed within an ecological site, the plant community that first appears would probably be composed of plant species very different from those in the PNC (probably annual grasses and forbs). This would be described as a early seral plant community. As the early seral plant species are replaced by plants found in the PNC (later seral plant species), the plant community undergoes a process referred to as plant succession. This includes four seral stages (early seral, mid seral, late seral, and finally, PNC). These stages are usually determined by the similarity of plant species to those found in the PNC (0-25% = early seral, 25-50% = mid seral, 50-75% = late seral, 75%-100% = PNC). The present state of vegetation in relation to PNC (i.e., the seral stage) is referred to as ecological status. Note that this is a very simplified explanation of a very complex process that is influenced by many factors. One of these influences is wild fires caused by lightning storms during the hot and dry periods of the year, which was a natural element in many plant communities prior to human influences. Therefore, the PNC for ecological sites that evolved under the presence of wild fires would be composed of fire tolerant plant species. Removal of this element (i.e., fire prevention) may cause the fire tolerant species to be replaced by more competitive fire sensitive species and the plant community would move away from PNC. Appendix III discusses this in relation to the pinyon - juniper plant communities.

Vegetation Status	Acres Public Land	Percent of the Public Land
Pinyon-Juniper Woodland	396	6.34%
Ecological sites with PNC dominated by species other than pinyon or juniper.	5,255	84.13%
Barren areas (eg., rock outcrops)	595	9.53%

F. Wildlife Habitat

In 1993, mule deer key winter range was rated based on procedures from the Bureau's 6630 Manual. Habitat was rated at 60.27 (borderline between fair and good). The tree dominated areas over much of the allotment lacked adequate key forage species to reasonably conduct a rating. This would indicate that though the dense stand of pinyon and juniper covering much of the Hackett Canyon Allotment (refer to previous section on ecological status) provide optimal thermal and hiding cover, it does not provided adequate amounts and diversity of forage for mule deer. The herbaceous vegetation and associated woody plants provided by riparian areas have the best habitat values. These areas are important for season-long forage, spring and summer fawn rearing, and winter thermal cover[10].

G. Riparian Habitat

Riparian areas were visited in 1993 during the use pattern mapping and are discussed below. Refer to Map No. 2 for locations. These areas were evaluated based on the definition of healthy and functioning riparian areas described in the *Riparian - Wetland Initiative for the 1990's*[11].

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[10] Lackenby, Donavin A., Dennis P. Sheehy, Carl H. Nellis, Richard J. Scherzinger, Ira D. Luman, Wayne Elmore, James C. Lemos, Larry Doughty, and Charles E. Trainer (1986) Wildlife habitats in managed rangelands - the Great Basin of Southeastern Oregon. USDA Forest Service and USDI-BLM General Technical Report PNW-139.

[11] BLM, 1991. Pages 6 to 8.

Areas No. HC 1 to 4. These are really a complex of several riparian habitats in the same area and differentiation between the areas is difficult. The meadow habitats showed hoof damage and heavy to severe utilization from wild horses. No use was found on cottonwoods and willows, although some active soil erosion was occurring on banks near the woody species (HC 1 and HC 4). Based on the lack of soil stability, the riparian areas HC 1 and HC 4 are not in functional condition. Due to the heavy to severe utilization and punching of meadows, HC 2 and 3 are functional, but at risk. Note that HC 1, 2 and 4 are north of the Eldorado Canyon Fence and therefore are currently not open to wild horse grazing (refer to Wild Horse Herd Areas, page 2).

Area No. HC 5. Slight use was recorded on meadow species and no punching was observed, although some active erosion was observed on overhanging banks. Based on lack of soil stability, HC 5 is not functional. However, the erosion cannot be attributed to overuse by wild horses or livestock.

Area No. HC 6 (Hackett Spring). Very little grass and forb cover could be found under the thick overstory of Pacific tree willow that dominated this site. The very sparse meadow habitat that does exist had severe use and hoof damage, although no active erosion was observed. Due to the soil stability and wildlife habitat provided by the willow the area is functional, but at risk due to hoof damage, severe use, and lack of species diversity.

Unnamed Springs. The area has several springs dominated by dense stands of Pacific tree willow with sparse understory. Where perennial water is accessible to wild horses, the ground is punched and understory is severely utilized. The site is functional, but at risk for the same reasons as HC 6.

Carson River. Less than one quarter mile of riverine habitat exists on public lands in the Hackett Canyon Allotment. The area includes steep, rocky river banks, which are quite stable with no active erosion. The site is dominated by coyote willow with very little understory. Although there is a lack of plant species diversity, this is probably the site's potential natural plant community (PNC) due to the thin skeletal soils. The willows provide plenty of habitat for several species of birds and hiding cover for mammals. Because of these factors, the area is in proper functioning condition.

H. Wild Horse Habitat and Numbers

The considerable density of trees and the associated decline in the understory vegetation are limiting factors for wild horses. This is addressed in the previous sections. Shown below is census data specific to the Hackett Canyon Allotment.

Year	Wild Horse Numbers	AUMs
1990	23	276
1992	6	72
1993	12	144

Census and removal data available for the entire HMA is shown below (i.e., some data was not stored in a form where numbers could be tabulated for individual allotments).

Year	Numbers Counted during Census	Numbers removed during major Gathers
1984	664	235
1985		335
1986	273	233
1989	279	
1990	351	64
1992	467	
1993	491	

V. Conclusions

The accomplishment of the objectives shown in Section III C (Page 4) are discussed below. Objectives have been grouped due to similarities.

A. Utilization, Trend, and Condition

Allotments in the C category will be managed to prevent resource deterioration. Reno ROD

Assure ecological condition does not decline in non-woodland sites. Reno RPS

Improve bitterbrush production and seedling establishment within key deer winter range. Pine Nut HMP

Based on the analysis of Hackett Canyon Photo Plot 2, very little change has occurred between 1976 and 1993. This plot is located south of the Eldorado Fence at

approximately 5,500 feet elevation. Therefore, the ROD and RPS objectives are being met in this area.

Photo Plot No. 1 is located north of the Eldorado Fence on the lower alluvial fans at approximately 4,600 feet elevation. Perennial grasses were in a downward trend until their complete disappearance after a wild fire. Since Indian ricegrass and bottlebrush squirreltail have a good resistance to burning[12], the plants may have been in poor health and/or the fire was so intense that it destroyed the roots. Based on these observations, the ROD and RPS objectives were not being met in 1987 for the area near Photo Plot No. 1.

Use pattern mapping from the late 1970's showed that the area near Photo Plot No. 1 had received heavy and severe use by wild horses and livestock. The downward trend of perennial grasses prior to 1983 may have been attributed to the fact that much of the over-use probably occurred during the growing season of plants (i.e., yearlong use by wild horses and spring and summer period-of-use for livestock). This may have also weakened the plants to the extent that they could not have survived the fire between 1983 and 1987. Overuse by wild horses in the vicinity of this photo plot will be reduced by the Eldorado Canyon Fence. Refer also to Section B, below (Authorizing Livestock Use).

The stocking level calculation for wild horses is presented in Appendix II. Based on an equal division of forage between wild horses and livestock within the allotment, the stocking level necessary to achieve the desired yearlong utilization level of 55% is 168 AUMs each for wild horses and livestock.

Data collected in order to determine the Mule Deer Habitat Rating indicated that although 28% of bitterbrush plants were decadent, 16% were young plants. This would indicate that reproduction was occurring. Utilization on bitterbrush was recorded as light (i.e. less than 10%). Therefore, the Pine Nut HMP objective is being met.

B. Wild Horses

A Herd Management Area Plan (HMAP) will be developed in the Pine Nut HMA. Reno ROD

1982 wild horse numbers will be adjusted as indicated through monitoring or as agreed to by consultation and coordination through a public process. Reno ROD

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[12]Wright, Henry A., Leon F. Neuenschwander, and Carlton M. Britton (1979) The Role and Use of Fire in Sagebrush-Grass and Pinyon-Juniper Plant Communities. A State-of-the-Art Review. USDA For. Serv. Gen. Tech. Rep. INT-58. Pages 26, 27, 46.

This evaluation is the first step in developing management direction for the Hackett Canyon Allotment, including management of wild horses. Once evaluations for all of the allotments in the Pine Nut HMA have been submitted for public review, Multiple Use Decisions (MUDs) will be issued. The Wild Horse Management Decision portion of all the MUDs will then be incorporated into a herd management area plan for the Pine Nut HMA.

Wild horse numbers (i.e., the appropriate management level) will be established for the entire Pine Nut HMA and will be based on the stocking levels determined for all the allotments in the HMA. The stocking level reflects the amount of forage (AUMs) for wild horses as determined through monitoring; numbers are not relevant on an allotment basis. This concept recognizes the mandate that horses are to be managed within their herd areas in balance with their habitat. The stocking level for wild horses in the Hackett Canyon Allotment portion of the Pine Nut HMA is calculated in Appendix II is 187 AUMs.

C. Authorizing Livestock Use.

For livestock management purposes, the construction of the Eldorado Canyon Fence has essentially divided the Hackett Canyon Allotment into two pastures (north and south). The fence also offers an opportunity to reduce much of the competition between wild horses and livestock.

North Pasture: Without the construction of more fencing, cattle will probably drift off the public lands to the developing private lands north of the allotment (the Eldorado Canyon Fence was constructed to prevent this from happening with wild horses). However, Hackett Canyon Allotment is historically a sheep allotment, which provides a situation where animals can be controlled through herding. A stocking rate was calculated for the Hackett Canyon Allotment in Appendix II. Based on these calculations, 131 AUMs of forage exists north of the fence (North Pasture). Note that these AUMs are calculated based on use by wild horses. Although wild horses and sheep will feed on different types of forage during much of the year, they will be in direct competition for grass species during the spring[13], which is the current season of use for livestock. Refer also to the discussion of livestock season of use on page 16.

South Pasture. Based on the calculations in Appendix II, an equal division of forage in the allotment would result in 187 AUMs each for wild horses and livestock. Since 146 AUMs could be grazed by sheep north of the fence (North Pasture), only 41 AUMs of livestock forage would exist in the South Pasture.

[13]This is based on the forage preferences of different kinds of grazing animals described in Stoddart, Laurence A., Arthur D. Smith, and Thadis W. Box (1955), Range Management, page 257.

This is assuming that all wild horse use (187 AUMs) will be made south of the Eldorado Canyon Fence (South Pasture).

Although the Eldorado Canyon Fence may block access of cattle to the developing private lands north of the allotment, the allotment boundary in the south pasture is not fenced. These boundaries will probably remain unfenced in order to allow for the free movement of wild horses throughout the Pine Nut HMA.

The current season of use (04/05 to 06/04) would occur during the active growing season of key plant species (03/15 to 06/30[14]). Cattle or sheep grazing during this period would continually be returning to previously grazed plants, causing stress and preventing carbohydrate storage in the roots. Changing the season of use to summer would result in livestock grazing during the warmest period of the year. If cattle are grazed, they would have a greater tendency to concentrate on riparian areas. Fall grazing would not allow for the regrowth of riparian plant species and winter mule deer forage.

If the current season of use is maintained, specific areas should be grazed two weeks or less each year (i.e., short duration grazing). This should allow for regrowth and recovery of grazed plants. On the other hand, short duration grazing occurring after the seed-ripe growth stage of key species (06/30) may enhance seedling production of upland plant species. Therefore occasional grazing after 06/30 may be necessary for improving upland sites. Limiting the utilization to 23% on bitterbrush by livestock (approximately half the recommended yearlong allowable use on shrub species) would ensure that forage remains for overwintering mule deer.

D. Wildlife and Riparian Habitat

Maintain mule deer habitat so it does not decline. Reno RPS

Manage big game habitat to fair or good condition to support big game populations. Pine Nut HMP.

Protect and improve riparian areas to a good or better condition class with special emphasis on mule deer key areas by May 1989 within the Pine Nut Planning Unit. Pine Nut HMP

Key deer winter range was rated as borderline fair / good habitat condition in 1993. Therefore, the second objective has been met. The existing demand for mule deer as shown on page 2 (Existing Numbers) is 300 AUMs. This is greater than the 236

[14]Seasons of use based on the growing season of bitterbrush, Indian ricegrass and needlegrass on mid elevation sites in Carson City District. Data is from Nevada Rangeland Phenology (1979).

AUMs for reasonable numbers in the 1982 Reno Grazing Environmental Impact Statement (Table 1-2). This would indicate that the 1982 goals have been exceeded.

It was felt that functionality was more important than ecological status in determining condition of riparian areas. This is especially important in consideration of the Bureau-wide mandate to "restore and maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition by 1997".[15] All riparian areas were surveyed in 1993 and listed as either functional, functional at risk or not functional (refer to Riparian Habitat, page 11). The main threat was overutilization and hoof damage by wild horses, although this was not the case with HC 5 (cause could not be determined). The areas HC 1, 2, and 4 were excluded from the HMA by the construction of the Eldorado Fence. Once the stocking levels have been achieved within the HMA, continued monitoring will be necessary to determine if riparian areas are being properly managed.

E. Threatened and Endangered Species

There are no known threats to the loggerhead shrike and spotted bat posed by wild horses or livestock. Management of horses and livestock should result in no significant changes to the suitability of the either of these animal's habitat. The biggest threat would result from loss of open areas due to the increasing density of pinyon - juniper trees. Negative impacts to riparian areas may have a detrimental impact to the pygmy rabbits (refer to the previous section). Vehicular traffic in April may impact nesting shrikes.

VI. Technical Recommendations

A. Short Term Objectives

In order to prevent resource deterioration, maintain the current ecological status and maintain mule deer habitat condition, the following technical recommendations are offered.

1. The maximum allowable use by wild horses in the Hackett Canyon Allotment portion of the Pine Nut Herd Management Area (HMA) should not exceed 168 AUMs (Refer to Appendix II).

2. No more than 146 AUMs of sheep use should be authorized in the North Pasture.

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[15] BLM, Riparian - Wetland Initiative for the 1990's, page 16 (Goal Number 1 - Restoration and Maintenance). It is important to remember that seral stage does not determine whether a riparian area is healthy and functioning. BLM Technical Reference 1737-5 states that relating riparian health to ecological site status "...is a dangerous and functionally impossible view of how riparian systems operate". This same idea was recognized in the Riparian - Wetland Initiative for the 1990's, which states (emphasis added): "The overall objective is to achieve an advanced ecological status, except where resource objectives, including proper functioning condition, would require an earlier successional stage."

This use is subject to the following constraints:

a. This pasture will be grazed for two weeks or less each year.

b. During most years, this two week period will occur sometime between 03/15 to 06/30.

c. At the discretion of the Area Manager, use may occasionally be authorized after 06/30.

3. No more than 41 AUMs of livestock use should be allowed in the South Pasture, subject to the same constraints under recommendation 3, above.

4. In order to provide forage for over-wintering mule deer, allow no more than 23% use on bitterbrush by livestock or wild horses before October. Yearlong use by all herbivores should not exceed 45%.

5. Allow no more than 55% yearlong use on perennial grasses.

B. Long Term Objectives

Appendix I shows the plant communities that would have occurred without human intervention (i.e., the potential natural communities or PNC). However, management toward a PNC over the entire Hackett Canyon Allotment may not be desirable nor support the concept of multiple use management. As an example, since pinyon and juniper woodland has potential economic, aesthetic, cultural and recreational values, it is important to manage for a long term ecosystem to include pinyon-juniper woodland. Based on the data analyzed in this evaluation, only 6% of the Hackett Canyon Allotment would support a PNC dominated by pinyon and/or juniper. Of course Hackett Canyon is only one of twelve allotments in the Pine Nut Mountain Range.

Therefore, it is recommended that a proposed landscape description be developed that will include a variety of plant communities. Management could then be directed to achieving the desired landscape. This should be done on a larger scale than individual allotments such as on a mountain range and/or watershed basis. It will be important to include public input and may require a land use plan amendment.

As an aid to developing landscape goals, a review of current research relating to singleleaf pinyon and Utah juniper is presented in Appendix III.

APPENDIX I
HACKETT CANYON ALLOTMENT
ECOLOGICAL SITES BASED ON SOIL SURVEY

1	2	3	4			5	6	7
Ecological Site Number	Ecological Site Name	Potential Dominant Plant Species	Potential Yield (lb/ac)			Elevation Range (feet)	Public Land Acres	% of Allot.
			Fav.	Nor.	Unf.			
026XY023NV	Claypan 10–12" P.Z.	STTH2,ARAR8,POCA,SIHY	500	400	300	6000 – 6500	2,042	32.69%
026XY010NV	Loamy 10–12" P.Z.	STTH2,ARTRW,ELCI2,PUTR2	900	700	600	5500 – 6500	1,874	30.00%
026XY005NV	Loamy 12–14" P.Z.	STIPA,PUTR2,ARVA2	1300	1100	800	6000 – 9500	630	10.09%
ROCK	Rock Outcrops	Barren					578	9.25%
026XY025NV	Claypan 8–10" P.Z.	ARAR8,STTH2,POSE	400	300	200	5000–6000	401	6.42%
P/J	Pinyon Juniper Woodland	PIMO,JUOS				4800 – 8800	396	6.34%
026XY022NV	Stony shallow loam 8–10" P.Z.	STSP3, ARTRW, EPVI, SIHY	600	450	300	4500–5500	236	3.78%
026XY024NV	Droughty loam 8 – 10" P.Z.	ARTRW–GRSP/ORHY–STSP3	400	300	200	4400 – 5200	22	0.35%
026XY016NV	Loamy 8 – 10" P.Z.	STTH2, ARTRW, SIHY, ORHY	800	600	400	4400 – 5500	22	0.35%
026XY047NV	Droughty claypan 8–10" P.Z.	ARTEM/STSP3–ORHY	300	200	150	5000 – 5500	19	0.30%
RUBBLE	Rubble land	Barren					17	0.27%
026XY018NV	Shlw. Granitic Upland 10–12" P.Z.	STSP3,PUTR2,ARTRW	600	400	250	5000 – 6000	8	0.13%
026XY008NV	Granitic Fan 10–12" P.Z.	PUTR2–ARVA2/STCO4–ORHY	1000	800	600	4500 – 5500	1	0.02%
						TOTAL PUBLIC LAND =	6,246 ACRES	

Explanation of Data in Appendix I

Ecological Sites described in this appendix were correlated from soils data published in the Carson City and Lyon County Soil Surveys (issued in 1979 and 1984, respectively). The most recent soils / ecological site correlation data was used in this analysis, therefore the information presented herein may differ from the 1979 range condition inventory.

Column Number	Description
1	Ecological Site Number. This number can be used to reference a site to the Soil Conservation Service Site Descriptions for Major Land Resource Area (MLRA) number 026. The data used in columns 2 to 5 are derived from these descriptions.
2	Ecological Site Name. "PZ" means Precipitation Zone and is measure in inches.
3	Potential Dominant Plant Species. These are the major plant species found in the Potential Natural Community (PNC). Plant codes are identified below.

Plant Code	Scientific Name	Common Name
ARAR8	*Artemisia arbuscula*	Low sagebrush
ARTEM	*Artemisia sp*	sagebrush
ARTR2	*Artemisia tridentata*	big sagebrush
ARTRW	*Artemisia tridentata wyomingensis*	wyoming big sagebrush
ARVA2	*Artemisia vaseyana*	mountain big sagebrush
BRCA5	*Bromus carinatus*	mountain brome
CAREX	*Carex sp*	sedge
ELCI2	*Elymus cinereus*	basin wildrye
ELTR3	*Elymus triticoiles*	creeping wildrye
EPVI	*Ephedra viridis*	green ephedra
JUOS	*Juniperus osteosperma*	Utah juniper
ORHY	*Oryzopsis hymenoides*	Indian ricegrass
PIMO	*Pinus monophylla*	singleleaf pinyon
PONE3	*Poa nevadensis*	Nevada bluegrass
PRAN2	*Prunus andersonii*	Anderson peachbrush
PUTR2	*Purshia tridentata*	antelope bitterbrush
SIHY	*Sitanion hystrix*	bottlebrush squirreltail

Column Number	Description
3 (cont.)	

Plant Code	Scientific Name	Common Name
STCO4	*Stipa comata*	thread-and-thread grass
STIPA	*Stipa sp*	needlegrass
STSP3	*Stipa speciosa*	desert needlegrass
STTH2	*Stipa thurberiana*	Thurber needlegrass

4	Yield, measured in pounds per acre. This is the amount of live matter that will be produced during a growing season. The three figures are for favorable, normal and unfavorable years.
5	Elevation range where the specific ecological site may be found
6	Public land acres covered by the specific ecological site.
7	Percentage of the allotment covered by the specific ecological site.

Appendix II
Hackett Canyon Allotment
Stocking Level Calculations

Shown below are the series of calculations used to derive the potential stocking level for wild horses and livestock in the Hackett Canyon Allotment portion of the Pine Nut HMA. The stocking level is determined using the Potential Actual Use formula from BLM Technical Reference (TR) 4400-7, *Rangeland Monitoring Analysis, Interpretation, and Evaluation* (November, 1985), Appendix 2, pages 54 - 56:

$$\frac{\text{Actual Use (AUMs)}}{\text{Average Utilization (\%)}} = \frac{\text{Potential Actual Use (AUMs)}}{\text{Desired Average Utilization (\%)}}$$

The formula compares the percent *Average Utilization* (calculated in Sections A and B, below) to the *Actual Use* of the grazing animal(s) that resulted in that utilization (Section C). Based on this comparison, the *Potential Actual Use* necessary to achieve the *Desired Average Utilization* (Section D) can algebraically be determined (Section E). The potential actual use at the desired utilization level would be the desired stocking level for the Hackett Canyon Allotment .

A. Use Pattern Mapping Data. Acreages shown below are taken from the 10/13/93 to 10/18/93 use pattern mapping. Although the "No Use" category is shown to account for the total acreage in the allotment, this acreage was not used in calculations relating to wild horses. Being free-roaming creatures of habit, the wild horses did not use these portions of the allotment due to topographical restrictions, fear of predation, and/or lack of forage due to dense pinyon-juniper overstory. Therefore, these areas are considered to be ungrazable by wild horses.

No livestock was authorized to graze in 1993, therefore all use is by wild horses.

Utilization Class	Class Mid-point (y)	Acres in Allot. by Class (x)	Weighted Acres (x * y)
Slight	10%	2,019	201.9
Light	30%	0	0
Moderate	50%	0	0
Heavy	70%	463	324.1
Severe	90%	0	0
TOTALs		2,482	526
No Use		3,764	
Total		6,246	

B. Average Utilization. The source for the weighted average formula used below is from the BLM Technical Reference TR 4400-7[1].

$$\text{Average Utilization} = \frac{\Sigma \text{ (Acres per Util. Class X Class Mid-Point)}}{\Sigma \text{ Acres}}$$

$$\text{Average Utilization} = \frac{\Sigma(x * y)}{\Sigma(x)} = \frac{526}{2{,}482} = \mathbf{21.2\%}$$

C. Wild Horse Actual Use in Hackett Canyon Allotment. 12 head of wild horses were counted in the Hackett Canyon Allotment in 1993. Based on yearlong grazing, wild horse actual use for the allotment is calculated as follows:

12 wild horses X 12 months = 144 AUMs

D. Desired Utilization in HMA. Since these calculations are based on yearlong use of the allotment (i.e., during critical growth periods of plant species) it is appropriate to use the yearlong AUL for perennial grasses (55%) shown in the *Nevada Rangeland Monitoring Handbook* (September, 1984), page 23.

E. Potential Actual Use (AUMs) Calculation for Hackett Canyon Allotment. The potential actual use (i.e., potential stocking level) of wild horses and livestock necessary to bring the average utilization to 55% is calculated below.

$$\frac{\text{Actual Use (AUMs)}}{\text{Average Utilization (\%)}} = \frac{\text{Potential Actual Use (AUMs)}}{\text{Desired Average Utilization (\%)}}$$

$$\frac{\text{144 AUMs (from C, above)}}{\text{21.2\% (from B, above)}} = \frac{\text{Potential Actual Use}}{\text{55\% (from D, above)}}$$

373.7 AUMs = Potential Actual Use (Potential Stocking Level)

Based on a stocking level of 336 AUMs for the Hackett Canyon Allotment an equal division of forage between wild horses and livestock (i.e., 374 ÷ 2) would be **187 AUMs** each.

F. Stocking Level South of Eldorado Canyon Fence (South Pasture). The purpose of the Eldorado Canyon Fence is to restrict wild horses from drifting onto private lands located to the north of the Eldorado and Hackett Canyon Allotments. The fence divided the Hackett Canyon Allotment into two pastures. The stocking level in the portion of the allotment south of the fence (South Pasture) is calculated as follows:

[1] *Rangeland Monitoring Analysis, Interpretation, and Evaluation* (November, 1985) Appendix 1, page 52 & 53.

Stocking Level (South Pasture) = $\frac{\text{Acres in HMA South of Fence}}{\text{Acres in allotment grazed by horses}}$ X Potential Actual Use (from E, above)

Stocking Level (South Pasture) = $\frac{1{,}515 \text{ Acres}}{2{,}482 \text{ Acres}}$ X 374 AUMs = **228.3 AUMs**

G. Stocking Level North of Fence (North Pasture)

Allotment AUMs - South Pasture AUMs = North Pasture AUMs

374 AUMs - 228 AUMs = **146 AUMs**

June 20, 1994

APPENDIX III

SINGLELEAF PINYON AND UTAH JUNIPER IN THE NORTHERN PINE NUT MOUNTAINS OF NEVADA

In preparation for evaluations on several grazing allotments located in the northern Pine Nut Mountain Range of Nevada, it was necessary to review the current research relating to singleleaf pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*). This report is the culmination of that research.

I. Prehistorical and Historical Overview

A. Prehistory

Single-leaf pinyon pine migrated into the Great Basin between 5,000 to 7,000 years ago, when temperatures reach their maximum during the current (Holocene) epoch [Tausch, Wigand, and Burkhardt (1993)]. Very little documentation could be located when pinyon actually reached the Pine Nut Mountains. Utah juniper has existed in the vicinity much longer than pinyon. Research of a pack rat midden site in western Nevada showed that Utah juniper was present in every sampled stratum of the 30,000 years of the record for this site.

Young (1983) asserted that ecosystems currently dominated by pinyon and juniper evolved under episodes of periodic burning. These fires, which occurred at frequencies between ten and thirty years apart, would have restricted the trees to shallow, rocky soils in rough terrain. This idea is reflected in the climax plant community concept as it is used by the Soil Conservation Service to determine the differences in range sites and woodland suitability groups (Brackley, 1987). Wright et al (1979), on the otherhand, maintained that fire cannot be seperated from drought and competition with grasses as a controlling factor in the distribution of pinyon and junipers, especially junipers. This concept would support a more dynamic environment where trees would expand their distribution during wet years, but decrease their distribution during drought periods and/or period of increased fire activity.

Prior to the first settlers immigrating from the east, the native human population (Washoe Tribe) relied on pinyon nuts harvested in the Pine Nut Range as a major food source. Tribe members would camp in the mountains during the harvest season, removing cones from trees by flailing with long poles. More persistent cones were removed with a primitive 'hook' at the end of the flailing poles. Care was taken to avoid damaging trees during the harvest. Undergrowth was removed around the trees to aid in harvesting and to prevent the spreading of forest fires (Goodwin and Murchie, 1980). John C. Freemont contacted Washoe Tribe in 1844 near Topaz Lake in Antelope Valley, who harvested nuts from the southern

Pine Nut Range. The entry in Freemont's Journal from January 25, 1844 contains the following:

> **"These (the pinyon nuts) seemed to be a staple of the country, and whenever we met an Indian, his friendly salutation consisted of offering a few nuts to eat and trade..."**

Although documentation exists to the importance of pine nut harvesting to the native population in the southern Pine Nut Range, very little information could be found of the importance of pinyon pine in the northern portion. Cultural Resource records at the Carson City District have very few prehistoric sites associated with the northern Pine Nuts.

B. Discovery of the Comstock Lode

With the discovery of the Comstock Load, pinyon and juniper in the vicinity of Virginia City was harvested extensively for fuel, being almost depleted by the 1860s (Van Hooser and Casey, 1987). Once this occurred, wood was harvested from the Sierra Nevadas and probably, to a large degree, throughout the northern Pine Nut Range. The Pine Nut Mountains also supported the needs of communities such as Carson City (1851 to present), Dayton (1853 to present), and Como (1879 to 1881)[1].

A map of the "Washoe" region from 1862 (Paher, 1970, page 42) described the lower and mid fans south of Dayton as "Sage Lands". The northern Pine Nut Mountains were described as "Sparsely Timbered with Scrubby Pine & Cedar". Cadastral Survey plats from between 1861 and 1881 generally described the habitat in the vicinity of Sunrise Pass as "Mountains with Pine and Cedar Timber". Based on the surveyors notes and "Timber Line" drawn on the plats, stands of "Heavy Nut Pine Timber" was frequently interrupted by openings. Due to their location next to roads, some of these openings were presumably from timber harvesting.

Photographs from 1902 in the vicinity of Como (Paher, 1970, page 72) showed very few old pinyon and juniper trees, although young trees were visible. This could be the results of the harvesting during the mining boom.

C. Post Mining Boom

A twenty year depression between 1880 to 1900 resulted in a decline in population and mining activities (Pendleton etal, 1982), which in turn probably resulted in

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[1]Dates of communities from Pendleton etal, 1982.

a decline in wood harvesting in the northern Pine Nut Range. The heavy livestock grazing in the late 1800s and early twentieth century reduced grass competition and fuel for fires, resulting in an increase in pinyon and juniper.

II. Impacts of Pinyon - Juniper Overstory to Understory Plant Species

Effects on understory decline due to increasing singleleaf pinyon pine and Utah juniper cover was documented by Everett and Sharrow (1983). These effects include the following:

A. The ability of pinyon to utilize soil moisture before many of the understory species breaks dormancy and the ability of the taproot to draw moisture at greater levels than most understory species gives an extreme competitive advantage.

B. Duff accumulation inhibits the establishment of understory species.

C. Shading and/or toxic influences reduces understory species.

D. As pinyon - juniper cover increase, understory cover decreases as a whole.

Everett and Sharrow (1985) found in studies from west central Nevada that grass cover, yield and nutrient content increased substantially following single-leafed pinyon and Utah juniper harvesting on north and west facing aspects, but minimal response was observed on south aspects. Based on this, tree harvesting for the purpose of improving livestock forage should not be done on south aspects. They also concluded that nitrogen levels in grasses were adequate for livestock during the summer on tree-harvested sites, but nitrogen and phosphorus levels in grasses were inadequate for deer on both harvested and non-harvested sites. Of course, overstory removal would also result in an increase in forbs and shrubs. Transition zones near the edge of wooded areas produced the best quality and quantity of grass. Although this research was directed toward livestock production, the results should be directly applicable to habitat managed for wild horses and many species of wildlife.

Tausch, Nabi, and West (1977) monitored singleleaf pinyon and Utah juniper sites throughout the Great Basin. They noted that there appears to be four stages in the takeover of an understory. The first step is seedling establishment until trees are about the size of the largest shrubs. Trees may not be noticeable in this stage. The second stage is when the trees reach one to two meters (approx. 3 to 6 feet). At the end of this stage, about 1/3 or less of the understory productivity has been lost. The plant community is completely dominated by trees by the end of the third stage, and 2/3s to over 3/4s of the understory productivity has been lost. According to Tausch, Nabi and West, stage one was completed between 1860's and 1890's and stage two was completed

on more productive sites between 1940's and 1950's (this seems to concur with information under Section I of this report). They also state:

> **Much of the remainder of the Great Basin woodlands where invasion is taking place are moving into stage three and are now undergoing a rapid decline in understory productivity. By the year 2000, all but the more marginal sites of pinyon-juniper woodlands in the Great Basin will have lost most of their productive capability, if present trends continue.** Tausch, Nabi and West (1977), page 29.

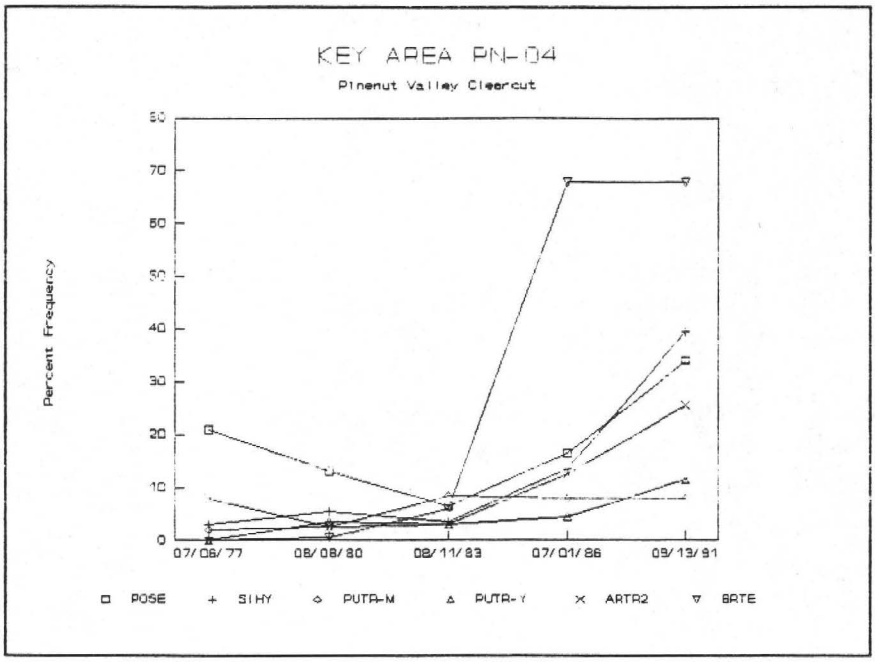
The effects of overstory removal in the Pine Nut Mountains was monitored on a 10 acre experimental pinyon - juniper clearcut done in 1977. Quadrat frequency study data was collected in accordance to procedures adapted from Tueller, etal (1972)[2]. The results are shown in Table 1 and Figure 1. Note that the 1977 recording was done immediately prior to the cut.

Table 1--*Major Plant Species at Key Area PN04 (Pinenut Valley Clearcut).*

Plant Code	Common Name	Scientific Name
ARTR2	big sagebrush	*Artemisia tridentata*
BRTE	cheatgrass brome	*Bromus tectorum*
POSE	Sandberg bluegrass	*Poa secunda*
PUTR-M	antelope bitterbrush - mature	*Purshia tridentata*
PUTR-Y	antelope bitterbrush - young	*Purshia tridentata*
SIHY	bottlebrush squirreltail	*Sitanion hystrix*

Figure 1.--*Frequency study results for Key Area PN04 (Pinenut Valley Clearcut).*

[2]Procedures eventually included in BLM Technical Reference 4400-4 (Trend Studies) 1985, pages 29 - 35.



Note that the frequency initially declined or remained static on all species except mature bitterbrush. Based on Carson City and Yerington precipitation data, this coincides with a short drought between 1977 and 1979 . After 1983 (a peak precipitation year), Sandberg bluegrass, bottlebrush squirreltail, big sagebrush and cheatgrass showed dramatic increases. Although mature bitterbrush frequency leveled out, young bitterbrush plants increase.

The beneficial effects of reduced overstory competition could be easily negated by improper management of wild horses and livestock. This is quite evident in quadrat frequency and key area utilization data from a chaining and seeding the Sunrise Allotment. Monitoring results showed that significant reductions in crested wheatgrass (*Agropyron cristata*, *A. desetorum*, or crosses) coincided with heavy and severe use levels due primarily to wild horses[3].

III. Impacts of Fire on Pinyon - Juniper Community

Based on Wright, et al (1979), pinyon and juniper less than 4 feet in height were killed during spring fires when temperatures were 70 to 74° F. (21 to 23° C.), relative humidity of 20 to 40 percent and wind speeds were 10 to 20 miles/hour. June fires when temperatures were 97° F. resulted in 100 percent kill on trees less than 4 feet, but was no more effective in killing taller trees than the spring burn. Fine fuels in the understory (approximately 600 to 800 lbs/acre) are necessary to carry the fires, which means that the

[3]This is discussed in the Sunrise Allotment Evaluation completed by the Walker Resource Area on January 11, 1994.

reduced understory from dense stands of pinyon and juniper (495 to 988 trees / acre) may result in reduced tree kill. In this situation, winds greater than 35 mi/h would be required. The "White Pine County Formula" was developed to determine whether pinyon - juniper stands will burn or not:

Index = Maximum wind (mi/hr) + Shrub and tree cover (%) + Air temperature (°F.)

An index higher than 110 will result in the fire being carried and large pinyon and juniper trees being killed. If the index is above 130, the conditions are too dangerous to burn. Pure stands of juniper are more difficult to kill than mixed stands of pinyon and juniper.

However, if fire prescriptions are developed for the northern Pine Nut Mountains, it is important to consider the impacts to other plant species. Tables 2 and 3 are summaries of fire effects on major plant species found in the Pine Nut Mountains. This data is based on information from Wright, et al (1979).

Publications Cited

Brackely, Gary K. SCS inventory and classification procedures. In Proceedings: pinyon-juniper conference. USDA Forest Service General Technical Report INT-215. pp. 231 -235.

Everett, Richard L. and Steven H. Sharrow. Response of understory species to tree harvesting and fire in pinyon-juniper woodlands. In Proceedings of Symposia: Managing Intermountain Rangelands - Improvement of Range and Wildlife Habitats. USDA Forest Service General Technical Report INT-157. 1983. pp. 62-66.

Everett, Richard L. and Steven Sharrow. Response of grass species to tree harvesting in singleleaf pinyon - Utah juniper stands. USDA Forest Service Research Paper, INT-334.

Goodwin, Victor and Archie Murchie. History of past use and management precepts and guidelines, pinyon-juniper forest type, Carson-Walker RC&D [Resource Conservation and Development] area, western Nevada. 1980. Report produced by the Nevada Division of Forestry.

Lackenby, Donavin A., Dennis P. Sheehy, Carl H. Nellis, Richard J. Scherzinger, Ira D. Luman, Wayne Elmore, James C. Lemos, Larry Doughty, and Charles E. Trainer. Wildlife habitats in managed rangelands - the Great Basin of Southeastern Oregon. 1986. USDA Forest Service and USDI-BLM General Technical Report PNW-139.

Paher, Stanley W. Nevada ghost towns and mining camps. 1970. Howell - North Books.

Pendleton, Lorann S.A., Alvin R. McLane, and David Hurst Thomas. Cultural resource overview of Carson City District west central Nevada. BLM Nevada State Office Cultural Resource Series Monograph No. 5. 1982. 2 Volumes.

Tausch, Robin J., Ageli Nabi, and Neil E. West. Successional changes in Great Basin pinyon-juniper woodlands. 1977. Report to Intermtn. For. and Range Exper. Sta., U.S. Forest Service. UAES Project #750

Tausch, Robin J., Peter E. Wigand, and J. Wayne Burkhardt. Viewpoint: Plant community thresholds, multiple steady states, and multiple successional pathways: legacy of the Quaternary? 1993. Journal of Range Management, Vol. 46, No. 5.

Tueller, Paul T., Garwin Lorain, Karl Kipping, and Charles Wilkie. Methods for measuring vegetation changes on Nevada rangelands. 1972.Agr. Exp. Sta., Univ. of Nevada, Reno.

Van Hooser, Dwane D. and Osborne E. Casey. P-J--a commercial resource? In Proceedings: pinyon-juniper conference. USDA Forest Service General Technical Report INT-215. pp. 202-206.

Wright, Henry A, Leon F. Neueschwander, and Carlton M. Britton. The role and use of fire in sagebrush-grass and pinyon juniper plant communities. A state-of-the-art review. 1979. USDA for. Serv. Gen. Tech Rep. INT-58.

Young, Richard P. Fire as a vegetation management tool in rangelands of the intermountain region. In Proceedings of Symposia: Managing Intermountain Rangelands - Improvement of Range and Wildlife Habitats. USDA Forest Service General Technical Report INT-157. 1983. pp. 18-19.

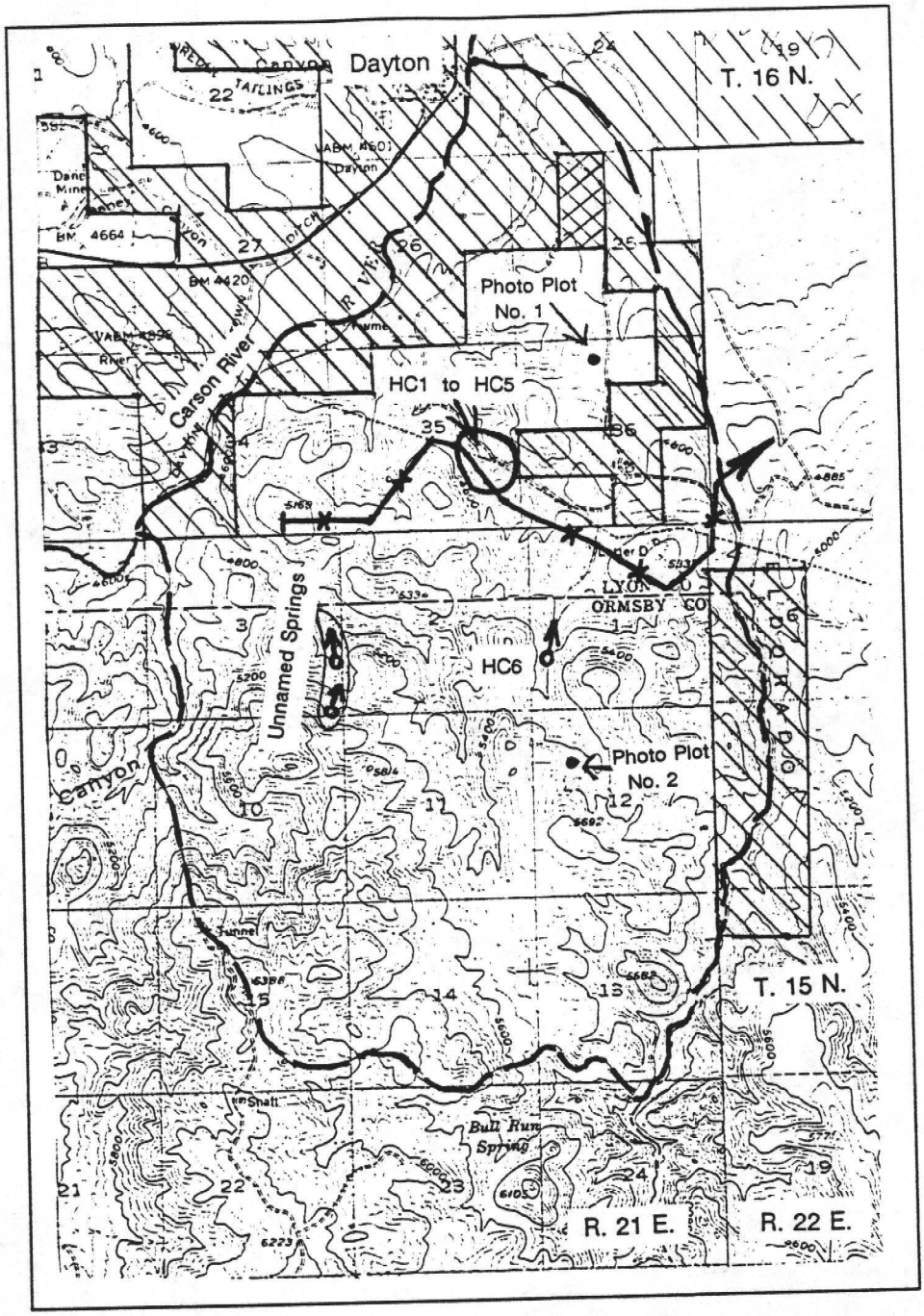
Table 2.--Summary of fire effects on major plant species found in the Northern Pine Nut Mountains of Nevada. Information contained in this table is from Wright, et al (1979).

Species	Sprouting Ability	Response to fire	Recovery Time (Years)	Remarks
		SHRUBS		
Antelope bitterbrush (*Purshia tridentata*)	Weak Sprouter	Severely Damaged by summer and fall burns	30 - 40	Effect determined by growth form; decumbent form sprouts vigorously, columnar form is a weak sprouter. If plants sprout, they will recover in 9 to 10 years. Spring burns enhance sprouting but fall burns are best for reproduction from seed. Burn when soil is wet.
Big sagebrush (*Artemisia tridentata*)	Non-sprouter	Severely harmed	30	Good seed crop before burning hastens recovery. Effective control requires burning before seed-set.
Low sagebrush (*Artemisia arbuscula*)	Non-sprouter	Rarely burned.		May be used as a fuel break.
Rubber rabbitbrush (*Chrysothamnus nauseosus*) & Douglas rabbitbrush (*C. viscidiflors*)	Vigorous sprouter	Enhanced	20 - 25	May be killed if burned after heavy grazing or burned in early summer.
Horsebrush (*Tetradymia* sp)	Vigorous sprouter	Enhanced	30 - 35	Toxic, increases fivefold within 12 years.
Snowberry (*Symphoricarpos* sp)	Sprouter	Unharmed	10 - 15	Enhanced by cool fires but harmed by hot fires.
Curlleaf mountain mahogany (*Cercocarpus ledifolius*)	Sprouter	Moderately harmed	Not available	More information is needed.
Serviceberry (*Amelanchier* sp)	Sprouter	Slightly harmed	30 - 50	Highly adaptable to fire; soil being moist at the time of the burn is important. Usually poor reproduction from seed.
Ocean-spray (*Holodiscus* sp)	Sprouter	Enhanced	20 - 30	
Rose (*Rosa* sp)	Sprouter	Enhanced	15 - 30	
		GRASSES		
Nevada bluegrass (*Poa nevadensis*)	N/A	Slight damage	1 -3	The bluegrasses are generally small plants and fire damage is minimal with late summer and fall burns.
Sandberg bluegrass (*Poa secunda*)		Undamaged	1 - 3	

Species	Response to Fire	Recovery Time (Years)	Remarks
GRASSES (Cont.)			
Cheatgrass (*Bromus tectorum*)	Undamaged	1	Any reduction to cheatgrass stands is usually short lived.
Indian ricegrass (*Oryzopsis hymenoides*)	Slight damage	2 - 4	Good resistance to burning but slow to increase in density.
Needle-and-thread (*Stipa comata*)	Severe damage	4 - 8	Needle grass are generally the least fire-resistant bunchgrasses. Large plants are damaged more than small plants. A 50 percent reduction in basal area should be anticipated among the various size plants in a given area.
Thurber needlegrass (*Stipa thurberana*)	Severe damage	4 - 8	
Bottlebrush squirreltail (*Sitanion hystrix*)	Slight damage	1 - 3	One of the most fire resistant bunchgrasses, although burning in a dry year can reduce basal area. Bottlebrush squirreltail can increase several years after burning.
Crested wheatgrass (*Agropyron cristata, A. desertorum* & crosses)	Undamaged	1 - 2	Wheatgrasses are difficult to burn in seeded monocultures.
Riparian wheatgrass (*Agropyron dasystachyum riparium*)	Undamaged	1 - 2	
Western wheatgrass (*Agropyron smithii*)	Undamaged	1 - 2	

Table 3.-- Response of forbs in Northern Pine Nut Mountain to fall burning. From Wright, et al (1979)

Severely Damaged	Slightly Damaged	Undamaged
None listed in Wright et al are found in Pine Nut Mountains	Milkvetches (*Astragalus* sp) Pinnate tansymustard (*Descurania pinnata*) Globemallows (*Sphaeralcea* sp) Tapertip hawksbeard (*Crepis acuminata*) Tumblemustard (*Sisymbrium altissimum*)	Arrowleaf balsamroot (*Balsamorhiza sagittata*) Common sunflower (*Helianthus annuus*) Coyote tobacco (*Nicotiana attenuata*) Foothill deathcamas (*Zigadenus paniculatus*) Longleaf phlox (*Phlox longifolia*) Russian thistle (*Salsola kali*) Common yarrow (*Achillea millifolium*) Wild onion (*Allium* sp)



Map No. 2:
HACKETT CANYON ALLOTMENT

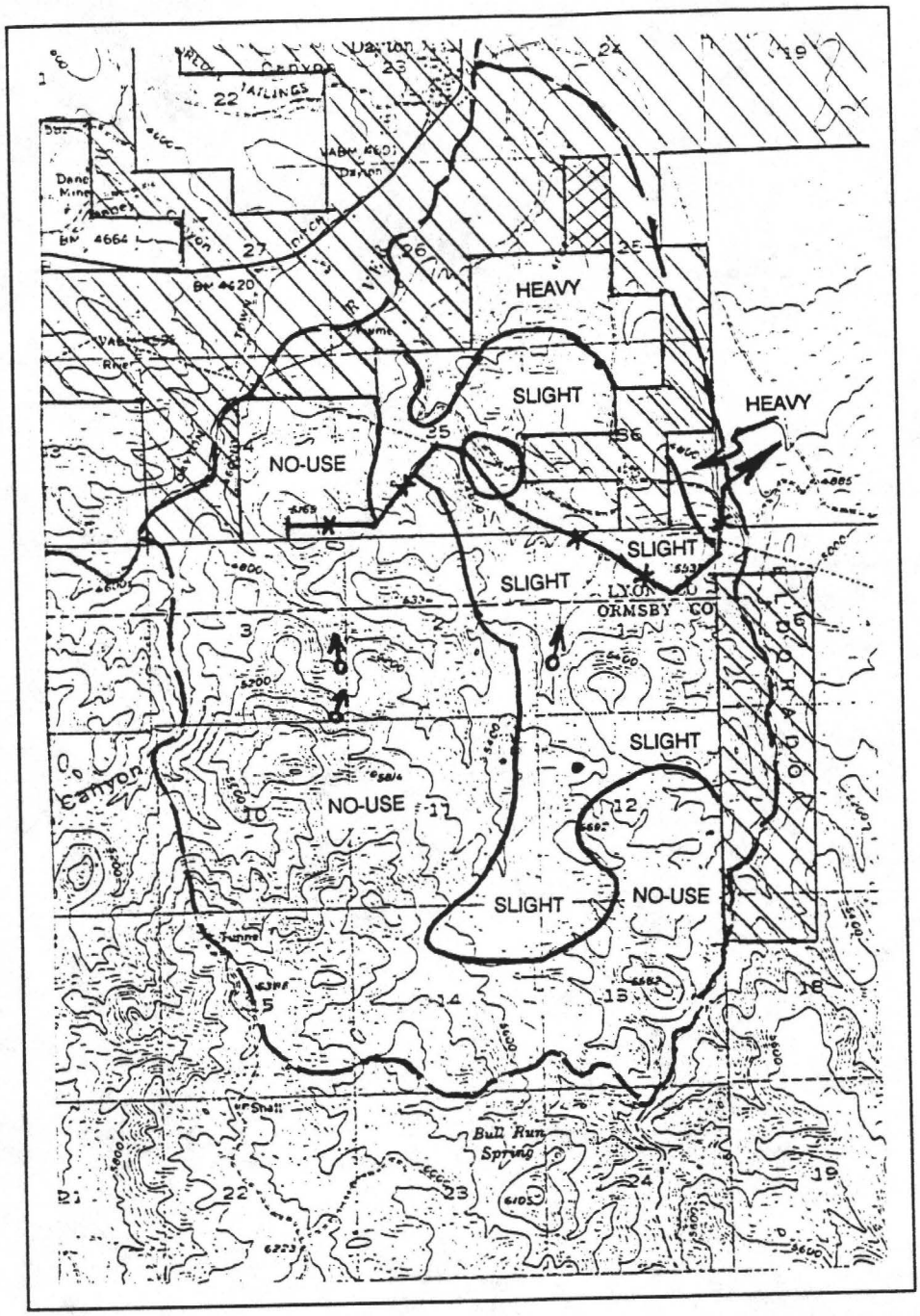
Scale 1 : 62,500

Private Land

Public Land under R. & P.P. Lease

Eldorado Fence

HC1 to HC6 Riparian Areas



Map No. 3:
10/13/93 TO 10/18/93 USE PATTERN MAPPING

Scale 1 : 62,500

Private Land

Public Land under R. & P.P. Lease

Eldorado Fence

HACKETT CANYON ALLOTMENT EVALUATION
ERRATA AND ATTACHMENTS

Insert the attached Sections VII and VIII after page 17. In the Table of Contents, insert the following under Section VI:

VII. CONSULTATIONS 18

VIII. MANAGEMENT ACTIONS SELECTED 22

Page 17, Technical Recommendation 1: recommendation should read : "The maximum allowable use by wild horses in the Hackett Canyon Allotment should not exceed *187 AUMs*..." (instead of 168). This is a typographical error; 187 AUMs was the stocking level calculated in Appendix II.

VII. Consultations

On July 19, 1993, a letter was sent to persons and organizations that have shown interest in resource management in the Walker Resource Area. The purpose of the letter was to gather additional information and to determine who would be interested in participating in the evaluation process on nine allotments in the northern Pine Nut Mountain Range. Hackett Canyon was among these allotments.

Sections I (Introduction) through VI (Technical Recommendations) of this evaluation were sent out for public review on November 30, 1995. Since a considerable amount of time had elapsed since the original scoping letter had been sent out, the evaluation was sent to all persons and organizations who had expressed interested in wildlife, wild horse and livestock grazing on public lands within the Walker Resource Area. Fifteen copies were sent to the Nevada State Clearinghouse for distribution among state agencies. In addition, the following were sent copies of this evaluation.

Joe Ricci Estate
Nevada Wildlife Federation
Natural Resources Defense Council
The Nature Conservancy
Nevada Cattlemen's Association
Nevada Woolgrowers Association
Rutgers University, S.I. Newhouse Center of Law and Justice
Washoe Tribe
The Honorable Barbara Vucanovich
The Honorable Richard Bryan
American Horse Protection Association
Bobby Royal
Dan Keiserman
Fund for Animals
International Society for the Protection of Mustangs and Burro
Ann Earle
Nevada Humane Society
Paula S. Askew
Steven Fulstone
U.S. Fish and Wildlife Service, Reno Field Office
Wild Horse Organized Assistance
The Wildlife Society
Sierra Club, Toiyabe Chapter
Carson City District Grazing Advisory Board
Resource Concepts Inc.
Bureau of Indian Affairs, Western Nevada Agency
U.S. Humane Society
The Honorable Harry M. Reid
American Bashkir Curley Register
Animal Protection Institute
Craig C. Downer
American Mustang and Burro Association
Humane Society of Southern Nevada
Kathey McCovey
L.I.F.E Foundation
National Mustang Association, Inc.
Paul Clifford
Rebecca Kunow
The Mule Deer Foundation
U.S. Wild Horse and Burro Foundation

Comments were received by the Nevada Division of Wildlife (hence forth referred to as NDOW, or simply "the Division"), Commission for the Preservation of Wild Horses (hence forth referred to as "the Commission"), Wild Horse Organized Assistance (WHOA) and Craig Downer. Most of the comments showed a general opposition to livestock grazing. The BLM, however, is mandated to support a multiple-use concept while managing for a healthy ecosystem. It is therefore important to seek management goals that are fair to the majority of interests while maintaining or improving the health of the range.

There also appeared to be some confusion related to the potential stocking level calculated in Appendix II. The potential stocking level represents the amount of forage *available* to wild horses and livestock. "Potential stocking level" should not be confused with uneven distribution, which in turn should not be confused with resource damage. The use mapping data showed that there was an uneven distribution of wild horse use. The trend data indicated that the areas of heavy and severe utilization may have resulted in resource deterioration over portions of the allotment. Therefore, it was proposed that the stocking level for wild horses should be maintained at half the calculated potential stocking level, and livestock grazing should be authorized under strict timing and duration constraints.

The fact that animal impacts are occurring on the range does not automatically equate to resource deterioration. Craig Downer made the following observation relating to large ungulates and their environments: "Little is said about the positive affects which these animals [wild horses] have upon the desert ecosystem, nor about the impact which their low population levels can have upon their own long-term survival." Such positive effects result from properly timed impacts. If timing and duration cannot be controlled, either through natural relationships or through intense management, then it becomes necessary to adjust use levels.

Other comments that relate to the health of the land or address the evaluation of this health are discussed below.

Comments: The allotment has not been used by cattle for the past seven years and not used by sheep for at least 11 years. The evaluation has no data to support a carrying capacity and allocation of forage between uses. (NDOW)

Since the allotment has not had domestic sheep use for over 11 years and no cattle use for the past seven years, the procedures to establish carrying capacity and allocate forage to wild horses and livestock cannot be supported. (Commission)

Since the allotment has not had domestic sheep licensed for over 11 years, the procedures to establish carrying capacity and allocate forage to wild horses and livestock cannot be supported. (WHOA)

Response: Based on the calculations in Appendix II, approximately 374 AUM's can be used by wild horses and other herbivores with similar forage preferences. Based on the source cited in the footnote on page 15 of this evaluation, cattle and horses have similar forage preferences over most of the year. As explained on page 15, there is some dietary overlap between wild horses and sheep in spring (the proposed livestock season of use) when both will compete for grass. Therefore, the calculations in Appendix II will apply to all three kinds of herbivores (horses, sheep, and cattle) during the recommended season of use for livestock in the Hackett Canyon Allotment.

Comment: It should be noted that the bitterbrush component has shown recruitment during drought years. In order to protect this component in the vegetation communities, livestock use should be curtailed. (NDOW)

Response: This point was addressed in detail on page 16. Based on potential problems resulting in stress and carbohydrate storage in the roots of key plant species (including bitterbrush), it was recommended that grazing between 03/15 to 06/30 be restricted to two weeks or less on specific areas. It was also recognized that animal impact later than 06/30 may be beneficial for seedling establishment and therefore should occasionally be allowed at the discretion of the Area Manager. Since most of Hackett Canyon Allotment is key mule deer winter range, it will be necessary to restrict use on bitterbrush by livestock to 23% (approximately half the recommended yearlong use levels on bitterbrush). This last restriction will ensure that adequate forage will be left for overwintering mule deer. Yearlong use by all herbivores (wild horses, livestock and wildlife) should not exceed 45% on bitterbrush in order to maintain its health and vigor.

Comment: The documented damage to riparian areas by as few as six horses in 1992 suggest the area cannot be managed for wild horses. (NDOW)

We encourage the District to develop fencing projects to protect the riparian area [sic] until those areas are functioning properly. (Commission)

We encourage the protection of riparian and the District to develop fencing projects that will allow those areas to recover. (WHOA)

Response: This point is addressed on pages 12 and 17 of this evaluation. Three of the riparian areas where heavy to severe utilization was observed in 1993 are north of the Eldorado Canyon Fence, which means they are currently excluded from grazing by wild horses. Although a riparian area south of the fence was identified as not functional, this area had received only slight use and had no punching, which would tend to show that the observed erosion was not caused by wild horse overutilization (e.g.., it could be a natural occurrence and/or be due to *lack* of animal impacts).

If further monitoring indicates that degradation to riparian areas is occurring due to wild horses, then mangement will be developed to address specific problems. Fencing is one of these management actions.

Comment: pg. 13: 12 wild horses seems quite inadequate for this area. I support more wild horses. (Craig Downer)

[p.17] bottom: 168 AUMs for wild horses is a very small allocation. I favor a large allocation. (Craig Downer)

Response: The number on page 13 was based on an aerial census of the Pine Nut Mountains made in 1993. The 168 AUM's shown under Technical Recommendation 1 on page 17 is a typographical error (the correct number is 187 AUMs). Hackett Canyon Allotment represents only six percent of the area within the Pine Nut

HMA. Based on the analysis of monitoring data presented in all nine allotment evaluations, 2152 AUMs of forage is available for wild horses within the HMA.

Comment: p. 14: You lump wild horses and livestock together, later to describe the season of use. Since the overuse "probably occurred during the growing season of plants" and livestock are grazed during spring and summer, I would suggest that you consider livestock reduction for improving the situation. (Craig Downer)

Response: Mr. Downer's comment is correct in reference to long duration grazing by *both* wild horses and livestock during the growing season of perennial plant species (as may have caused the downward trend at Photo Plot No. 1). The reasons for keeping the spring use for livestock is described under "Authorizing Livestock Use" on pages 15 and 16. In addition to the stocking rate of livestock being reduced from 515 AUMs to 187 AUMs, a two week timing restriction on specific areas is being recommended to mitigate stress on plants during the active growing season.

Comments: I am also concerned by the El Dorado Canyon Fence. Will it impose any crippling hardship upon the wild horses, by limiting their seasonal migrations or impeding access to important watering areas? Such fences have caused serious suffering and death in other areas where the wild horses have legal right, especially during critical periods of the winter or the summer, when cold or water limit." (Craig Downer)

p. 15: You state that the fence will reduce competition between wild horses and livestock, but has the overall effect it will have upon the wild horses population been evaluated? (Craig Downer)

p.16: top: Yes, I favor your not fencing the south boundary so as to impede the free movement of wild horses throughout the Pine Nut HMA. (Craig Downer)

Response: As stated on page 2 of this evaluation, the Eldorado Canyon Fence was constructed to prevent wild horses from drifting onto the solid block of private lands lying to the north, which would necessitate their removal when the residents of Dayton complained. The wild horses have complete access to the remainder of the HMA, which is the reason why the southern boundary of the allotment will remain unfenced. Wild horses have more than enough water sources south of the fence. It was recommended that only sheep (a herded animal) be allowed to graze on the public lands remaining north of the fence.

Comment: -- Again your stress on "direct competition for grass during the spring" causes me to recommend that you change the season of use of livestock or reduce livestock competition." (Craig Downer)

Response: Much of the competition between wild horses and livestock is being eliminated by restricting most of the livestock grazing to the North Pasture (currently not grazed by horses).

VIII. Management Actions Selected

Due to the necessity of implementing the wild horse decisions on a herd management area basis, only one PMUD will be issued for all nine allotment in the Pine Nut HMA.

All short term technical recommendations will be included within the Proposed Multiple Use Decision (PMUD). Technical Recommendation 2a("This pasture will be grazed for two weeks or less each year") should be modified to read " *Specific areas within the allotment* will be grazed for two weeks or less each year." Under an intensive management system, sheep could be continuously moved from one area to another without staying very long in one spot. The recommended modification of the technical recommendation would allow a permittee to adopt an intensive management system, and, as long as the sheep do not stay in one spot, graze throughout the grazing season. If they "camp" on one area for more than two weeks during the growing season, they will be told to remove their livestock. In either case, the purpose preventing resource damage is fulfilled.

It was decided by the Carson City District staff that, because of the potential economic, aesthetic, cultural and recreational values associated with pinyon - juniper woodlands, the long term management of the woodlands in the Pine Nut Mountains should be addressed in the upcoming land use plan amendment. At the time of this writing, an amendment team had been formed and letters had been sent out to the public soliciting comments.

See Pine Creek HMA PMUD

HACKETT CANYON ALLOTMENT
LIVESTOCK GRAZING MANAGEMENT DECISION

Decisions relating to the grazing of livestock on public lands in the Hackett Canyon Allotment are as follows:

A. In accordance with §4110.3-2(b) and §4130.6-1(a), the active preference will be adjusted from 515 AUMs to 187 AUMs. No more than 146 AUMs of sheep use will be authorized in the North Pasture. No more than 41 AUMs of livestock use will be allowed in the South Pasture. In accordance with §4110.3-3(a) &(b), this reduction in active preference will be phased in over a five year period, beginning with the effective date of the Final Multiple Use Decision (1995). The reduction will be implemented as follows:

1995 From 515 AUMs to 406 AUMs
1997 From 406 AUMs to 297 AUMs
1999 From 297 AUMs to 187AUMs

In accordance with §4110.3-2(c), 328 AUMs will be suspended.

B. In accordance with §4130.6, the following terms and conditions will apply to the North and South Pastures.

1. Specific areas within the allotment will be grazed for two weeks or less each year.

2. During most years, these two week grazing authorizations will occur between 3/15 and 6/30.

3. At the discretion of the authorized officer, grazing use can occasionally be authorized after 6/30.

4. In order to provide forage for over-wintering mule deer, allow no more than 25% use on bitterbrush by livestock and wild horses before October. Yearlong use by all herbivores will not exceed 45%.

RATIONALE

Insufficient forage is available to provide 515 AUMs for livestock. The influence of pinyon-juniper woodlands severely restricts the areas that produce forage and are usable by livestock. The ability of these woodlands to out-compete other vegetation and intercept/utilize precipitation has resulted in declines of desirable forage for livestock, wild horses, and wildlife. In order to balance grazing with forage production, adjusting the livestock active preference was necessary.

Without construction of more fencing in the north pasture, cattle will probably drift off the public lands to the developing private lands north of the allotment. The allotment is historically a sheep allotment, which provides a situation where animals can be controlled through herding in the North pasture. Use in the South pasture can be made by either sheep and/or cattle since access to the developing private lands is blocked by the Eldorado Canyon Fence.

2/10/95

BOB MILLER
Governor

STATE OF NEVADA

CATHERINE BARCOMB
Executive Director

**COMMISSION FOR THE
PRESERVATION OF WILD HORSES**
255 W. Moana Lane
Suite 207A
Reno, Nevada 89509
(702) 688-2626

February 10, 1995

Mr. John Singlaub
District Manager
Carson City District
Bureau of Land Management
1535 Hot Springs Road
Carson City, Nevada 89706-0638

Subject: Hackett Canyon Allotment Evaluation

Dear Mr. Singlaub:

The Commission for the Preservation of Wild Horses appreciates your consultation concerning the Pine Nut Wild Horse Herd. The Hackett Canyon Allotment addresses only six percent of the herd management area with less than 12 wild horses. Since the allotment has not had domestic sheep use for over 11 years and no cattle use for the past seven years, the procedures to establish carrying capacity and allocate forage to wild horses and livestock cannot be supported.

We encourage the District to develop fencing projects to protect the riparian area until those areas are functioning properly. At that time, we would welcome a new allotment evaluation to determine an appropriate management level for this allotment.

Sincerely,

Catherine Barcomb

Catherine Barcomb
Executive Director

February 10, 1995

Mr. John Singlaub
District Manager
Carson City District
Bureau of Land Management
1535 Hot Springs Road
Carson City, Nevada 89706-0638

Subject: Hackett Canyon Allotment Evaluation

Dear Mr. Singlaub:

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We encourage the District to develop fencing projects to protect the riparian area until those areas are functioning properly. At that time, we would welcome a new allotment evaluation to determine an appropriate management level for this allotment.

Sincerely,

DAWN LAPPIN
Director