



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Carson City Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701
775-885-6000
<http://www.nv.blm.gov>



In Reply Refer To:
4130 (NV032)
CF-273525

Received

March 08, 2000

Dear Interested Party:

Enclosed is a copy of the Churchill Canyon Environmental Assessment (NV-030-00-013) and proposed Churchill Canyon Grazing Decision/Decision Record/Finding of No Significant Impact.

In accordance with 43 CFR §4160.2, if you wish to protest the proposed decision, you are allowed 15 days from receipt of this decision to file such a protest with the Assistant Manager, Renewable Resources, Carson City Field Office, 5665 Morgan Mill Road, Carson City, Nevada 89701. The protest should state the reasons, clearly and concisely why you think the decision is in error (§4160.2).

Note that after the 15-day protest period, a Final Decision will be issued.

If you have any questions, regarding the Churchill Canyon Environmental Assessment or the Proposed Decisions please contact Katrina Leavitt at (775) 885-6130.

Sincerely,

Daniel L. Jacquet
Assistant Manager
Renewable Resources
Carson City Field Office

Enclosures:

- 1) Environmental Assessment Churchill Canyon Grazing Management
Actions EA-NV-030-00-013
- 2) Proposed Churchill Canyon Grazing Decision / Decision Record / Finding of No
Significant Impact

Environmental Assessment
Churchill Canyon Grazing Management Actions
EA-NV-030-00-013

March 08, 2000

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Environmental Assessment
Churchill Canyon Grazing Management Actions
EA-NV-030-00-013

I. Introduction/Purpose and Need

A. Introduction

The Churchill Canyon allotment is located in the eastern foothills of the Pine Nut Mountains, about ten miles west of Wabuska, Nevada. Currently the permitted livestock use in the allotment is 1,074 Animal Unit Months (AUMs). The kind of livestock is cattle and the season of use is 11/15-05/15 (8). The size of the allotment is 48,346 acres: 47,826 acres are public land managed by the Bureau of Land Management (BLM), Carson City Field Office. The northwest section of the Churchill Canyon allotment (8,500 acres) is within the Northern Pine Nut Wild Horse Herd Management Area (HMA). Please reference Maps 1 & 2.

A Decision Record (DR)/Finding of no Significant Impact (FONSI) dated November 2, 1992 authorized a conversion of livestock use from sheep to cattle within the Churchill Canyon allotment, and reduced the permitted use from 5,394 AUMs to 1,074 AUMs (8). The decision also stated that at the end of three years an analysis of monitoring data would be performed and a decision on a long term permit would be rendered. The Pine Nut Final Multiple Use Decision (MUD) dated August 18, 1995 determined that the Actual Use/Utilization studies would continue over an additional three year period before the estimated permitted use would be refined. At the time of the 1995 decision only one year of use pattern mapping data was available for cattle grazing(5 & 6).

On September 23, 1998 the livestock operator requested that the permitted use for cattle be increased by 1,326 AUMs and set at 2,400 AUMs for the allotment. On November 4, 1999 representatives of the BLM agreed to the preparation of this Environmental Assessment (EA) to evaluate the impacts of authorizing additional cattle AUMs within the Churchill Canyon allotment. BLM representatives also decided to analyze the impacts of foreseeable range improvement projects within the allotment.

The process to determine the proper stocking rate for cattle within the Churchill Canyon allotment has been on going for the past seven years. The goal is to set a stocking rate that ensures the improvement of range conditions and a sustainable source of vegetation for livestock, wild horses, and wildlife.

B. Purpose and Need

The need for the proposed action stems from society's demand for food and fiber products supplied, in part by livestock utilizing public lands administered by the BLM.

Provisions allowing grazing use of the public land along with the requirement that this use be done in an ecologically sound manner consistent with the principles of multiple use and sustained yield are found in the Taylor Grazing Act (TGA), of 1934 as amended, the Federal Land Policy Management Act (FLPMA) of 1976, the Standards and Guidelines for Rangeland Health (3) and other federal laws and regulations. The purpose and need for the proposed action is further defined below:

- 1) Increase cattle grazing within the Churchill Canyon allotment outside of the HMA to determine a stocking level for livestock. Monitoring data (2) has shown that additional AUMs are available. However, there is also a need to limit additional AUMs to TNR use at this time to test the allocation and ensure ecosystem health within the allotment. The amount of TNR use would be authorized annually based on forage availability and resource condition.
- 2) Construct six miles of pasture fence to increase the control of livestock within the allotment. The fence is needed to support a rest rotation grazing system and to increase management of plant communities located in the southern portion of the allotment.
- 3) Install a water trough to provide water on both sides of the fence proposed in #2 above. If the proposed fence is constructed there will be a need to provide water in each of the pasture areas.
- 4) Construct a one half-acre corral to facilitate the livestock operation. There is a need to provide a location where livestock can be captured and held for the purposes of providing medical attention to sick or injured livestock.
- 5) Construct a water hole to increase livestock distribution in the northwestern portion of the allotment. An additional water source is needed to provide for additional flexibility in livestock management.
- 6) Designate 25 areas within the allotment for temporary water haul and/or mineral supplement areas to vary livestock distribution and use periods within the allotment. Water haul and/or mineral supplement areas will provide for flexibility in livestock management. The placement of water and supplements can be utilized to encourage livestock use in limited areas.
- 7) Extend the livestock grazing season up to 15 days when resource conditions are appropriate. The BLM may grant an extension anytime between 11/1-11/15 and 05/15-05/30, as long as the 15 day period and permitted livestock AUMs are not exceeded. The livestock operator needs flexibility to coordinate the movement of cattle between winter and summer grazing areas.

C. Land Use Plan Conformance/Consistency Statement

1) Land Use Plans

The proposed action and alternatives described below are in conformance or are consistent with the Reno Management Framework Plan (12 & 14) that was incorporated by reference into the Walker Resource Management Plan (7 & 13).

- a. Management Framework Plan Major Land Use Decision Summary and EIS ROD Reno Planning Area (1982)(14)

<u>Management Decision Number</u>	<u>Page Number</u>	<u>Conformance/Consistency</u>
# 16 Allotment Categorization	# 5	Consistent
# 18 Criteria Category I Allotments	# 6	Consistent
# 20 Range Improvements	# 7	Consistent

- b. Walker Resource Management Area Management Decisions Summary (1986)(11)

<u>Management Decision Number</u>	<u>Page Number</u>	<u>Conformance/Consistency</u>
# 1-2 Cultural Resources	# 4	Consistent
# 1-4 Livestock Grazing Pine Nut Planning Unit	# 10	Conformance
# 2-3 Visual Resources	# 26	Consistent
# 1 Water	# 28	Consistent
# 1 Wild Horses	# 29	Consistent
# 1-4 Wildlife	# 35	Consistent

2) Activity Plans

- a. Pine Nut Final Multiple Use Decision (08/18/95)(5)

Livestock: The active preference for cattle will be maintained at 1,074 AUMs. Standard Actual Use / Utilization study techniques will continue to be used over a three year period to refine this estimate and establish a preference for cattle which is sustainable and meets the forage needs of wild horses and mule deer.

Wild Horses: The potential stocking level for wild horses in the portion of the HMA located within the Churchill Canyon allotment is 154 AUMs.

Wildlife & Vegetation: 2) If monitoring shows that a critical riparian area is not making satisfactory progress toward proper functioning condition, after changes/modifications in management have been in effect, fencing will be initiated. Fences will be constructed to wildlife standards. Water will be provided outside the source for livestock and wild horses.; 3) In order to provide forage for over-wintering mule deer, allow no more than 25% use on bitterbrush by livestock and wild horses in the deer winter range before October. Yearlong use by all herbivores should not exceed 45%.; 4) Following a reduction of the wild horse population to a level which allows the horses to live within their HMA at moderate forage utilization levels, work with the Nevada Division of Wildlife to introduce pronghorn antelope into Churchill Canyon and Mill Canyon allotments.

- b. ROD/FONSI Change in Kind of Livestock and Season of Use in Churchill Canyon and Horse Springs Allotments EA NV-030-92-031 (1992)(8)

Livestock: 1) Change the kind of livestock from sheep to cattle; 2) set the livestock season of use from 11/15 to 05/15; 3) Allocate Churchill Canyon initially at 1,074 AUMs and issue a three year permit.

c. Pine Nut Habitat Management Plan (1987)(9)

Wildlife: 1) Manage big game habitat to fair or good condition to support big game populations; 3) Improve bitterbrush production and seedling establishment within key deer winter range; 4) protect and improve riparian areas to good or better condition class with special emphasis on mule deer and sage grouse key areas by May 1989 within the Pine Nut Planning Unit; 5) Jointly evaluate with Nevada Department of Wildlife (NDOW) the Churchill Canyon area as to its potential for supporting a viable antelope herd by September 1987.

3) Project Plans

a. DR/FONSI Perma-Bilt Homes/ALC Land Exchange EA NV-054-97-026 (06/13/97)(4). Part of the rationale for determining that there would be no significant impacts from the land exchange are listed below:

Livestock: Approximately 4,130 acres of land would be made available for livestock grazing within the Churchill Canyon allotment, resulting in an increase of forage to support 171 AUMs.

Wild Horses: Acquisition of land within the Pine Nut Herd Management Area would facilitate the movement of wild horses through their range without impacting private property, as well as good management of horse habitat.

Wildlife & Vegetation: Native flora & fauna, and their habitats, would be managed to ensure their continued healthy existence. No federally threatened or endangered species are known to occur on the lands. Acquisition of the land within the Pine Nut Habitat Management Area would enhance management of the area as well as those species associated with the area.

Riparian & Wetland Resources: The federal government would acquire wetland resources and would manage them to ensure continued health of riparian ecosystems.

Recreation: Lands would be acquired by the federal government and made available for public use, thereby meeting resource management plan directives.

Cultural Resources: All prehistoric and historic cultural resource sites present on the offered lands would be protected by the National Historic Preservation Act Section 106.

II. Proposed Action and Alternatives

A. Proposed Action

- 1) Increase the permitted livestock use within those portions of the Churchill Canyon allotment outside of the Northern Pine Nut Wild Horse Herd Management Area (HMA) during the next six grazing seasons based on available (2) and ongoing monitoring data. Up to 883 AUMs may be authorized on a Temporary Nonrenewable (TNR) basis each season. The amount of TNR use would be authorized annually based on forage availability and resource condition.

166 Cattle 11/15 to 05/15 1,074 AUMs Current Permitted Use
136 Cattle 11/15 to 05/15 883 AUMs Potential TNR Use

Location: See Map 2

- 2) Construction of approximately six miles of pasture fence along with the associated cattle guards and gates. The proposed fence would consist of three strands of barbed wire and one smooth bottom wire. The fence would comply with BLM wildlife fence standards (type B antelope). The wire spacing for the wildlife standard is 16", 22", 30" and 42" and 16 1/2' spacing between T-posts. The metal fence posts would be solid green or gray in color. Cattle guards would be placed where the proposed fence crosses the Fort Churchill to Wellington Back Country Byway and the Sunrise Pass Road. Gates would be placed next to the cattle guards and where the proposed fence crosses any existing roads. Selected portions of the fence would be flagged or otherwise marked for one year after construction to make the fencing more visible to horses and wildlife(7). A Field Office Project Inspector would inspect the fence to ensure compliance with BLM standards and a project marker would be placed along the fence. If any cultural resources are subsequently discovered that would be affected by project related activities, work would cease and the Carson City Field Manager immediately informed.

The estimated cost of construction is \$6,000 / mile which includes labor and materials. BLM would supply the materials for the fence project and arrange for a contractor to complete the construction. The project costs would be paid for by the livestock operator and/or from funds which are generated by livestock grazing fees (8100 or N3 Grazing Board). The fence would be maintained by the livestock operator.

The fence would to be installed by hand. The area of disturbance would be approximately 20 acres over a linear distance of 6 miles. No vegetation clearing would occur.

Location: T15N, R23E, Sec. 9; T14N, R23E, Sec. 17, 20, 29, 30, 32 – See Map 3.

- 3) Construction of another pipeline and water trough at Presto Spring. Presto

Spring is fenced to protect the spring source and surrounding riparian vegetation. Water is currently piped from the spring to a water trough. If proposed action #2 (fence construction) is approved another water trough would be needed to ensure livestock access to water from either side of the fence. A pipeline approximately 100 feet long and a water trough would be installed. The color of the trough would be Carlsbad Canyon or Sudan Brown from the Munsell Soil Color Charts. Any deviation from the selected colors would need approval from a BLM visual resource specialist prior to trough installation. Wildlife escape ramp would be installed in the trough to prevent wildlife from drowning(7). A Field Office Project Inspector would inspect the trough to ensure compliance with BLM standards and a project marker would be placed at the trough. If any cultural resources are subsequently discovered that would be affected by project related activities, work would cease and the Carson City Field Manager immediately informed.

The estimated cost of construction is \$800 which includes labor and materials. The project may be paid for by the livestock operator or from funds generated by livestock grazing fees. The pipeline and trough would be maintained by the livestock operator.

The area of disturbance would be approximately 100 ft².

Location: T14N, R23E, Sec. 17 – See Map 3.

- 4) Construction of a one half acre corral. The construction standards and mitigation measures are the same as those listed for proposed action #2 (fence construction). An existing fence would be utilized as one side of the proposed corral. The amount of fencing required to construct the corral and associated gates would be 441 feet. The estimated cost of construction is \$500 which includes labor and material. The project may be paid for by the livestock operator or from funds generated by livestock grazing fees.

The area of disturbance would be approximately one half acre.

Location: T14N, R23E, Sec. 29 – See Map 3.

Construction of a water hole with a maximum disturbance area of one half acre. The storage capacity of a water hole would need to be 90,000 gallons to supply 300 head of cattle with water for one month. Construction of a water hole would consist of digging a depression in the ground. The estimated dimensions are 65 ft. wide, 65 ft. long and 3 ft. deep. The dimensions of the water hole may vary depending upon the slope, however, the disturbance area will not exceed one half acre. The water hole would need to be lined with clay to enable it to hold water. A Field Office Project Inspector would inspect the water hole to ensure compliance with BLM standards and a project marker

would be placed. If any cultural resources are subsequently discovered that would be affected by project related activities, work would cease and the Carson City Field Manager immediately informed.

The estimated cost of constructing a water hole is \$2,700. The project may be paid for by the livestock operator or from funds generated by livestock grazing fees. The water hole would be maintained by the livestock operator.

Location: T15N, R23E, Sec. 23 & 24 – See Map 3.

- 6) Use of 25 areas within the allotment for temporary water haul and/or mineral supplement areas. Designate 25 areas within the allotment that could be used as salt, mineral or water haul sites. Salt or mineral areas would either consist of salt/mineral blocks or a trough with salt/mineral supplements. Water haul sites would consist of one or two portable water troughs. Wildlife escape ramps would be installed in all troughs to prevent wildlife from drowning.

The total area of potential disturbance would amount to approximately 1,000 square feet.

All expenses would be paid for by the livestock operator.

Location: See Map 4.

- 7) Extend the grazing season up to 15 days when resource conditions are appropriate. The BLM may grant an extension anytime between 11/1-11/15 and 05/15-05/30, as long as the 15 day period and permitted livestock AUMs are not exceeded.

Location: See Map 2.

B. Alternatives

1. No Action

Under the no action alternative, cattle grazing would continue in the Churchill Canyon Allotment from 11/15 to 05/15 and the permitted use would remain at 1,074 AUMs. Under this alternative no range improvements such as fences and watering facilities would be constructed. The placement of salt in designated areas would continue but temporary water troughs and mineral supplements would not be utilized in the allotment.

III. Affected Environment

A. Scoping

A scoping letter was sent on December 21, 1999 to the following interested public: (1) Nevada Division of Wildlife, (2) Nevada Cattlemen's Association, (3) Resource Concepts Inc., (4) Nevada Clearing House, (5) Fish and Wildlife Service, (6) Kathryn Corbett, (7) Dick Huntsberger, (8) Nevada Commission for the Preservation of Wild Horses and (9) Wild Horse Organized Assistance.

Listed below is a summary of the comments received. Copies of the original comments are included in Appendix I.

Livestock

Comment 1: Apply livestock seasons of use that are compatible with the phenology of Indian ricegrass and forbs.

Response 1: The critical growth period for perennial grasses is when they reach the half-vegetative growth stage. For areas with soils and climatic conditions similar to those for the northeast portion of the allotment, the half-vegetative growth stage for Indian ricegrass occurs between the later part of March and mid April(17). To ensure the health of perennial grasses grazing pressure should either be removed prior to the half vegetative growth stage or the plants should be rested every other year. For the Churchill Canyon allotment Indian ricegrass is only dominant in the northeast portion of the allotment. Cattle are removed from the northeast portion of the allotment prior to March 15th and the half vegetative growth stage for Indian ricegrass. Desert Globemallow is a forb commonly associated with ricegrass communities. Growth for globemallow begins at the end of March after cattle are removed from the northeast portion of the allotment.

Wild Horses

Comment 2: Consider sharing increased AUMs with wild horses.

Response 2: The 8,500 acres located within the Pine Nut HMA were excluded from the data analysis use to calculate potential AUMs. Therefore no forage available within the HMA was utilized to arrive at the proposed increase in AUMs. The Northern Pine Nut HMA overlaps nine grazing allotments and is beyond the scope of this EA.

Comment 3: Consider and document wild horse movement in relation to the proposed fence.

Response 3: The construction of six miles of fence could affect wild horse movement. Two miles of proposed fence would join with two miles of existing fence and parallel the southeastern boundary of the Northern Pine Nut HMA. Wild horses in the southeastern corner of the HMA could move around this section of fence and navigate steep rocky terrain to move southward out of the HMA. Horses roaming outside of the HMA could still access all portions of the allotment but would be required to move to the end of the fence and navigate

steep rocky terrain.

Wildlife

Comment 4: Improve habitat conditions to better support the reintroduction of antelope and reasonable numbers of big game.

Response 4: The allotment is designated as a category I allotment and is being managed to improve natural resource conditions. Forage has been allocated for both antelope and mule deer and use on key plant species is limited to moderate utilization levels by livestock.

Comment 5: What effect will the construction of a water hole have on the biodiversity in the area?

Response 5: Providing another water source in the north east section of the allotment would not change the number of species present within the allotment.

Vegetation

Comment 6: Concerns regarding the condition of riparian and upland habitats.

Response 6: Please reference Appendix III

Comment 7: Is there adequate forage available for wildlife, wild horses, and livestock during dry years?

Response 7: Adequate forage would be available. Please reference IV. Environmental Impacts 2. Vegetation within this EA and Appendix III.

Comment 8: Please provide a copy of monitoring data.

Response 8: Please reference Appendix III

Water

Comment 9: Are spring sources fenced and what animals have access to springs?

Response 9: Please reference the Water Resources Inventory Tables in Appendix III.

Comment 10: How can the damage to the soil surface caused by the placement of twenty-five water-haul or mineral supplement areas be justified?

Response 10: The negative impacts of small areas of soil compaction in livestock congregation areas is out weighed by the benefits of controlling livestock distribution. The use mineral supplements and/or temporary water areas to increase livestock distribution within the allotment can decrease utilization levels on key plant species. Mineral supplements and /or temporary water areas can also be utilized to vary livestock distribution within the allotment and attract cattle away from riparian habitats.

Comment 11: Any water used by the proposed project should be provided by permits issued by the State Engineer's Office.

Response 11: The livestock operator currently holds water rights to three wells and five springs. However, if additional water rights are required they would be applied for through the State Engineer's Office.

Fencing

Comment 12: What is the purpose of constructing the fencing?

Response 12: The purpose of constructing six miles of pasture fence would be to increase the control of livestock within the allotment. There is a need to construct the fence to support a rest rotation grazing system and to increase management of plant communities located in the southern portion of the allotment.

Comment 13: What effect will the fence have on other inhabitants of the allotment?

Response 13: The proposed fence is located on the HMA boundary and could effect of the movement of wild horses within and outside of the HMA (See Response 3). The proposed fence would not effect the movement of wildlife. The fence would comply with standard BLM Wildlife Fence standards to allow for the movement of wildlife.

Economics

Comment 14: What are the costs of the proposed projects and what percentage of that will be borne by the public?

Response 14: The estimated cost of the proposed range improvements is \$40,000. The proposed projects would either be paid for by the livestock operator or from funds which are generated by livestock grazing fees (8100 or N3 Grazing Board). Because funds from livestock grazing fees must be applied for it is not known at this time what percentage of the cost would come from 8100 or N3 funds.

BLM staff reviewed the Environmental Assessment and provided comments. The issues identified for analysis include: livestock, vegetation, soils, weeds, wildlife, cultural resources, visual resources, water resources, wetlands/riparian, wild horses, recreation.

B. Proposed Action

1) Overview

The proposed action would occur in the Churchill Canyon Allotment. Elevations within the Churchill Canyon allotment range from approximately 4,700 feet along the Churchill Canyon drainage in the northeast to over 9,000 feet on Mt. Como in the southwest portion of the allotment. Average annual precipitation within the allotment (based on a 15 years of record) ranged from 7 inches in the low elevations to 12 inches in high elevations (10). The heaviest amounts of precipitation occur during the winter months in the form of snow at the higher elevations and rain in the lower elevations.

2) Critical Elements

The following critical elements are not present or are not affected by the proposed action or the alternative in this EA:

Air Quality	Threatened or Endangered Animals
Areas of Critical Environmental Concern	Threatened or Endangered Plants
Environmental Justice	Wastes (hazardous or solid)
Farm Lands (prime or unique)	Water Quality
Floodplains	Wild and Scenic Rivers
Native American Religious Concerns	Wilderness
Paleontology	

3) Resources Present but Not Affected

The following elements are not present or will not be affected by the proposed action or the alternative:

Lands
Geologic Resources
Forestry

Cultural Resources: A class III inventory CR3-1983(N) was conducted at the proposed project locations. No cultural resources were observed in the proposed project locations (Appendix II). If cultural resources are subsequently discovered during construction, the activities would cease and the Carson City Field Manager would be immediately informed.

4) Resources Present and Brought Forward for Analysis

a. Livestock

In 1992 the class of livestock in the allotment was converted from sheep to cattle and the season of use was changed from 12/01 through 07/15 to 11/15 through 05/15. Authorization of 1,074 AUMs was an estimate of available forage with the proposal to monitor further to determine the average carrying capacity for cattle.

Current livestock authorization is 1,074 AUMs. This allotment is a winter to spring grazing allotment. Cattle have historically been turned out 11/15 and gathered on 06/01. Between 1992 and 1997 cattle were moved to private property within the allotment between May 15th and June 1st. In 1997 the BLM acquired private property within the allotment. Between 1997 and 1999 a two week extension was granted for cattle to remain on public land.

Objectives for grazing are not to exceed moderate (41-60%) use on key species and no more than 25% use on bitterbrush by livestock in the deer winter range before October.

b. Vegetation

Vegetation in the allotment includes low elevation salt desert shrub, low sagebrush, big sagebrush, mountain mahogany, and pinyon/juniper woodland communities (Map 6). Key species found in these vegetation types include Indian ricegrass (*Oryzopsis hymenoides*), several species of needlegrass (*Stipa spp.*), squirreltail (*Sitanion hystrix*), Antelope bitterbrush (*Purshia tridentata*) and winterfat (*Eurotia lanata*).

c. Soils

Soils within the allotment fall into three general groupings: (1) mountain and upland, (2) foothill and high terraces, and (3) alluvial fans and terraces (15 & 16).

Mountain and upland soils occur primarily in the southern and western portion of the allotment. These soils are of granitic, andesite and basalt parent material. The foothill and high terrace soils exist on intermediate elevation benches near the main Churchill canyon drainage. These soils are of sedimentary and rhyolite parent material. Alluvial fan and terrace soil map units exist in the lower elevation of the allotment. Parent material is igneous and metamorphic rock. (See Churchill Canyon - Horse Spring Allotment Management Plan, 1986 for a more detailed description.)

d. Weeds

No inventory as of March 6, 2000. A noxious weed inventory will be conducted prior to November 1, 2000.

e. Wildlife

Wildlife species in allotment include Mule deer (*Odocoileus hemionus*), occurring as a small year round population and a migratory winter population. Other game species are chukar partridge (*Alectoris chukar*), sage grouse (*Centrocercus urophasianus*), and California quail (*Lophortyx californicus*). Predators include cougar (*Felis concolor*), coyote (*Canis latrans*), and grey fox (*Urocyon cinereoargenteus*). Other species found are cottontail rabbit (*Sylvilagus nuttallia*), jack rabbit (*Lepus californicus*), spotted skunk (*Spilogale putorius*), striped skunk (*Mephitis mephitis*). Also living in the allotment are numerous species of small rodents,

reptiles, songbirds and raptors.

The Nevada Department of Wildlife (NDOW) on December 11th, 1999 released fifty pronghorn antelope in the allotment.

NDOW has identified habitat within the allotment suitable for mule deer (Map 7). The key mule deer summer range is in the high elevations of the northwestern and southwestern portions of the allotment. Deer winter range is located in the western, northeastern, and southeastern portions of the allotment. The Reno Grazing EIS (1982) indicated 256 AUMs was a reasonable amount of forage for mule deer within the Churchill Canyon allotment.

NDOW has also identified habitat within the allotment suitable for game birds (Map 8). Chukar habitat has been identified in the northern and southern portions of the allotment.

f. Nevada BLM Sensitive Species

Sage grouse habitat has been identified by NDOW in the southwestern portion of the allotment around a brooding ground (Map 8). In addition a sage grouse lek has been identified adjacent to the northern boundary of the allotment. There are no known BLM sensitive flora present in this allotment.

g. Visual Resources:

The project would be located in a Class III Visual Resource Management area. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes would repeat the basic elements found in the predominant natural features of the characteristic landscape.

h. Water Resources

There are 12 undeveloped intermittent springs, 7 undeveloped perennial springs, 3 developed perennial springs (spring areas are fenced and water is piped to troughs), two perennial streams, one ephemeral stream, 3 wells, 3 reservoirs/waterholes, and 3 wildlife guzzlers in the allotment. For additional information please reference the attached document labeled Analysis of Monitoring Data Churchill Canyon Grazing Allotment 1999 in Appendix III.. The livestock operator owns water rights to three wells and

five springs.

i. Wetlands/Riparian

There is about 20 acres (6) of riparian vegetation in the allotment. Riparian areas include wet/dry meadows, springs, seeps and a few small streams. Vegetation in these areas include aspen (*Populus tremuloides*), two species of willows (*Salix spp.*), wild rose (*Rosa woodsii*). Meadow species include bluegrass (*Poa spp.*), sedges (*Carex spp.*), rush (*Juncus spp.*), and creeping wildrye (*Elymus triticoides*) along with numerous grasses and forbs.

Riparian areas in the allotment were assessed as to functioning condition (6). The assessment was:

Churchill Canyon Creek - Functional-at-risk. Creek ephemeral.

Mud Spring - Functional-at-risk. Year round water for wild horses.

Twin Spring - Properly Functioning Condition (PFC). Fenced.

Upper Spring Gulch - PFC.

Willow Spring - PFC.

Five O'Clock Spring - Functional-at-risk. Wild horse use year round.

Riparian areas appear to have improved since 1994. However, a formal PFC assessment will be conducted this year.

j. Wild Horses

Approximately 8% of the allotment is within the Northern Pine Nut HMA. The HMA is found in the northwestern portion of the allotment. The stocking level for wild horses in the allotment was determined to be 154 AUMs, or 12 horses year round.

The 8,500 acres located within the Pine Nut HMA were excluded from the data analysis. Therefore no forage available within the HMA was utilized to arrive at the proposed increase in AUMs. The Northern Pine Nut HMA overlaps nine grazing allotments thus any adjustment of AUMs within the HMA is beyond the scope of this EA.

k. Recreation

Recreational activities consist of big game and upland bird hunting, target shooting, rock hunting, OHV driving for pleasure, Christmas tree cutting, camping, and sightseeing.

Permitted activities include the Mountain Man Rendezvous, and various motorized racing events and rallies.

C. Alternatives

The description of the affected environment for each of the alternatives is the same as the affected environment for the proposed action.

IV. Environmental Impacts

A. Proposed Action

- 1) Increase livestock grazing up to 883 AUMs each year (not to exceed 6 years) on a TNR basis outside of the HMA.
- 2) Construct 6 miles of pasture fence.
- 3) Construct another livestock water trough at Presto Spring.
- 4) Construct a one half-acre corral.
- 5) Construct a water hole to provide livestock water.
- 6) Designate 25 areas within the allotment for temporary water haul and/or mineral supplement areas.
- 7) Extend the grazing season up to 15 days when resource conditions are appropriate. The BLM may grant an extension anytime between 11/1-11/15 and 05/15-05/30, as long as the 15 day period and permitted livestock AUMs are not exceeded.

a. Livestock

- 1) Authorization of TNR use would provide an opportunity to test the availability of forage in the portion of the allotment outside of the HMA. The estimation of the availability of 883 AUMs is based on five years of actual use and utilization data (2). Data was collected between 1993 and 1999. During this time period average utilization by livestock varied between 29 and 45 percent. The maximum acreage utilized by livestock was 26,299 acres or 54% of the allotment. However, the maximum acreage averaged into the calculation of potential AUMs was 23,870 acres because the area within the HMA was excluded from these calculations. It is anticipated that by increasing livestock use by 883 AUMs on a TNR basis 49% of the allotment would receive moderate utilization. By authorizing the additional livestock use on a TNR basis the availability of forage can be evaluated prior to and during the grazing season and the amount of livestock use adjusted accordingly. Please reference the attached document labeled Analysis of Monitoring Data Churchill Canyon Grazing Allotment 1999 in Appendix III for an explanation of monitoring data.
- 2) The proposed fence construction would facilitate the livestock operation by creating four pastures within the allotment. During the past six grazing seasons cattle have been present in the northeast portion (See Map 5) of the allotment between November 15th and March 15th. A drift fence across the

Churchill Canyon road prevents cattle from moving into the southern portion of the allotment while steep terrain prevents cattle from moving into the northwest portion of the allotment. Cattle have been present in the northwest portion of the allotment between March 1st and May 15th. Currently there is nothing to prevent cattle from moving into the southern portion of the allotment along the Fort Churchill to Wellington Back Country Byway. Construction of 2 miles of fence and steep rocky terrain would assist with keeping cattle in the northwest portion of the allotment. Cattle have been present in the southern portion of the allotment between November 15th and June 1st. Construction of four miles of fence would break the southern portion of the allotment into three pastures. Creation of these pastures would benefit the livestock operation by providing smaller areas within the allotment where cattle could be gathered. These gathering points would facilitate livestock herding as well as ease the location of old cows and first calf heifers during the calving season.

- 3) Construction of another livestock water trough at Presto Spring is only necessary if the fence in the second proposed action is constructed. Without another trough, livestock would be excluded from water in this portion of the allotment if the fence were constructed.
- 4) Construction of a one half acre corral would facilitate the livestock operation by providing a small area where livestock could be gathered and held for the purpose of treating sick or injured livestock.
- 5) Construction of a water hole in the northwest portion of the allotment would facilitate livestock distribution. This area is not accessible to a water truck.
- 6) Designating 25 areas within the allotment for temporary water haul and/or mineral supplement areas would facilitate the livestock operation by providing tools which could be utilized to manipulate livestock distribution. Water and supplements could be utilized to distribute cattle into low use areas and also reduce pressure on more highly used areas. The designation of temporary water haul sites also allows flexibility in the livestock operation if there are mechanical problems with water pumps or if spring sources dry up. The livestock operation can also benefit if mineral supplements are utilized to improve livestock condition
- 7) Extending the grazing season up to 15 days when resource conditions are appropriate would facilitate the livestock operation by providing the flexibility to remain within the allotment if the AUMs allotted for livestock are not exceeded. This would assist the livestock operator with coordinating the movement of cattle between winter and summer grazing areas.

b. Vegetation

- 1) Based on five years of monitoring data (2) it is anticipated that the authorization of TNR livestock use would increase to moderate utilization levels on 49% of the allotment. By authorizing up to 883 AUMs on a TNR basis the amount of livestock use can be adjusted to ensure moderate (41-

60%) utilization is not exceeded for key forage species. The potential number of AUMs available in the portion of the allotment accessed by livestock exclusive of the HMA is 1,991 AUMs. The allocation of AUMs for this portion of the allotment is as follows:

Livestock Use Outside of the HMA	920 AUMs
Proposed TNR Livestock Use	883 AUMs
Mule Deer	128 AUMs
<u>Antelope</u>	<u>60 AUMs</u>
AUM allocation based on use in 49% of the Allotment	1,991 AUMs

The allocation of AUMs for the remaining 51% of the allotment is as follows:

Wild Horse Use inside the HMA	154 AUMs
Livestock Use inside the HMA	154 AUMs
Mule Deer	128 AUMs
<u>Antelope</u>	<u>60 AUMs</u>
AUM allocation in the remaining 51% of the Allotment	496 AUMs

Total AUM allocation for the Churchill Canyon Allotment 2,487 AUMs

The critical growth period (phenological stage) is the half-vegetative growth stage for perennial grasses and the twig growth stage for perennial shrubs. There are several types of grazing systems which can be implemented to ensure the health of perennial plant species. The two most practical systems for the Churchill Canyon Allotment at this time are to either: 1) cease livestock grazing prior to the half vegetative growth stage for grasses and the twig growth for shrubs; or 2) If livestock grazing occurs during the half vegetative growth stage or twig growth stage then ensure that there is rest from livestock grazing during these growth stages every other year.

Northeast Portion of the Allotment

Indian ricegrass reaches the half vegetative stage before bottlebrush squirreltail and the needlegrasses. The critical growth period for Indian ricegrass in the northeastern portion of the allotment occurs between the later part of March and mid April. Twig growth for shadscale and low sagebrush occurs between mid and late April. As long as cattle continue to be removed from the northeast portion of the allotment prior to March 15th there will be no significant environmental impacts to perennial grasses and shrubs.

Southern Portion of the Allotment

The half-vegetative growth stage for squirrel tail and the needlegrasses occurs between mid March and mid April. The phenological data collected for carex

and juncus indicate the half-vegetative growth stage for these species occurs between mid to late April. However, the data was collected from a meadow, which is located 1,000 feet higher than the lowest meadow in the allotment. Therefore it is likely that the half-vegetative growth stage for carex and juncus occurs earlier in Churchill Canyon. Twig growth for sagebrush begins in mid April and twig growth for bitterbrush begins at the end of May. The livestock grazing season does not end until May 15th which is two months after the critical growth periods for perennial grasses begin and one month after critical growth periods for perennial shrubs. Because of the overlap of livestock grazing and critical growth periods for perennial grasses and shrubs increasing livestock grazing would negatively impact plant growth and reproduction. These impacts could be avoided by reducing the livestock-grazing season of use or limited by resting the plant community from livestock grazing during the critical growth periods every other year.

Twig growth for bitterbrush is outside of the grazing season of use so no impacts are anticipated for this species.

Northwestern Portion of the Allotment

The half-vegetative growth stage for needlegrasses has been estimated to occur in mid May. The vegetative growth stage for needlegrass coincides with the end of the grazing season of use therefore no impacts to perennial grasses are anticipated. Twig growth for sagebrush is estimated to occur in mid April. The livestock grazing season ends May 15th which is one month after the critical growth period for sagebrush. Sagebrush does not make up a large portion of a cows diet therefore impacts to sagebrush from cattle grazing would be minimal. The estimated twig growth stage for bitterbrush is estimated to occur in mid June after the end of the grazing season. Therefore no impacts to bitterbrush are anticipated.

- 2) Vegetation clearing would not be authorized with the construction of the fence. Vegetation disturbance would be minimal. The number of cattle trails may increase because the animals would walk along the fence line. Some of the existing plants may become trampled. In the short term, it would impact on approximately 20 acres of vegetation.

If the proposed fencing were utilized in conjunction with a rest rotation grazing system for livestock in the southern portion of the allotment plant health would improve. By providing rest from grazing every other year plants would not be utilized during the critical growth periods. The effect of limiting livestock access to plant communities during critical growth periods would be increased plant vigor and reproduction.

- 3) Vegetation clearing would not be authorized with the construction of the water trough at Presto Spring. Vegetation disturbance would be minimal. The number of cattle trails may increase because the animals would walk to the

trough for water. Some of the existing plants may become trampled. In the short term, it would have a negative impact on approximately one acre of vegetation.

- 4) Construction of the proposed corral would result in the removal of one half acre of sagebrush vegetation.
- 5) Vegetative impacts associated with the construction of a water hole would be the removal of vegetation. Up to one half acre of vegetation may be removed during the construction.
- 6) The designation of 25 areas for temporary water haul or mineral supplement locations would result in no new trampling of vegetation. The areas are currently used as salting areas, therefore there would be no new disturbance. In the short term use of these areas would impact a maximum of 50 acres of vegetation.

Utilization of dry grasses and shrubs would increase if mineral supplements high in protein were utilized. Shrub vigor and reproduction could be reduced if mineral supplements are utilized after twig growth has begun.

The use of mineral supplements and/or temporary water areas to increase livestock distribution within the allotment would decrease utilization levels on key plant species. The utilization of mineral supplements and /or temporary water areas to vary livestock distribution within the allotment during early spring would benefit plant vigor.

- 7) The extension of the grazing season up to 15 days would not impact the vegetation if resource conditions are appropriate. Plant phenology, forage availability, and the livestock grazing system must be considered when deciding if resource conditions are appropriate. Perennial grasses and shrubs should be grazed prior to the half vegetative growth stage for grasses or prior to twig growth for shrubs. If extending the grazing season would result in grazing occurring during the half vegetative growth stage or during twig growth then there needs to be a plan to rest the vegetation from grazing during critical growth periods the following year. Extending the grazing season should not result in the exceedance of permitted AUMs or moderate utilization levels on key species.

c. Soils

- 1) through 7) Some increased soil compaction may occur in limited areas due to an increase in the number of cattle on the allotment. The proposed range improvements may also indirectly result in increased soil compaction due to the concentration of livestock around the improvements. Less than a half acre of soil compaction would occur.

d. Weeds

- 1) Authorization of additional AUMs on a TNR basis would not change the occurrence or abundance of weeds in the allotment.
- 2) through 6) Bare soils associated with the proposed range projects may provide an area for weeds to establish in.
- 7) The extension of the livestock-grazing season would not change the occurrence or abundance of weeds in the allotment.

e. Wildlife

- 1) Additional livestock use would not adversely affect wildlife habitat as long as the utilization levels are not exceeded. Census data provided by the Nevada Department of Wildlife indicate 52 deer were counted in the Pine Nut Herd in 1999. The five-year average is 115 deer for the Pine Nut Herd. The allocation of 256 AUMs for deer exceeds the current deer demand for forage. Because the use made by antelope throughout the Pine Nut Range is not known at this time all of the AUM needs for antelope were allocated from the Churchill Canyon allotment. However, it is not likely that all 50 antelope will remain within the allotment on a yearlong basis. The 120 AUMs allocated for antelope will be adjusted once seasons and areas of use for the herd are known.
- 2) & 4) Fence construction should not adversely affect wildlife. Wildlife fencing specifications would be utilized to allow for wildlife movement. The specified fence type is a BLM standard type B antelope fence.
- 3) Construction of another water trough at Presto Spring should not affect wildlife since there is already a trough at this location. Wildlife ramps are also included as part of the proposed action to enable small animals and birds to safely utilize the water.
- 5) The construction of a water hole may increase livestock use in an area designated as Mule Deer winter range. Additional livestock use would not adversely affect wildlife habitat as long as the utilization levels are not exceeded. Providing another water source in the north east section of the allotment would not change the number of species present within the allotment.
- 6) The designation of areas as temporary water haul and/or mineral supplement areas would not adversely affect wildlife. To enable small animals and birds to utilize the water, bird ladders should be provided.
- 7) The extension of the grazing season 15 days when resource conditions are appropriate would not adversely affect wildlife.

f. Nevada BLM Sensitive Species

- 1) & 7) Additional livestock use should not adversely affect habitat as long as the

utilization levels are not exceeded.

- 2) & 4) The proposed fences are within or immediately adjacent to habitat identified by NDOW for the western sage grouse, a BLM Sensitive species. Construction of the fences could lead to an increase in predation since the fence could provide elevated perches for raptors. However, there are many natural potential perches already existing in the area. The area in which the fence would be constructed has been identified as a sage grouse brooding area. Brooding areas have been identified as critical habitat in the draft Guidelines for management of sage grouse populations and habitats presented in January 2000. These guidelines, as this EA is written in March 2000, have not been formally published, nor have they been accepted by the BLM as policy. If the fence is built as proposed, engineering flagging should be hung from the top fence wires to alert birds and other wildlife that the fence is present.

There are no anticipated impacts to the sage grouse lek north of the allotment from livestock grazing in the Churchill Canyon allotment. However, as a precautionary measure the grazing season in the northwest portion of the allotment should be limited to May 15th to allow for the re-growth of vegetation.

- 3), 5), & 6) There should not be any effect.

g. Visual Resources

- 1) & 7) There should not be any affect on visual resources if utilization levels are not exceeded.
- 2) through 6) The Proposed Action would meet the Class III Visual Resource Management Objectives. Using the proposed paint colors for the t-posts and water tanks would ensure that these structures blend in with the vegetation. This Proposed Action would not affect land uses or access.

h. Water Resources

- 1) through 7) There should not be any effect.

i. Wetland/Riparian

- 1) Minimal impacts from winter (dormant-season) grazing would occur from cattle grazing. Winter use is usually the least detrimental to soils (where they are frozen) and to dormant herbaceous vegetation. However, it may be the period of greatest use of browse species by both livestock and wildlife depending on temperatures, snow depth and duration, availability of other feed, animal concentration, forage/browse preference, and the extent of the woody plant community. Winter can be a season of use with minimal impact when grazing is closely monitored and controlled (especially use of woody

plant growth). Standard rangeland monitoring would document use in riparian areas and livestock management would be adjusted accordingly.

Spring use normally results in better livestock distribution between riparian and upland areas due to flooding of riparian areas and the presence of highly palatable forage on the uplands. However, because of the overlap of livestock grazing and critical growth periods for perennial grasses in the spring, an increase in livestock grazing would negatively impact plant growth and reproduction within the meadows located in the southern portion of the allotment. Cool-season vegetation growth begins and peaks in spring. Warm-season plants begin growing during mid to late spring. In the spring, seed and litter can be trampled into wet soil by hoof action. However, on moist or saturated soils, grazing animals more easily uproot plants and compact soils or shear streambanks. Subsequent rest would encourage root growth and other biological activity, which would offset the effects of soil compaction. The livestock-grazing season of use should be rested from livestock grazing during critical growth periods every other year.

- 2) The construction of the fence would indirectly benefit the riparian meadows and springs if it were utilized to exclude livestock grazing during critical growth periods every other year. If the proposed fencing were utilized in conjunction with a rest rotation grazing system for livestock in the southern portion of the allotment plant health would improve. The effect of limiting livestock access to plant communities during critical growth periods would be increased plant vigor and reproduction.
- 3) through 7) There should not be any effect.

j. Wild Horses

- 1) An increase in livestock AUMs would not affect wild horses. Data utilized to estimate potential forage availability was based on forage availability outside of the HMA. Forage allocation within the HMA has not changed for livestock or wild horses. Wild horses roaming outside of the HMA would not be affected because increased TNR AUMs would be based on available forage.
- 2) The construction of six miles of fence could affect wild horse movement. Two miles of proposed fence would join with two miles of existing fence and parallel the southeastern boundary of the Northern Pine Nut HMA. Wild horses in the southeastern corner of the HMA could move around this section of fence and navigate through steep rocky terrain to travel southward out of the HMA. Wild Horses roaming outside of the HMA could still access all areas within the allotment but it would require moving to the end of the fence and navigating through steep rocky terrain. If a wild horse should become confused on how to exit a fenced pasture there is forage and spring water available in all of the proposed pastures.
- 3) Through 7) There should not be any effect.

k. Recreation

- 1) There should not be any effect.
- 2) Cattle guards would be installed on all major roads and gates would be installed on jeep trails therefore there should not be any affect on recreation.
- 3) through 6) There should not be any effect.
- 7) Extending the grazing season up to 15 days between 05/15-05/30 would conflict with the annual OHV race on Memorial Day weekend.

B. Alternatives

1. No Action

- a. Livestock – No effect under the no action alternative.
- b. Vegetation - Because of the overlap of the livestock grazing season and critical growth periods for perennial grasses in the southern portion of the allotment, plant growth and reproduction may diminish in limited areas. Livestock are only utilizing a small portion of the available forage so some plant are receiving rest during the growing season therefore it is not likely that a large portion of the plant community would be affected.
- c. Soils – No effect under the no action alternative.
- d. Weeds – No effect under the no action alternative.
- e. Wildlife – No effect under the no action alternative.
- f. Threatened and Endangered – No effect under the no action alternative.
- g. Visual Resources – No effect under the no action alternative.
- h. Water Resources – No effect under the no action alternative.
- i. Wetlands/Riparian - No effect under the no action alternative.
- j. Wild Horses – No effect under the no action alternative.
- k. Recreation – No effect under the no action alternative.

C. Mitigation Measures

1. Proposed Action

- a. Implement the following grazing system: Northeastern portion of the allotment cattle grazing between 11/15-3/15. Northwestern portion of the allotment cattle grazing between 3/1-5/15. Southern portion of the allotment cattle grazing between 11/15-3/15 and cattle grazing in one half of the southern portion between 3/16-5/15. Implement a rest rotation system for livestock in the southern portion of the allotment 3/16-5/15. Between 3/16-5/15 one half of the southern portion of the allotment would be grazed

and the other half would be rested. The following year the rested half would be grazed and the grazed half would be rested between 3/16-5/15. See Map 9.

Flexibility: If a 15 day extension is granted by the BLM, grazing could occur in the following locations at the indicated times. Northeastern portion of the allotment 11/1-11/14. In the Northwestern portion of the allotment no extension would be granted. Southern portion of the allotment 11/1-11/14. Between 5/16 and the Friday before the Memorial Day Weekend grazing could occur in the half of the Southern portion of the allotment scheduled for grazing.

- b. Any use of mineral supplements other than salt would need to be authorized in writing by a BLM representative.
- c. Livestock would be removed from the allotment prior to the OHV race on Memorial Day weekend.
- d. If the fences are built in sage grouse habitat in the southern portion of the allotment, flagging would be included as part of the proposed action to alert wildlife.

2. No Action Alternative: No mitigation.

D. Residual Impacts

The proposed action, with the mitigation listed above, would have some visual impacts but they would be minor.

The no action alternative would have some minor impacts to vegetation in the southern portion of the allotment as grazing would continue during vegetative growth stage for perennial grasses and the twig growth stage for shrubs.

E. Cumulative Impacts

All resource values have been evaluated for cumulative impacts. It has been determined that cumulative impacts would be negligible as a result of the proposed action or alternatives.

F. Monitoring:

1. Coordinate with NDOW to monitor sage grouse use within the Churchill Canyon allotment.
2. Continue standard allotment monitoring such as actual use, use pattern mapping, frequency, trend, riparian assessments, and weed inventories.

V. Consultation and Coordination

A. Preparation and Review

Katrina Leavitt 3/6/00
Prepared by: Katrina Leavitt, Rangeland Management Specialist Date

James M. Standa 3/7/00
Reviewed by: Jim Gianoloa, Senior Rangeland Management Specialist Date

William A. Brown 6 Mar 00
Reviewed by: Rick Brigham, Wildlife Biologist Date

Gary Bowyer 3/7/00
Reviewed by: Gary Bowyer, Archaeologist Date

Jim deLaurel 3/6/00
Reviewed by: Jim deLaurel, Soil Scientist Date

Jake Jacobsen 3/6/00
Reviewed by: Jake Jacobsen, Wild Horse & Burro Specialist Date

Arthur Callan 3/6/00
Reviewed by: Arthur Callan, Recreation Planner Date

Terry J. Knight 3/6/2000
Reviewed by: Terry Knight, Recreation Specialist Date

Mike McQueen 3-8-2000
Reviewed by: Mike McQueen Environmental Planner Date

**PROPOSED CHURCHILL CANYON GRAZING DECISION /
DECISION RECORD / FINDING OF NO SIGNIFICANT IMPACT**

EA-NV-030-00-013

Through the consultation, coordination and cooperation process (CCC) input, from State agencies responsible for managing resources within the area, and the interested public has been considered. Based on the analysis of current monitoring data, and the beneficial input provided through the CCC process, it is my decision to implement the Proposed Action and associated Mitigation Measures in EA-NV-030-00-013.

LIVESTOCK GRAZING MANAGEMENT DECISION

Specifically, decisions relating to the grazing of livestock on public land in the Churchill Canyon allotment and brought forward as the Proposed Action in EA-NV-030-00-013 are as follows:

- A. In accordance with **43 CFR §4110.3-1, 4130.6-2 & 4130.3-3**, permitted livestock use will increase within those portions of the Churchill Canyon allotment outside of the Northern Pine Nut Wild Horse Herd Management Area (HMA) during the next six grazing seasons as determined by available and ongoing monitoring data. Up to 883 AUMs may be authorized on a Temporary Nonrenewable (TNR) basis each season. The amount of TNR use would be authorized annually subject to forage availability and resource condition.
- B. In accordance with **43 CFR §4130.3-1(a)**, the grazing season will be extended up to 15 days when resource conditions are appropriate. The BLM may grant an extension anytime between 11/1-11/15 and 05/15-05/30, as long as the 15 day period and permitted livestock AUMs are not exceeded.
- C. In accordance with **43 CFR §4120.3**, the proposed range improvements are authorized.

MITIGATION:

Implement the following grazing system: Northeastern portion of the allotment cattle grazing between 11/15-3/15. Northwestern portion of the allotment cattle grazing between 3/1-5/15. Southern portion of the allotment cattle grazing between 11/15-3/15 and cattle grazing in one half of the southern portion between 3/16-5/15. Implement a rest rotation system for livestock in the southern portion of the allotment 3/16-5/15. Between 3/16-5/15 one half of the southern portion of the allotment would be grazed and the other half would be rested. The following year the rested half would be grazed and the grazed half would be rested between 3/16-5/15.

Flexibility in the Grazing System: If a 15 day extension is granted by the BLM, grazing could occur in the following locations at the indicated times. Northeastern portion of the allotment 11/1-11/14. In the Northwestern portion of the allotment no extension would be granted. Southern portion of the allotment 11/1-11/14. Between 5/16 and the Friday before the Memorial Day Weekend grazing could occur in the half of the Southern portion of the allotment scheduled for grazing.

Any use of mineral supplements other than salt would need to be authorized in writing by a BLM representative.

Livestock would be removed from the allotment prior to the OHV race on Memorial Day weekend.

If the fences are built in sage grouse habitat in the southern portion of the allotment, flagging would be included as part of the proposed action to alert wildlife.

FINDING OF NO SIGNIFICANT IMPACT (FONSI):

Based on the analysis of potential environmental impacts for federal lands contained in EA-NV-030-00-013, I have determined that the impacts associated with the proposed action are not expected to be significant and an Environmental Impact Statement (EIS) is required.

RATIONAL:

The proposed action identified in EA-NV-030-00-013 responds to the purpose and need to determine the proper stocking level for cattle within the Churchill Canyon allotment while providing for multiple uses and ensuring ecosystem health. Implementation of the proposed action will provide an opportunity to monitor resources and evaluate the proposed stocking level for livestock. The proposed range improvements will enhance livestock management and reduce environmental impacts from livestock grazing.

The Record of Decision for the Reno Management Framework Plan (MFP) and Reno Grazing Environmental Impact Statement (EIS) that were later incorporated by reference into the Walker Resource Management Plan (RMP) was issued on December 21, 1982. These documents established the multiple use goals and objectives which guide management of the public lands in the Churchill Canyon allotment. The Reno Rangeland Program Summary (RPS), issued in May of 1984, identified allotment objectives specific to the Churchill Canyon allotment. The proposed action is consistent with those objectives.

AUTHORITY:

Authority for the Livestock Decisions for Churchill Canyon allotment is listed below. These citations are found in Title 43 of the Code of Federal Regulations.

- §4100.0-8: “The authorized officer shall manage livestock grazing on public lands under the principle of multiple use and sustained yield, and in accordance with applicable land use plans. Land use plans shall establish allowable resource uses (either singly or in combination), related levels of production or use to be maintained, areas of use, and resource condition goals and objectives to be obtained. The plans also set forth program constraints and general management practices needed to achieve management objectives. Livestock grazing activities and management actions approved by the authorized officer shall be in conformance with the land use plan as defined at 43 CFR §1601.05(b).”
- §4110.3 “The authorized officer shall periodically review the permitted use specified in a grazing permit or lease and shall make changes in the permitted use as needed to manage, maintain or improve rangeland productivity, to assist in restoring ecosystems to properly functioning condition, to conform with land use plans or activity plans, or to comply with the provisions of subpart §4180 of this part. These changes must be supported by monitoring, field observations, ecological site inventory or other data, acceptable to the authorized officer.”
- §4120.3-2(a) States in pertinent part: “(a) The BLM may enter into a cooperative range improvement agreement with any person, organization, or other government entity for the installation, use, maintenance, and/or modification of range improvements or rangeland developments to achieve management or resource condition objectives...”
- §4130.3 “Livestock grazing permits and leases shall contain terms and conditions determined by the authorized officer to be appropriate to achieve the management and resource condition objectives for the public lands and other lands administered by the Bureau of Land Management, and to ensure conformance with the provisions of subpart §4180 of this part.”
- §4130.3-1(a) “The authorized officer shall specify the kind and number of livestock, the period(s) of use, the allotment(s) to be used, and the amount of use, in animal unit months, for every grazing permit or lease. The authorized livestock grazing use shall not exceed the livestock carrying capacity of the allotment.”

§4130.3-1(c) "Permits and leases shall incorporate terms and conditions that ensure conformance with subpart §4180 of this part."

§4130.3-2 States in pertinent part: that "The authorized officer may specify in grazing permits or leases other terms and conditions which will assist in achieving management objectives, provide for proper range management or assist in the orderly administration of the public rangelands..."

§4180.2 The standards for rangeland health on which management will be based (in accordance to §4180.2) are:

STANDARD 1. SOILS:

Soils processes will be appropriate to soils types, climate and land form.

STANDARD 2. RIPARIAN/WETLANDS:

Riparian/wetlands systems are to be in properly functioning condition.

STANDARD 3. WATER QUALITY:

Water quality in Nevada and California State Law shall be achieved or maintained.

STANDARD 4. PLANT AND ANIMAL HABITAT:

Populations and communities of native plant species and habitats for native animal species are to be healthy, productive and diverse.

STANDARD 5. SPECIAL STATUS SPECIES HABITAT:

Habitat conditions are to meet the life cycle corridors for wildlife and minimize habitat fragmentation.

GUIDANCE:

NAC 445A.120, Applicability.

NAC 445A.123, Standards applicable to all waters.

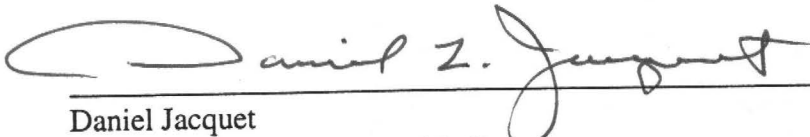
Sierra Front, Northwestern Great Basin Resource Advisory Council, Standards and Guidelines as approved by the Secretary of the Interior on February 12, 1997.

APPEAL:

In accordance with 43 CFR §4160.4 and 43 CFR §4.470, within 30 days of receipt of this Final Grazing Decision, any person whose interest is adversely affected by the Final Grazing Decision may file an appeal of that decision. The appeal shall state the reasons, clearly and concisely, why the appellant thinks the final decision is in error.

In accordance with 43 CFR §4.21, within 30 days of receipt of this Final Grazing Decision, you may file a petition for a stay (suspension) of the decision together with your appeal. The appellant has the burden of proof to demonstrate that a stay should be granted and show sufficient justification based on the following standards:

- (1) The relative harm to the parties, if the stay is granted or denied.
- (2) The likelihood of the appellant's success on the merits.
- (3) The likelihood of immediate and irreparable harm if the stay is not granted, and;
- (4) Whether the public interest favors granting the stay.

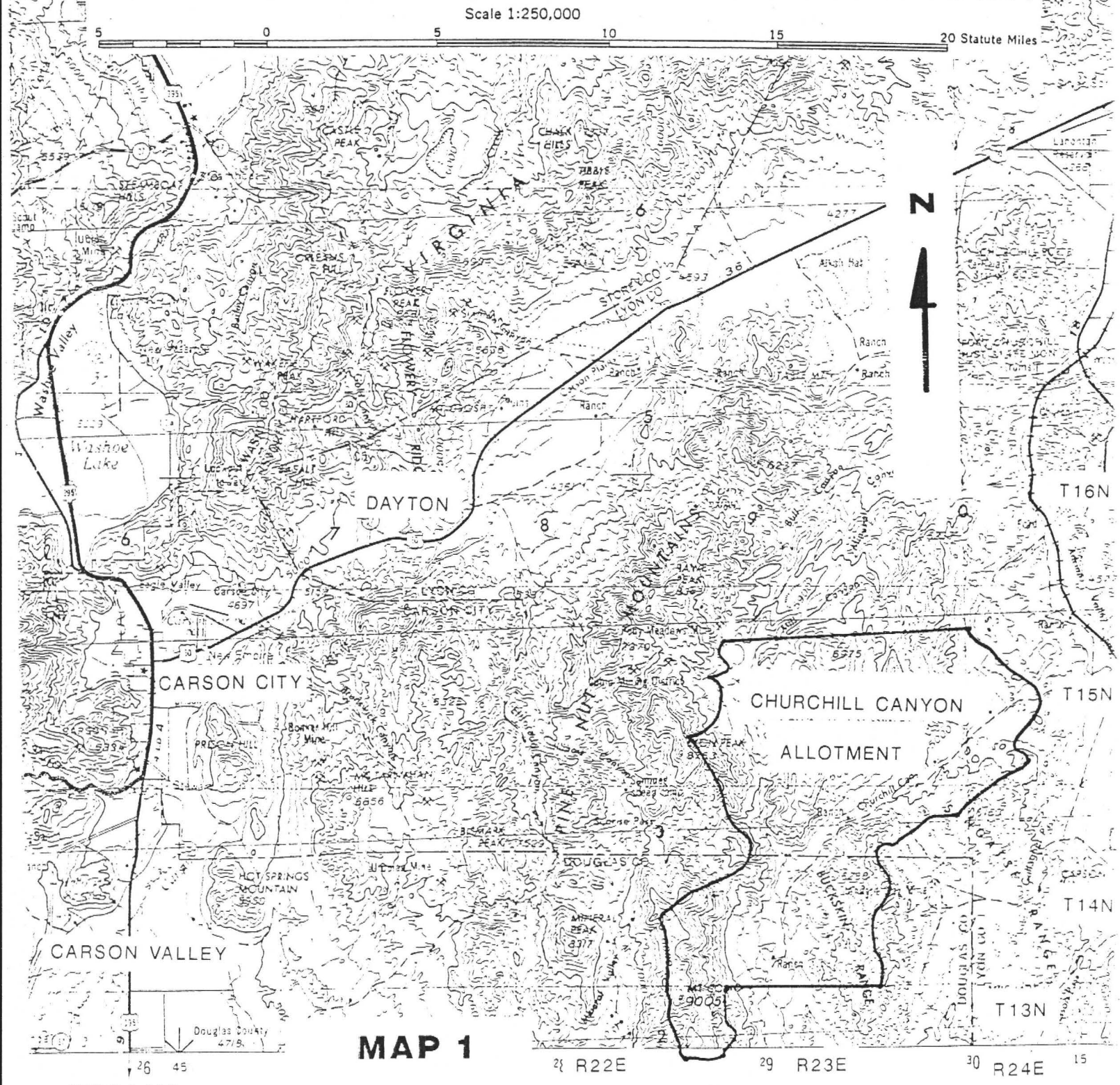
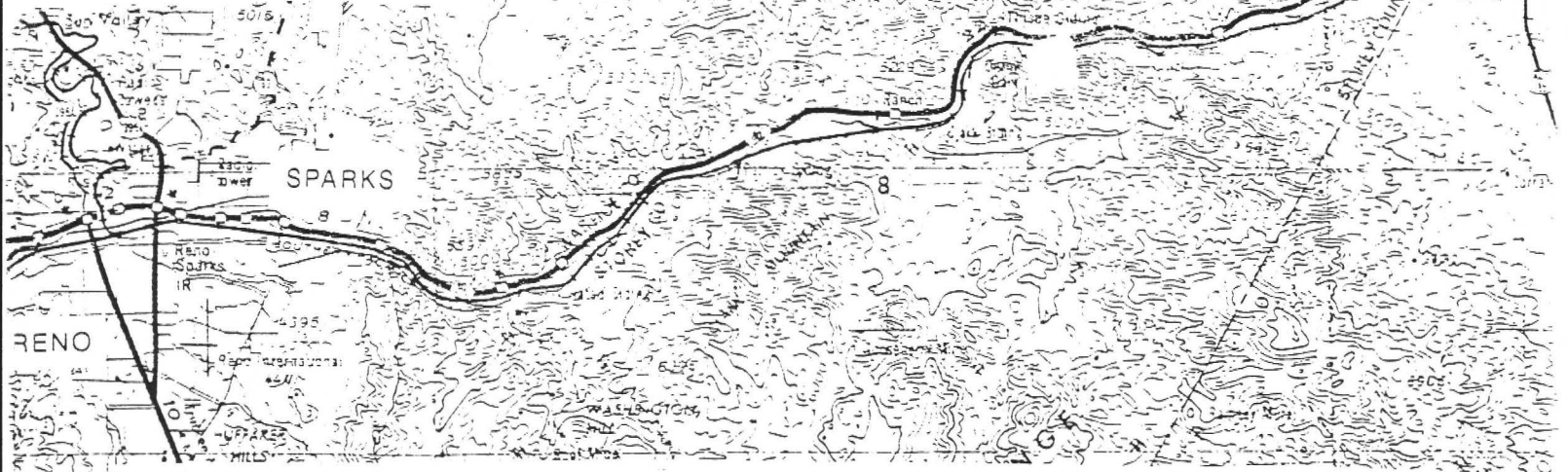


Daniel Jacquet
Assistant Manager, Renewable Resources
Carson City Field Office

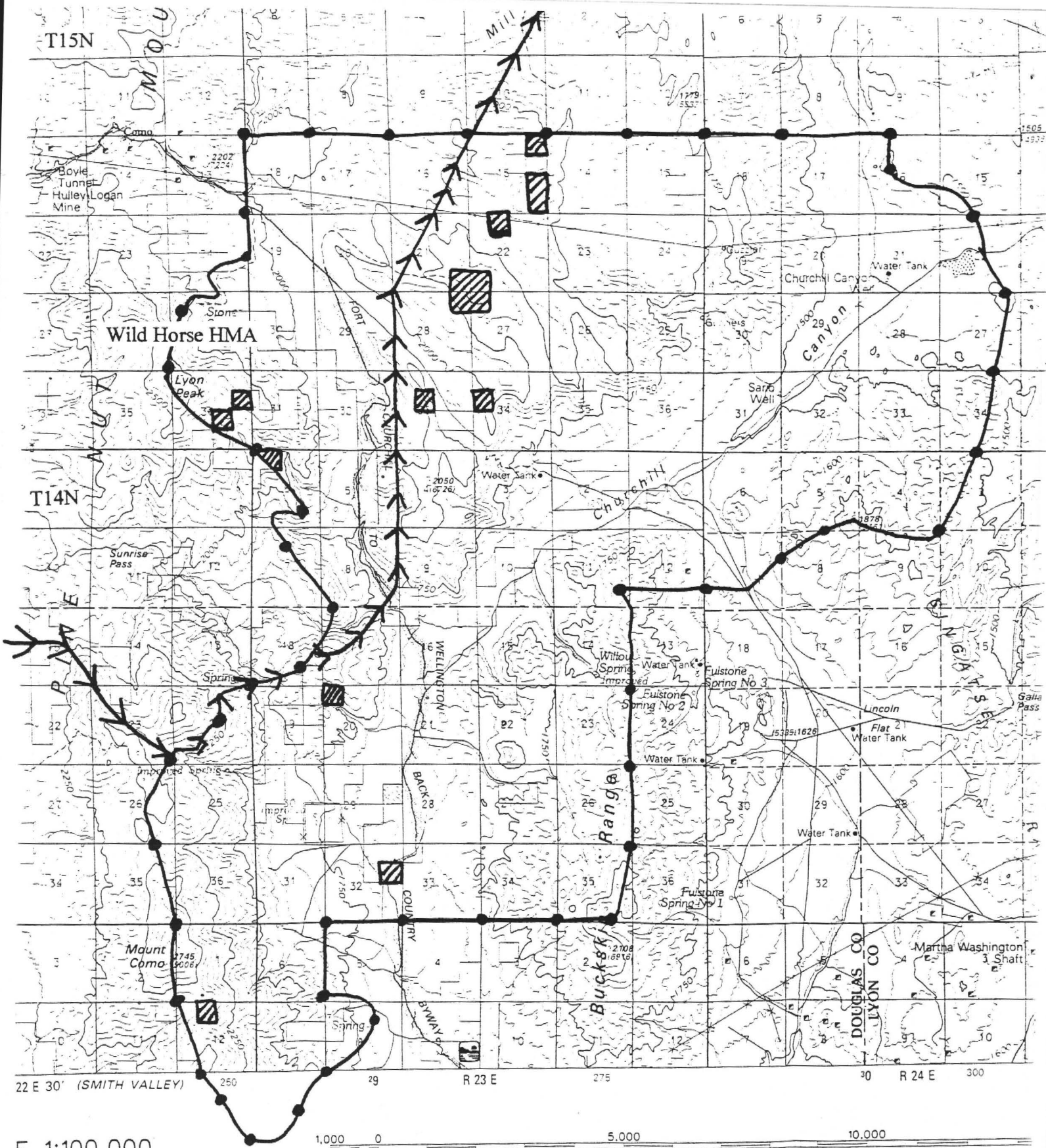
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Date

APPENDIX I - MAPS

Environmental Assessment
Churchill Canyon Grazing Management Actions
EA-NV-030-00-013



MAP 1



E 1:100,000
 REPRESENTS 1 KILOMETER ON THE GROUND

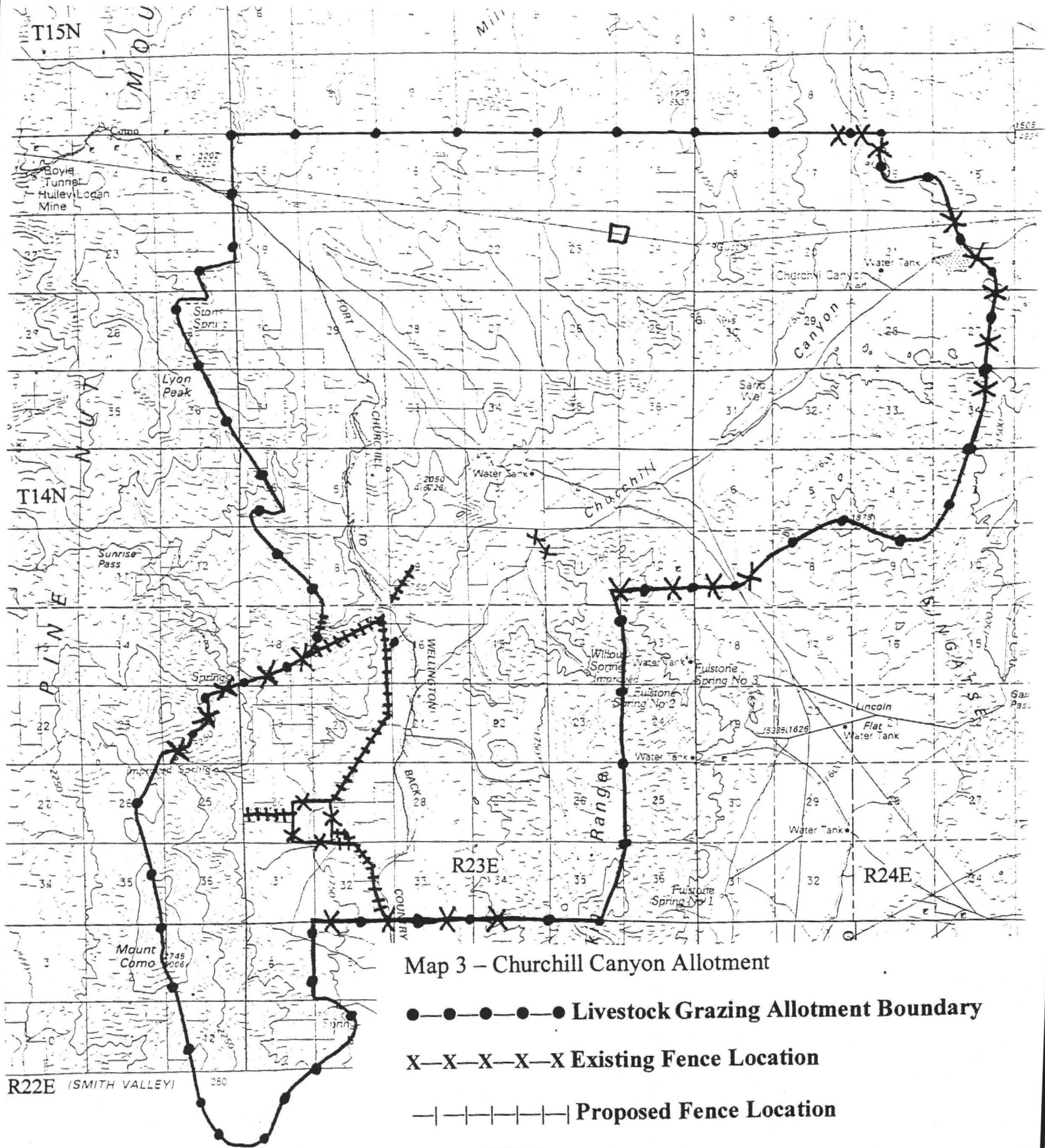
1,000 0 5,000 10,000 20,000 30,000 40,000

Map 2 – Churchill Canyon Allotment Scale 1:100,000 North ↑

●●●●● Livestock Grazing Allotment Boundary

➤➤➤➤➤➤ Pine Nut Wild Horse Herd Management Area (HMA)

 Private Property



Map 3 - Churchill Canyon Allotment

●-●-●-●-● Livestock Grazing Allotment Boundary

X-X-X-X Existing Fence Location

-|-|-|-| Proposed Fence Location

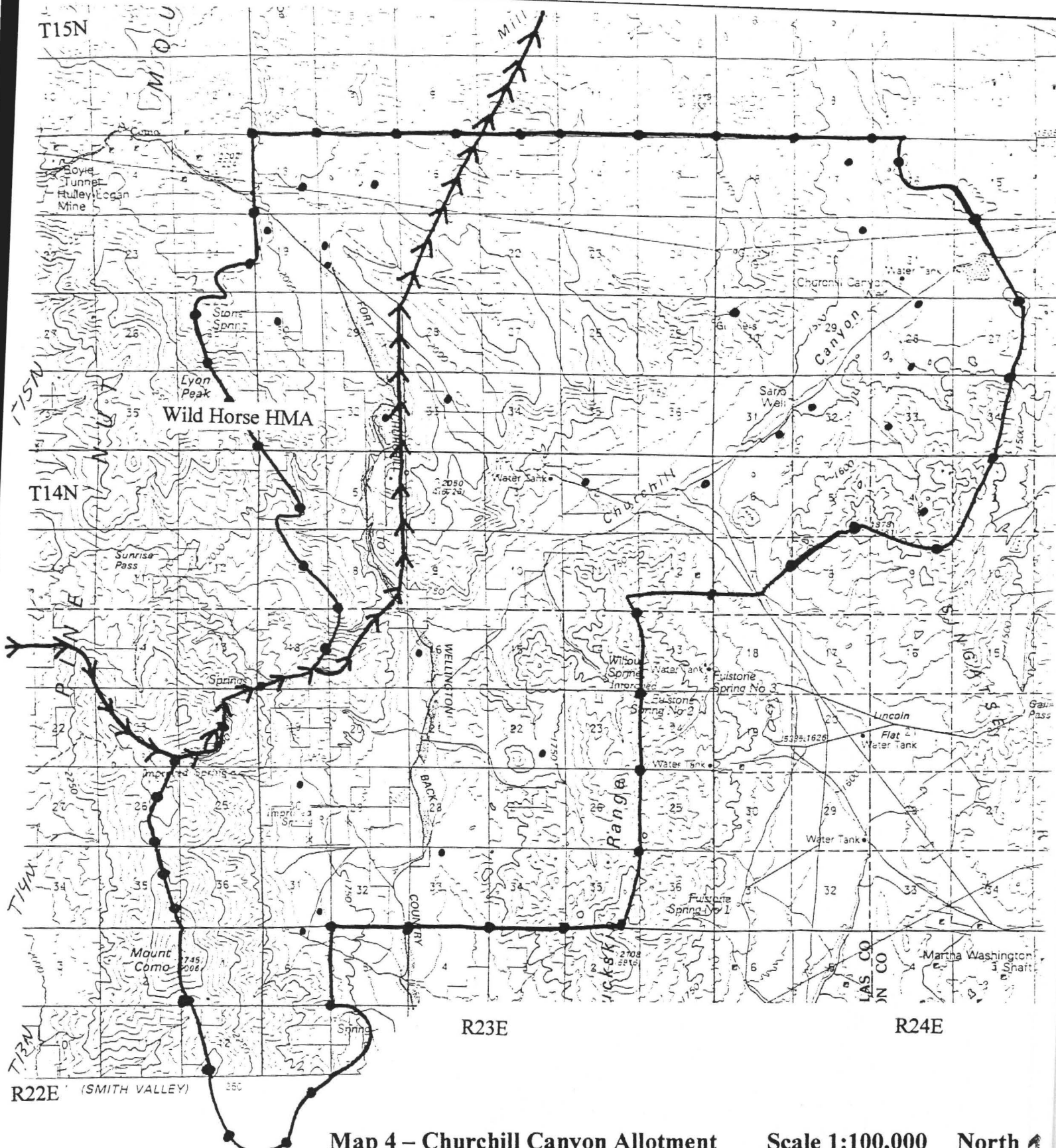


Proposed Water Hole/Reaper



Proposed Water Trough

Scale 1:100,000 North ↑



Map 4 – Churchill Canyon Allotment

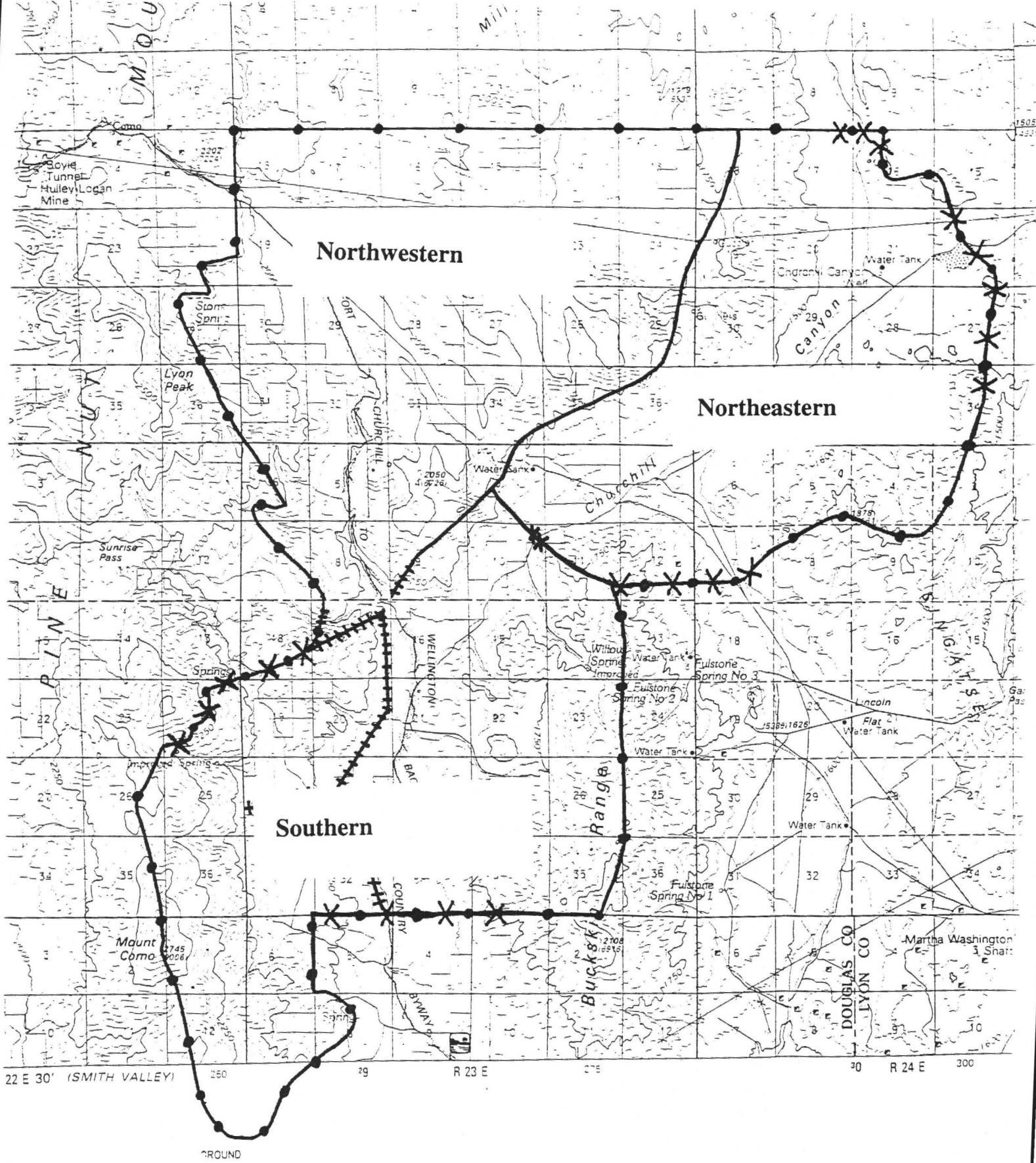
Scale 1:100,000

North

●●●●● Livestock Grazing Allotment Boundary

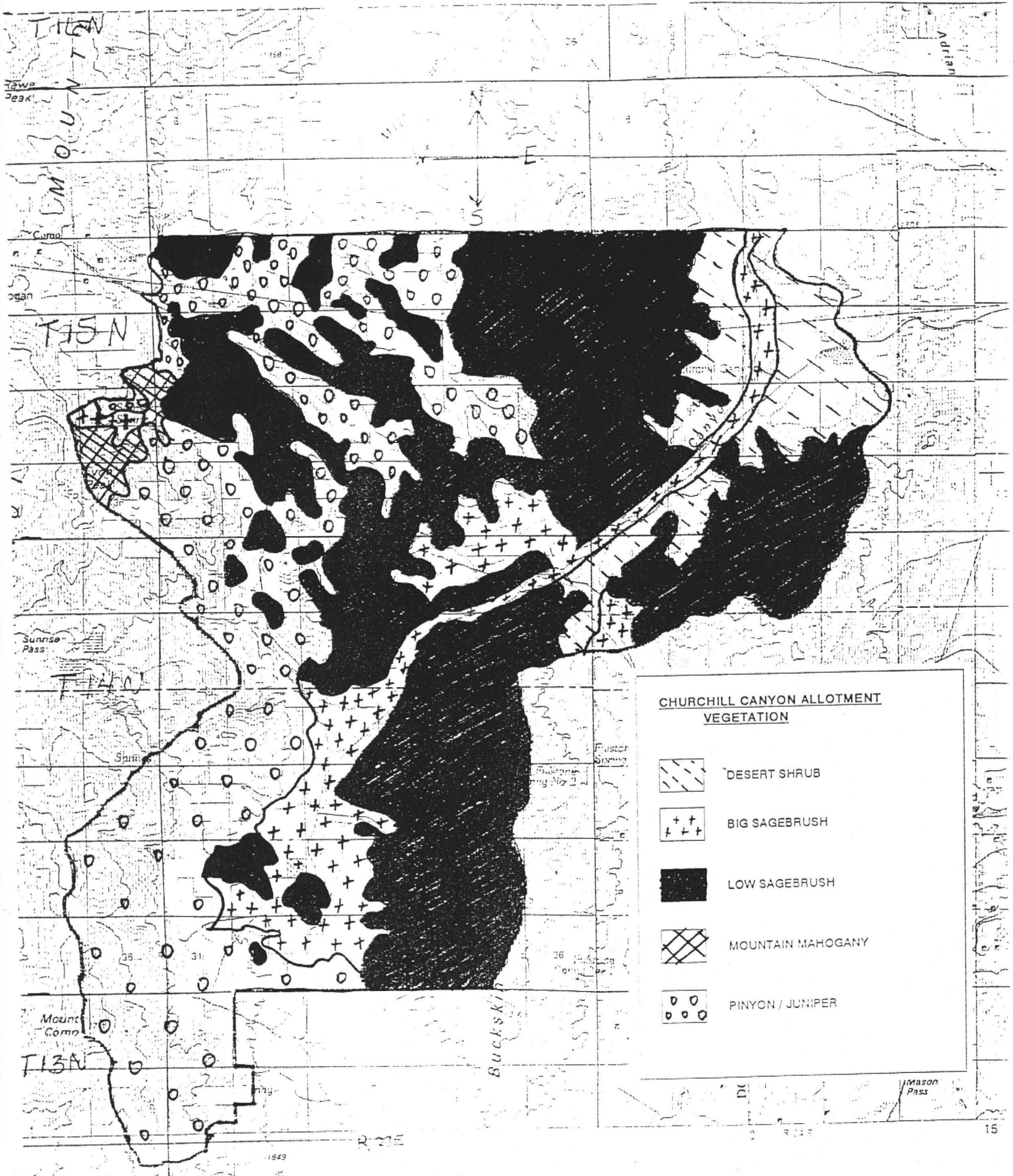
**>-->-->--> Pine Nut Wild Horse
Herd Management Area (HMA)**

● Proposed Water Haul and Mineral Supplement Areas








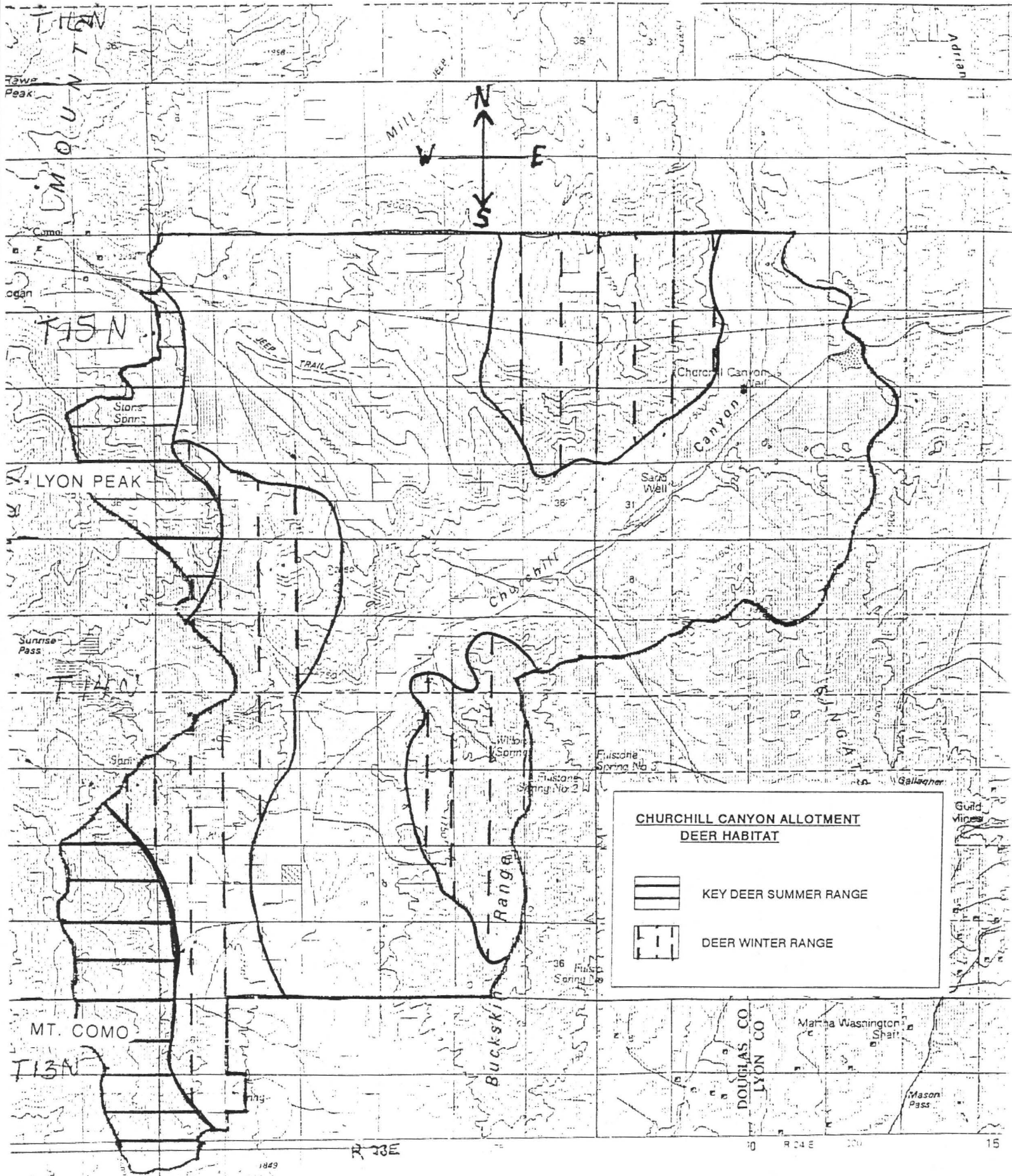
Map 5 - Churchill Canyon Allotment

Scale 1:100,000 North ↑



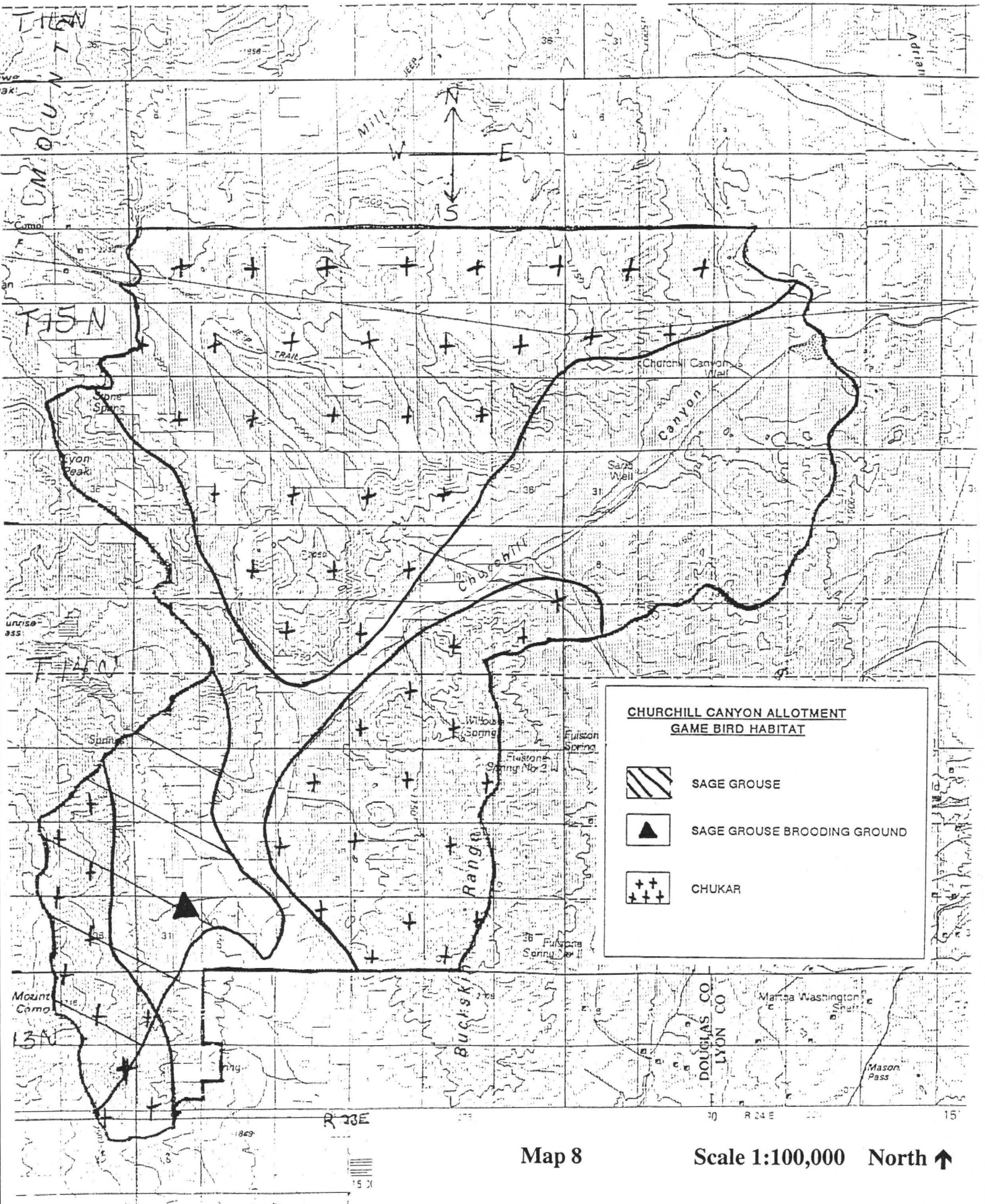
**CHURCHILL CANYON ALLOTMENT
VEGETATION**

	DESERT SHRUB
	BIG SAGEBRUSH
	LOW SAGEBRUSH
	MOUNTAIN MAHOGANY
	PINYON / JUNIPER






Map 7

Scale 1:100,000 North ↑

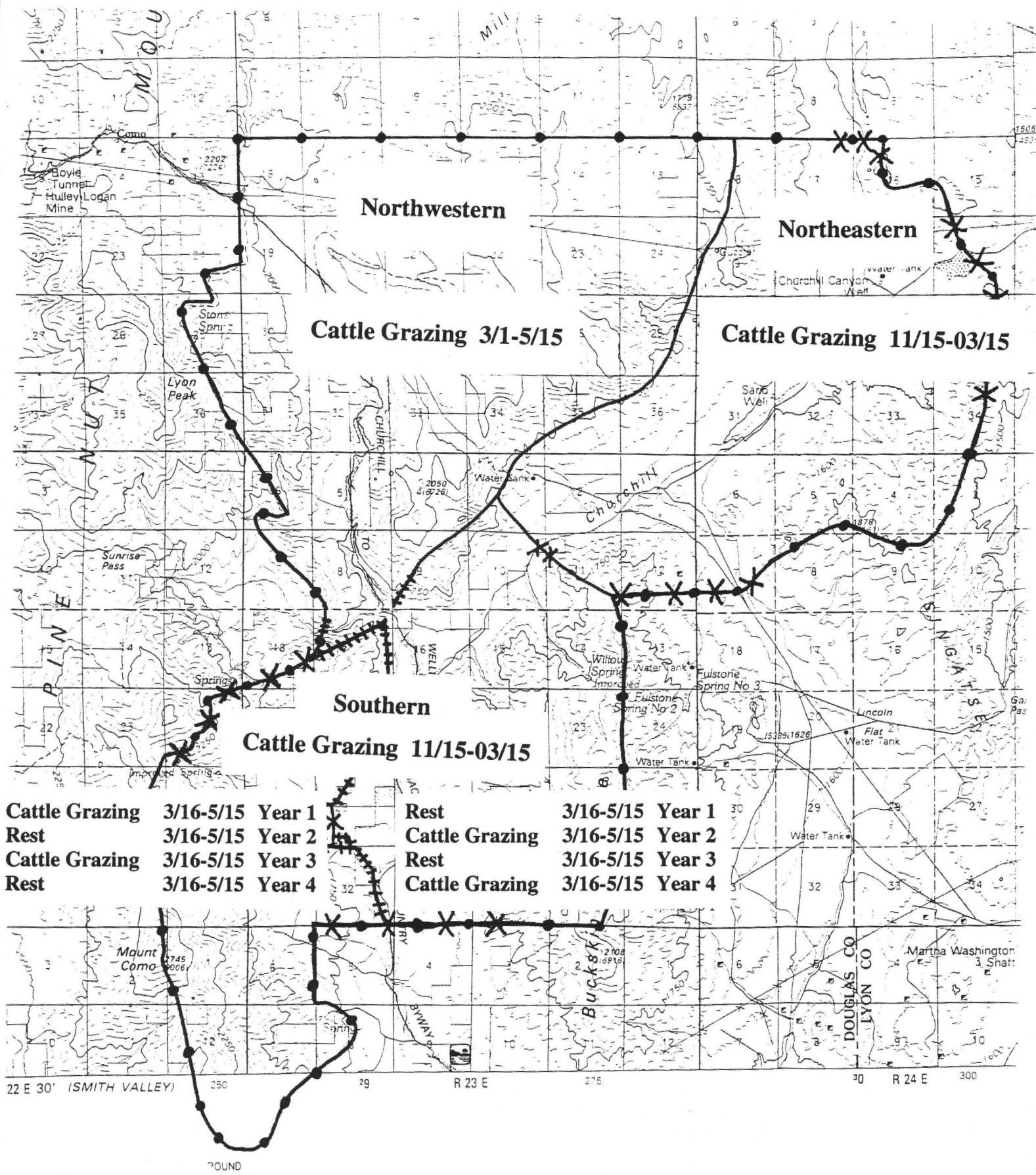


**CHURCHILL CANYON ALLOTMENT
GAME BIRD HABITAT**

	SAGE GROUSE
	SAGE GROUSE BROODING GROUND
	CHUKAR

Map 8

Scale 1:100,000 North ↑



Map 9

Livestock Grazing System

Scale 1:100,000

North ↑

APPENDIX II – SCOPING COMMENTS

Environmental Assessment
Churchill Canyon Grazing Management Actions
EA-NV-030-00-013

P.O. Box 368
Yerington, Nevada 89447
January 5, 1999

2000 JAN -6 AM 9:58
BUREAU OF LAND
MANAGEMENT
CARSON CITY
FIELD OFFICE

Katrina Leavitt, Range Ecologist
Bureau of Land Management
Carson Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701

Dear Ms Leavitt:

I am writing in response to your letter informing the "Interested Public" of the proposed actions in the Churchill Canyon Allotment. I tried unsuccessfully to contact you by phone a couple of times this week. Learning that you would not be in before a trip I am taking next week, I spoke to Jennifer Derley, who was quite helpful.

A number of questions are raised by the proposed actions. I realize that some of them will be addressed by the forthcoming EA; however, I feel that it is important to ensure that someone speak for this parcel of land, and to that purpose I address the following comments.

As you know, this is a principally upland area, with low rainfall and only intermittent springs. Its resources are scarce, and it is important that they not be devoted to a single use. I see this as the main threat of the expansion of cattle grazing that the proposed actions would allow. Two other groups of ungulates have access to the area also—the mustangs from the Pine Nut wild horse herd, and the recently introduced pronghorns. The pressure that these large animals put on the resources must be taken into account, and their needs must also be provided for, not sacrificed to cattle as the primary users.

The issue of manipulation of the available water must be addressed. A number of springs are found on the allotment; do cattle have access to all of them, or do some of them have exclusionary protection? If not, cattle dominate this resource to an undue degree. Do small birds and other animals still have access to the water of springs that have been piped or otherwise captured? A two acre water reaper is surprising in size. What effect will its construction have on the area? And how can the damage to the soil surface caused by the placement of twenty five water-haul or mineral supplement areas be justified?

I assume that water will be trucked in to facilitate the maximum utilization of the available forage by cattle. The fact that the AUMs would be more than doubled, and at the same time the season of use would be extended to a full seven months send up warning flags. It is imperative

that it be fully demonstrated that the allotment can support this added burden without incurring further grazing damage. We may well be in for another cycle of dry years, and this must be taken into account while making decisions that will affect the allotment.

What is the purpose of the construction of six miles of fencing, and what effect will it have on the other inhabitants of the allotment?

What are the costs of the eight proposed actions, and what percent of that sum will be borne by the public? I believe that the public has a right to access this information. Will there be any benefits to the land itself or the public in general of these expenditures, or are they entirely for the permittee?

To answer many of the above questions, the information provided by the Actual Use/Utilization studies, which were mandated by the Pine Nut Final Multiple Use Decision in 1995, and to be completed in 1998, must be made available. It seems most unwise to allow heavier livestock use to this allotment before the final active preference for livestock grazing is issued.

Understandably, the permittee's interest is to produce as much beef as he can. As I see it, the primary mandate of the BLM is to protect the resource, and secondarily to grant the permittee's requests. I trust that the approach of the Carson District Office conforms to this principle.

I am pleased to be in communication with you over local allotments, and I look forward to meeting in the future. I would be pleased to have you call me at 463-3974 to talk over any of the above issues. Meanwhile, I would be grateful if you would put my name on the list to receive a copy of the Environmental Assessment for this allotment when it is completed.

Sincerely,



Kathryn Corbett



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
COMMISSION FOR THE
PRESERVATION OF WILD HORSES
123 W. Nye Lane, Room 230
Carson City, Nevada 89706-0818
Phone (775) 687-1400 • Fax (775) 687-6122

January 7, 2000

Katrina Leavitt
BLM-Carson City Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701

RE: Churchill Canyon Grazing Allotment

Dear Katrina,

Thank you for the opportunity to review and comment on the Churchill Canyon Grazing Allotment proposed actions. A large consideration of these proposals is to increase grazing which would be contingent upon increased AUM availability. Correct me if I'm wrong but the AML was established at 13 wild horses. In the proposed EA, as you are considering increasing livestock and extending the grazing season based upon increased AUM's you will need to consider sharing those increased AUM with wild horse AUM's. Also, in the EA for the proposed six mile of fencing, please consider and document wild horse movement.

We look forward to working with you on the future management of this allotment. If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in cursive that reads "Catherine Barcomb".

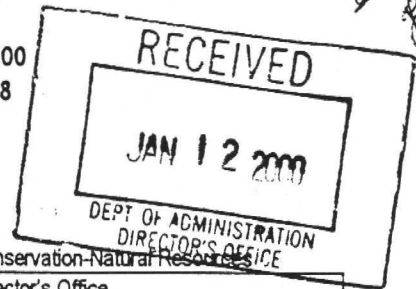
CATHERINE BARCOMB
Administrator

cc: Jim Gianola

2000 JAN 11 AM 11:14
BUREAU OF LAND MGMT
CARSON CITY
FIELD OFFICE

NEVADA STATE CLEARINGHOUSE

Department of Administration
Budget and Planning Division
209 East Musser Street., Room 200
Carson City, Nevada 89701-4298
(775) 684-0209
fax (775) 684-0260



DATE: December 23, 1999

Governor's Office
Agency for Nuclear Projects
 Agriculture
Business & Industry
Energy
Minerals
Economic Development
Tourism
Fire Marshal
Human Resources
Aging Services
Health Division
Indian Commission
Colorado River Commission

Legislative Counsel Bureau
Information Technology
Emp. Training & Rehab Research Div.
PUC
Transportation
UNR Bureau of Mines
UNR Library
UNLV Library
 Historic Preservation
Emergency Management
Office of the Attorney General
Washington Office
Nevada Assoc. of Counties
Nevada League of Cities

Conservation-Natural Resources
 Director's Office
 State Lands
 Environmental Protection
 Forestry
 Wildlife
 Region 1
 Region 2
 Region 3
 Conservation Districts
 State Parks
 Water Resources
 Water Planning
 Natural Heritage
 Wild Horse Commission

Nevada SAI # E2000-078

Project: Scoping/Proposed actions within the Churchill Canyon Grazing Allotment

NOTE: Clearinghouse has obtained an extension on the comment period. I will Fax responses.

Yes No Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:

Enclosed, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than **January 24, 2000**. Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Heather Elliott, 684-0209.

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

- No comment on this project
- Proposal supported as written
- Additional information below
- Conference desired (See below)
- Conditional support (See below)
- Disapproval (Explain below)

AGENCY COMMENTS:

There are several active water rights issued by the State Engineer within the proposed project area. Any water used by the described project should be provided under permits issued by the State Engineer's Office. All waters of the state belong to the public and may be appropriated for beneficial use pursuant to the provisions of Chapters 533 and 534 of the Nevada Revised Statutes and not otherwise. Any water wells or boreholes that may be located on either acquired or transferred lands are the ultimate responsibility of the owner of the property at the time of the transfer and must be plugged and abandoned as required in Chapter 534 of the Nevada Administrative Code. If artesian water is located in any well or borehole it shall be controlled as required in NRS 534.060(3).

Carl A. Barwick

Signature

s:\shardat\clear\clear.doc

WATER RESOURCES Agency

January 6, 2000



KENNY C. GUINN
Governor

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WILDLIFE

1100 Valley Road
P.O. Box 10678
Reno, Nevada 89520-0022
(775) 688-1500 • Fax (775) 688-1595

January 20, 2000

PETER G. MORROS
Director
Department of Conservation
and Natural Resources

TERRY R. CRAWFORTH
Administrator

JS
RR
Nevada Division of Wildlife
Region 1 Ph 423-3171
380 West B Street
Fallon, Nevada 89406

Mr. John Singlaub
Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701

RE: Churchill Canyon Allotment

Dear John:

Thank you for consulting the Division of Wildlife concerning the proposed range improvement projects and livestock grazing practices on the Churchill Canyon Allotment. Our agency continues to be concerned for the condition of riparian and upland habitats within this allotment.

We support any project to exclude use on degraded riparian areas. We continue to encourage the Field Office to apply livestock seasons of use that are compatible with the phenology of Indian ricegrass and forbs. To better support the re-introduction of antelope, the pending decision could improve habitat conditions and promote management actions necessary to meet reasonable numbers of big game.

In the past, our agency has supported the use of water hauls and water developments to better distribute livestock on this allotment. Please consult our biologists concerning the actual and potential impacts to biodiversity by the proposed Water Reaper or guzzler for livestock. Our agencies can greatly benefit by your commitment to monitor and assess these actions.

2000 JAN 24 AM 10:58
BUREAU OF LAND MGMT
CARSON CITY
FIELD OFFICE

Mr. John Singlaub
January 20, 2000
Page 2

We look forward to working with the Field Office on this environmental assessment.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard T. Heap, Jr.", written in a cursive style.

Richard T. Heap, Jr.
Western Regional Manager

REL
Cc. Habitat, Reno
Walt Mandeville

**APPENDIX III
ANALYSIS OF MONITORING DATA
CHURCHILL CANYON GRAZING ALLOTMENT 1999**

Environmental Assessment
Churchill Canyon Grazing Management Actions
EA-NV-030-00-013

Churchill Canyon Cattle Grazing Allotment
1999 Analysis of Monitoring Data

This serves as supplementary data to the original allotment evaluation (1994) and the allotment assessment procedures (Natural Resource Conservation Service - NRCS guidance) that determines if substantial progress is being made towards meeting the Standards and Guidelines for Rangeland health as developed by the Sierra Front - Northern Great Basin Resource Advisory Council and approved by the Secretary of the Interior on February 12th, 1997.

The Standards and Guidelines for Rangeland health as developed by the Sierra Front - Northern Great Basin Resource Advisory Council are as follows:

1. Soils: Soil processes will be appropriate to soil types, climate and land form as indicated by: 1) Surface litter is appropriate to the potential of the site; 2) Soil crusting formation in shrub interspaces, and soil compaction are minimal or not in evidence, allowing for appropriate infiltration of water; 3) Hydrologic cycle, nutrient cycle and energy flow are adequate for the vegetative communities; 4) Plant communities are diverse and vigorous and there is evidence of recruitment; and 5) Basal and canopy cover (vegetative) is appropriate for site potential.

2. Riparian/Wetlands: Riparian/wetland systems are in properly function condition (PFC) as indicated by: 1) Sinuosity, width/depth ratio and gradient are adequate to dissipate stream flow without excessive erosion or deposition; 2) Riparian vegetation is adequate to dissipate high flow energy and protect banks from excessive erosion; and 3) Plant species diversity is appropriate to riparian-wetland systems.

3. Water Quality: Water quality criteria in Nevada and California State Law shall be achieved or maintained as indicated by: 1) Chemical constituents do not exceed the water quality standards; 2) Physical constituents do not exceed the water quality standards; 3) Biological constituents do not exceed the water quality standards; and 4) The water quality of all water bodies, including ground water located on or influenced by BLM lands will meet or exceed the applicable Nevada or California water quality standards. Water quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and antidegradation requirements as set forth under State law, and as found in Section 303(c) of the Clean Water Act.

4. Plant and Animal Habitat: Populations and communities of native plant species and habitats for native animal species are healthy, productive and diverse as indicated by: 1) Good representation of life forms and numbers of species; 2) Good diversity of height, size, and distribution of plants; 3) Number of wood stalks, seed stalks, and seed production adequate for stand maintenance; and 4) Vegetative mosaic, vegetative corridors for wildlife, and minimal habitat fragmentation.

5. Special Species Habitat: Habitat conditions meet the life cycle requirements of special status species as indicated by: 1) Habitat areas are large enough to support viable populations of special status species; 2) Special status plant and animal numbers and ages appear to ensure stable populations; 3) Good diversity of height, size, and distribution of plants; 4) Number of wood stalks, seed stalks, and seed production adequate for stand maintenance; and 5) Vegetative mosaic, vegetative corridors for wildlife, and minimal habitat fragmentation.

No special status plant species are known to occur in the allotment.

I. ALLOTMENT INFORMATION

A. Management Objectives

1. Trend and Condition

- Allotments in the I category will be managed to improve ecological condition (14)
- Assure ecological condition does not decline in non-woodland sites (12)
- Increase the percent frequency of key species by a statistically significant amount by 1998 and improve mule deer habitat (10)
- Balance animal numbers with forage production so that the animals obtain adequate nutrition and the forage plants are not subjected to the continual reoccurring grazing use which would deplete the plant's energy reserves (6)
- Improve the health of the rangeland (6)

2. Wildlife Habitat

- Maintain mule deer habitat so it does not decline (12)
- Manage big game habitat to fair or good condition to support big game populations (9)
- Improve mule deer habitat to provide 256 AUMs and protect identified riparian areas (10)
- Improve forage for wintering mule deer (14)
- Evaluate the allotment for suitability as pronghorn antelope habitat (9)

3. Riparian Areas

- 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 (9)

B. Precipitation

The annual precipitation shown in Figure 1 is from Yerington, Nevada, which is the closest weather station with consistent and reliable data. The 57-year mean precipitation for the Yerington Recording Station (4,680 feet above sea level) is 5.34 inches. The elevation of the Yerington weather station is below the lowest portion of the allotment. Although the total amount of precipitation received in the Churchill Canyon allotment for a given year probably exceeded the amount received in Yerington. Data from the Yerington weather station is presented to document cyclic patterns in annual precipitation amounts. The Yerington data is useful in relating wet and dry precipitation cycles to actual use and utilization data. The Yerington precipitation data is also useful in determining what time of year precipitation was

received. Annual precipitation for the Yerington Recording Station is presented in Figure 1. The mean monthly precipitation is shown in Figure 2.

Elevations within the Churchill Canyon allotment range from approximately 4,700 feet along the Churchill Canyon drainage in the northeast to over 9,000 feet on Mt. Como in the southwest portion of the allotment. BLM's Churchill Canyon Watershed Study provides allotment specific climatic data for the Churchill Canyon Allotment. Average annual precipitation within the allotment (based on a 15 years of record) ranged from 7 inches in the low elevations to 12 inches in high elevations (10). The heaviest amounts of precipitation occur during the winter months in the form of snow at the higher elevations and rain in the lower elevations (10).

C. Riparian Areas & Water Sources

The 1994 allotment evaluation identified 20 acres of riparian habitat within the allotment. Standards listed in the Riparian Wetland Initiative for the 1990's were utilized to classify areas as riparian habitat. This survey was preceded by a survey in 1969, which delineated vegetation and soils within the Churchill Canyon watershed (1). The Plant communities consisting of species commonly associated with wet soil conditions covered approximately 310 acres of the allotment (1). The *Carex sp./Juncus balticus* (200 acres), *Populus fremontii/Salix geyeriana* (100 acres), and *Populus tremuloides/Artemisa tridentata* (10 acres) communities (1) within the allotment are not typically associated with surface water. The plant communities listed above are primarily associated with intermittent springs and ephemeral streams. The exception is approximately 20 acres of riparian vegetation that is located near perennial springs and streams (6).

Please reference Table 1 for a listing of the water resources within the allotment. Livestock water is primarily provided by three wells, three developed springs, and two reservoirs/waterholes. The developed spring sources have been fenced to exclude livestock.

Based on the information from the 1994 allotment evaluation, Standard #2 (Riparian/Wetlands) is being met for Twin Spring, Upper Spring Gulch, and Willow Spring. Churchill Canyon Creek, Mud Spring, and 5 O'Clock Spring were functional at risk. Because the PFC methodology was new at the time of the assessment and land status within the allotment has changed, the functionality of perennial water sources will be reassessed in 2000. Based on information from the 1980 Water Resources Inventory, Standard #3 (Water Quality) is being met.

II. ANALYSIS OF LIVESTOCK MANAGEMENT

A. Actual Use

The actual use data for the Churchill Canyon Allotment is shown in Table 2. It is presented to reflect the changes in livestock type, season of use and the amount of forage utilized by livestock.

Between 1975 and 1984 the allotment was being grazed by domestic sheep during the late fall, early winter, late spring, and early summer. The amount of forage harvested by livestock ranged

early winter, late spring, and early summer. The amount of forage harvested by livestock ranged between 1,787 to 4,000 AUMs annually. Approximately 75% of the livestock grazing was occurring during the spring which is the most critical growth period for key plant species. Continued late spring and early summer grazing resulted in desirable plant species exhibiting low vigor and reduced density. In addition problems existed in areas grazed after mid May due to limited water sources. Areas primarily grazed by wild horses were also exhibiting grazing use problems due to year round grazing and the harvesting of between 1,100-1,600 AUMs annually by wild horses (10).

Between 1985 and 1992 the allotment received little or no use from domestic livestock. Utilization levels were also reduced by the removal of wild horses between 1981 and 1993.

Between 1992 and 1999 cattle grazing occurred during the late fall, winter, and early spring. Typically cattle have been present in northeast portion of the allotment between November 15-March 15; in the southern portion of the allotment between November 15-June 1; and in the northwestern portion of the allotment between March 1-May 15. Between 1992 and 1997 cattle were taken off public lands by May 15th but were gathered onto private lands in the southern portion of the allotment where the cattle remained until June 1st. During 1998 and 1999 cattle remained on public land until June 2nd.

B. Utilization

1. Key Species Utilization

Key species utilization near key areas is shown in Figure 3. Data for 1996-1997 key area #1, 1997-1998 key area #2, & 1998-1999 were collected at the key areas. Because no additional data were collected at key areas, all other data were from transects located closest to the key areas. The transects were within one mile of the key areas.

Utilization of bottlebrush squirreltail between 1994 and 1999 varied between no use and moderate use near key area #1. Utilization of Indian ricegrass was heavy in 1994 and ranged from slight to moderate use from 1996 till 1999 near key area #2.

2. Use Pattern Mapping

The following observations are taken from use pattern mapping data that was collected between 1993 and 1999.

Northeastern Portion of the Allotment

Use of Indian ricegrass (Orhy) along the lower portion of Churchill Canyon near key area #2 and photo trend plot #5 has cycled between light and heavy use. Indian ricegrass, Thurber needlegrass (Stth), and squirreltail (Elel) use was slight to light near photo trend plot #3.

Southern Portion of the Allotment

Use of squirreltail and Thurber needlegrass near key area #1 and photo trend plot #4 has been

light with the exception of 1998 when the key area received moderate use. Indian ricegrass, Thurber needlegrass, and squirreltail have received slight to no use near photo trend plot #1 with the exception of 1997 when the area received moderate use. Use in the carex and juncus balticus communities northeast of the JW Ranch has been slight to moderate with the exception of the heavy use that occurred within the fenced meadow during 1994 & 1998.

Northwestern Portion of the Allotment

Between 1997 and 1999 use near photo trend plot #2 has been moderate, slight, and light. No use pattern data was collected near photo trend plot #2 in the three years preceding 1997.

C. Potential Actual Use (AUMs) Calculation for Churchill Canyon outside of the HMA

The potential actual use (potential stocking level) is calculated in Table 3. These calculations are based on the following formula. Potential Actual Use = (Desired Average Utilization) * ((Actual Use) / (Average Utilization)). Only those portions of allotment utilized by livestock between 1993 and 1999 were utilized for the potential actual use calculations. The maximum acreage utilized by livestock was 26,299 acres or 54% of the allotment. However, the maximum acreage averaged into the calculation of potential AUMs was 23,870 acres because the area within the HMA was excluded from potential actual use calculations. Five years of actual use and utilization data were analyzed. The results indicate the average potential stocking level is 1,991 AUMs.

D. Plant Phenology Data

Plant phenology data collected in and around the Churchill Canyon allotment is presented in Table 4 (17). The critical growth period (phenological stage) for perennial grasses is when they reach the half-vegetative growth stage. The critical growth period for shrubs is when twig growth begins. To ensure the health of perennial grasses and shrubs livestock grazing should either be removed prior to the half vegetative/twig growth stage or the plants should be rested from grazing every other year during the vegetative growth/twig growth stages.

The dominant plant species in the northeast portion of the allotment are:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Key Species</u>
Indian ricegrass	<i>Oryzopsis hymenoides</i> (Orhy)	Yes
Thurbers needlegrass	<i>Stipa thurberiana</i> (Stth)	Yes
Desert needlegrass	<i>Stipa speciosa</i> (Stsp)	Yes
Bottlebrush squirreltail	<i>Elymus elymoides</i> (Elel)	No
Shadscale	<i>Atriplex confertifolia</i> (Atco)	No
Low Sagebrush	<i>Artemisia arbuscula</i> (Arar)	No

Indian ricegrass reaches the half-vegetative growth stage before bottlebrush squirreltail and the needlegrasses. For areas with soils and climatic conditions similar to those for the northeast portion of the allotment, the half-vegetative growth stage for Indian ricegrass occurs between the later part of March and mid April. Twig growth for shadscale and low sagebrush

occurs between mid and late April. The earliest critical growth period begins March 15th for perennial grasses and shrubs in the northeastern portion of the allotment.

The dominant plant species in the southern portion of the allotment are:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Key Species</u>
Thurbers needlegrass	<i>Stipa thurberiana</i> (Stth)	Yes
Desert needlegrass	<i>Stipa speciosa</i> (Stsp)	Yes
Bottlebrush squirreltail	<i>Elymus elymoides</i> (Elel)	No
Low Sagebrush	<i>Artemisia arbuscula</i> (Arar)	No
Wyoming Big Sagebrush	<i>Artemisia tridentata wyomingensis</i> (Artr)	No

Plant species which are a minor portion of the plant community but important to wildlife and riparian areas include:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Key Species</u>
Antelope bitterbrush	<i>Purshia tridentata</i> (Putr)	No
Baltic rush	<i>Juncus balticus</i> (Juba)	No
Carex species	<i>Carex Sp.</i>	No

The half-vegetative growth stage for squirrel tail and the needlegrasses occurs between mid March and mid April for areas with soils and climatic conditions similar to those for the southern portion of the allotment. The phenological data collected for carex and juncus indicate the half-vegetative growth stage for these species occurs between mid to late April. However, the data was collected from a meadow, which is located 1,000 feet higher than the lowest meadow in the allotment. Therefore it is likely that the half-vegetative growth stage for carex and juncus occurs earlier in Churchill Canyon. Twig growth for sagebrush begins in mid April and twig growth for bitterbrush begins at the end of May. The earliest critical growth period begins March 15th for perennial grasses and shrubs in the southern portion of the allotment.

The dominant plant species in the northwestern portion of the allotment are:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Key Species</u>
Thurbers needlegrass	<i>Stipa thurberiana</i> (Stth)	Yes
Mountain Brome	<i>Bromus marginatus</i> (Brma)	No
Low Sagebrush	<i>Artemisia arbuscula</i> (Arar)	No
Wyoming Big Sagebrush	<i>Artemisia tridentata wyomingensis</i> (Artr)	No

Plant species which are a minor portion of the plant community but important to wildlife include:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Key Species</u>
Antelope bitterbrush	<i>Purshia tridentata</i> (Putr)	No

The half-vegetative growth stage for needlegrasses has been estimated to occur in mid May for areas with soils and climatic conditions similar to those for the northwestern portion of the allotment. Twig growth for sagebrush is estimated to occur in mid April while twig growth for bitterbrush is estimated to occur in mid June. The earliest critical growth period begins April 15th for perennial grasses and shrubs in the northwestern portion of the allotment.

E. KEY AREA FREQUENCY DATA

Two key areas were established in 1982 within the Churchill Canyon allotment. A 40-inch frame size has been used for all plant species. The key areas have 10 transects with 20 quadrats per transect, for total of 200 presence or absence frames. All values were compared to the Baseline Data collected in 1982. Bolded values indicate a significant difference at (P>0.05). ND indicates no data was collected

Frequency data is as follows:

Key Area #1	Orhy*	Stth*	Artr	(Elel)	(Epne)
09/03/82	1%	1%	44%	34%	42%
06/19/85	1%	ND	50%	45%	42%
06/16/88	1%	3%	43%	73%	42%
08/21/91	2%	2%	38%	53%	47%
08/19/94	1%	1%	23%	56%	28%
07/01/98	2%	4%	42%	83%	45%

95% Confidence Intervals:

Orhy*-1%	Stth*-1%	Artr-44%	(Elel)-34%	(Epne)-42%
0-4	0-4	37-51	27-41	35-49

* As identified on page 29 of the Nevada Rangeland Monitoring Handbook (September of 1984), as a rule of thumb, it is expected that all frequency percentages for important species should fall between 10 and 90 percent or, if possible, between 20 and 80 percent. This will provide the greatest possible chance of detecting an important trend for a species when the plot is read again. It has been shown that when initial frequency percentages are relatively high, say between 60 and 80 percent, smaller vegetation changes can be measured with statistical significance.

Key Area #2	Orhy	Artr	(Elel)	(Epne)
09/08/82	ND	ND	7%	ND
06/19/85	7%	19%	6%	34%
06/16/88	12%	22%	28%	40%
08/08/91	8%	15%	3%	38%
08/19/94	11%	12%	6%	26%
07/01/98	13%	23%	10%	35%

95% Confidence Intervals:

Orhy (7%)	Artr (19%)	(Elel) (7%)	(Epne) (34%)
3-11	14-24	3-11	27-41

F. PHOTO TREND PLOTS

Five photo trend plots were established in the allotment by the BLM in 1975. Photos were taken in 8/75, 7/76, 6/77, 7/79, 7/80, 8/83, 7/86, 8/90, 8/93, 9/96, and 8/98.

Photo Trend Plot #1 (TP1) is located in the southern portion of the allotment (T14N, R23E, Sec. 21). The characteristic vegetation at this location is low sagebrush (*Artemisa arbuscula*) Desert & Thurbers needlegrass(*Stipa speciosa*) and Nevada Ephedera (*Ephedera nevadensis*). The initial photo and the photos through 1980 show six needlegrass plants within the plot. Only the base of the needlegrass plants are present all seed stalks have been removed. The panoramic views show no perennial grasses between the low sagebrush. The 1983 photo shows three new grass seedlings within the plot, in the 1998 photo the new plants are identifiable as needlegrass. The panoramic photos from 1983 through 1998 show perennial grass plants with seed stalks between the low sagebrush. The panoramic photos also show an increase in the number of pinyon and juniper trees. The trend is upward.

Photo Trend Plot #2 (TP2) is located in the north west portion of the allotment (T15N, R23E, Sec. 19). The characteristic vegetation at this location is Wyoming big sagebrush, and Antelope Bitterbrush. The initial photo and the photos through 1980 show one bitterbrush plant and three sagebrush plants in the plot. The panoramic photos from 1975 through 1980 show pinyon and juniper trees but no perennial bunch grasses. The panoramic photos also show that the sagebrush plants have been beaten down and broken. Photos from 1983 through 1998 show that the trees and shrubs have been increasing in size but there are no new seedlings. The 1998 photo of the plot shows that the bitterbrush plant has dominated the plot and grown over the top of the three sagebrush plants. Pinyon and Juniper trees are also encroaching on the sides of the plot. There are no bunchgrasses or new shrub seedlings visible in the photographs. The trend is static.

Photo Trend Plot #3 (TP3) is located in the north east section of the allotment (T15N, R24E, Sec. 30). The characteristic vegetation at this location is low sagebrush and winterfat. The initial photo shows two winterfat plants and one low sagebrush plant within the plot. From 1975 to 1979 no grass of any kind is visible. In 1980 the annual cheatgrass is apparent,; and by 1993 several squirreltail plants are visible in the panoramic view. Between 1983 and 1996 a rabbitbrush plant establishes within the plot. The winterfat plants within the plot are dead in the 1990 photo. In the panoramic photo winterfat has decreased while squirreltail and low sagebrush have both increased. Trend appears upward.

Photo Trend Plot #4 (TP4) is located in the southwest portion of the allotment (T14N, R23E, Sec. 31). The characteristic vegetation is Thurber Needlegrass and Wyoming Big Sagebrush. The initial photo and the photos through 1977 show five needlegrass plants within the plot. Only the base of the needlegrass plants are present all seed stalks have been removed. Between 1979 and 1983 no needlegrasses are visible and between 1986 and 1998 one needlegrass plant is

present within the plot. The panoramic views show no perennial grasses between the sagebrush. The trend appears to be static between 1986 and 1998.

Photo Trend Plot #5 (TP5) is located in the northeast portion of the allotment (T15N, R24E, Sec. 21). The characteristic vegetation is Indian ricegrass, shadscale, bailey greasewood. The initial photo shows three ricegrass plants and one winterfat plant within the plot. Only the base of the ricegrass plants are present between 1976 and 1980 all seed stalks had been removed. The panoramic views show no perennial grasses between the shrubs from 1976 till 1980. Indian ricegrass is very visible in the panoramic photos from 1993 and 1998. Perennial grass plants have seed stalks but are very small in the 1996 photo. The number of Indian ricegrass plants has been increasing since 1983. The trend is upward.

Overall it appears that the trend is static to slightly upward. Standard #1 Soils and Standard #4 Plant and Animal Habitat are being met.

G. RECCOMENDATIONS

1. Conduct a PFC assessment on perennial water sources within the allotment in 2000.
2. Map riparian area boundaries in 2001.
3. Continue collecting actual use data annually, utilization data at key areas annually, utilization data allotment wide every three years, frequency transect data every three years, and photo trend plot data every three years.
4. Establish a frequency transect within the area burned by the Sunrise Pass Fire in 1996 (Map1).
5. Place a utilization cage in the large meadow in the southern portion of the allotment.
6. Start a rest rotation grazing system in the southern portion of the allotment.
7. Survey western sage grouse habitat areas with the Nevada Department of Wildlife in 2000.
8. Survey the allotment for weeds in 2000.
9. Implement the following grazing system: Northeastern portion of the allotment cattle grazing between 11/15-3/15. Northwestern portion of the allotment cattle grazing between 3/1-5/15. Southern portion of the allotment cattle grazing between 11/15-3/15 and cattle grazing in one half of the southern portion between 3/16-5/15. Implement a rest rotation system for livestock in the southern portion of the allotment 3/16-5/15. Between 3/16-5/15 one half of the southern portion of the allotment would be grazed and the other half would be rested. The following year the rested half would be grazed and the grazed half would be rested between 3/16-5/15.

TABLES

Table 1. Nevada Water Resources Inventory (Hydrologic Units 16050202 & 16050302).

A. Springs & Streams

Water Type	Location	Notes	Vegetation
Intermittent Spring Undeveloped	T13N, R23E, Sec. 6 NE, NE, NW		
Intermittent Spring Undeveloped Upper Spring Gulch	T13N, R23E, Sec. 8 SW, NW, NW		
Perennial Spring Undeveloped	T14N, R22E, Sec. 24 NW, NE, NE	Recorded flow 1.4 gpm 08/06/80	Meadow Chokecherry
Perennial Spring Undeveloped	T14N, R22E, Sec. 24 SE, NW, SW	Recorded flow 0.1 gpm 08/11/80	
Perennial Spring Undeveloped 5 O'Clock Spring	T14N, R22E, Sec. 25 NE, NE, NW	Recorded flow 2.6 gpm 08/11/80	
Perennial Stream Undeveloped	T14N, R22E, Sec. 25 NW, NE, NE	Recorded flow 2.6 gpm 08/12/80	Aspen Cottonwood Chokecherry
Perennial Spring Undeveloped	T14N, R22E, Sec. 25 SE, NE, NE	Recorded flow 2.4 gpm 08/12/80	Willow Aspen Cottonwood
Perennial Spring Undeveloped	T14N, R23E, Sec. 7 NW, NW, NE	Recorded flow 2.0 gpm 09/10/80	
Perennial Spring Developed Willow Spring RIP #5000	T14N, R23E, Sec. 14 NW, SW, SE	Spring area fenced with water piped to a trough.	Willow Wild Rose
Perennial Spring Developed Presto Spring	T14N, R23E, Sec. 17 NW, SE, NE	No flow recorded 08/05/80 Spring area fenced with water piped to a trough.	
Perennial Spring Undeveloped	T14N, R23E, Sec. 18 NW, SW, NE	Recorded flow 1.1 gpm 08/06/80	
Intermittent Spring Undeveloped	T14N, R23E, Sec. 18 SW, NE, SW	No flow recorded 09/10/80	Meadow
Intermittent Spring Undeveloped	T14N, R23E, Sec. 27 SW, SW, NE		
Intermittent Spring Undeveloped	T14N, R23E, Sec. 29 NE, SE, SW		
Perennial Stream Undeveloped	T14N, R23E, Sec. 30 SW, NW, NW	Recorded flow 6.6 gpm 08/12/80	
Intermittent Spring Undeveloped	T14N, R23E, Sec. 31 SE, SW, NW	No flow recorded 08/12/80	Willow Chokecherry
Perennial Spring Developed Twin Spring	T14N, R23E, Sec. 31 NW, SE, NW	Recorded flow 0.1 gpm 08/12/80 Spring area fenced with	Meadow Wild Rose
Perennial Spring Undeveloped	T14N, R23E, Sec. 31 NW, SE, SW	Recorded flow <0.1 gpm 08/12/80	Aspen
Intermittent Spring Undeveloped	T14N, R23E, Sec. 31 SW, SE, SW	No flow recorded 08/12/80	
Intermittent Spring Undeveloped	T14N, R23E, Sec. 31 NW, SW, NW	No flow recorded 08/12/80	Aspen
Intermittent Spring Undeveloped	T14N, R23E, Sec. 31 NW, NW, NW	No flow recorded 08/12/80	Willow
Intermittent Spring Undeveloped	T15N, R22E, Sec. 25 NE, SW, NE		
Intermittent Spring Undeveloped	T15N, R23E, Sec. 18 NW, SW, SW	No flow recorded 07/30/80	Meadow
Intermittent Spring Undeveloped – Mud Spring	T15N, R23E, Sec. 19 NW, NW, SW	No flow recorded 07/30/80	
Ephemeral/Intermittent Stream Churchill Canyon			

B. Livestock Water Improvements

<u>Water Type</u>	<u>Location</u>	<u>Notes</u>
Well - Churchill Canyon RIP #5040	T15N, R24E, Sec. 21 NW, SE,SW	Livestock water pumped during the grazing season
Well - Churchill #2 RIP #5050	T14N,R23E Sec. 1 SE,NW,NE	Livestock water pumped during the grazing season and piped to a trough.
Well - Sario RIP #0261	T15N, R24E, Sec. 31 NE, SE, NE	Livestock water pumped during the grazing season
Waterhole -Powerline RIP #6378	T15N, R23E, Sec. 33SE	
Waterhole - Dry Lake RIP #6379	T15N, R24E, Sec. 22 SW	
Reservoir RIP #5003	T15N, R23E, Sec. 20 SE, SW,SW	

C. Water Improvements for Wildlife

<u>Water Type</u>	<u>Location</u>
Wildlife Guzzler	T14N, R23E, Sec. 2
Wildlife Guzzler	T15N, R23E, Sec. 35
Wildlife Guzzler	T15N, R24E, Sec. 17
Wildlife Guzzler	T15N, R24E, Sec. 19

Table 2. Actual Use Data (Livestock) Churchill Canyon Allotment.

Grazing Year	Type of Livestock	Winter Season	Winter Use (AUMs)	Spring/Summer Season	Spring/Summer Use (AUMs)	TOTAL ACTUAL USE (AUMs)
1975	Sheep	12/01 - 02/15	1,167	04/01 - 07/15	2,833	4,000
1976	Sheep	12/01 - 02/15	1,167	04/01 - 07/15	2,833	4,000
1977	Sheep	12/01 - 02/15	527	04/01 - 07/15	2,833	3,360
1978	Sheep	12/01 - 02/15	743	04/01 - 07/15	2,120	2,863
1979	Sheep	12/01 - 02/15	743	04/01 - 07/15	2,168	2,911
1980	Sheep	12/01 - 02/15	479	04/01 - 07/15	2,168	2,647
1981	Sheep	12/27 - 01/21	522	04/01 - 07/15	2,168	2,690
1982	Sheep	12/18 - 02/07	546	05/01 - 07/15	2,294	2,840
1983	Sheep	12/28 - 01/10	207	05/01 - 07/15	1,407	1,614
1984	Sheep	No Use	-	04/01 - 07/15	1,787	1,787
1985	Sheep	No Use	-	No Use	-	-
1986	Sheep	02/20 - 02/28	84	No Use	-	84
1987	Sheep	No Use	-	03/01 - 05/26	800	800
1988	Sheep	No Use	-	No Use	-	-
1989	Sheep	No Use	-	05/19 - 07/12	143	143
1990	Sheep	No Use	-	No Use	-	-
1991	Sheep	No Use	-	No Use	-	-
1992	Sheep	No Use	-	No Use	-	-
1992-1993	Cattle	11/20 - 03/10	1,037	No Use	-	1,037
1993-1994	Cattle	11/20 - 02/28	996	03/01 - 03/10	41	1,037
1994-1995	Cattle	11/19 - 02/28	456	03/03 - 05/15	293	749
1995-1996	Cattle	11/24 - 02/28	730	03/01 - 04/30	459	1,189
1996-1997	Cattle	11/16 - 02/28	729	03/01 - 04/19	347	1,076
1997-1998	Cattle	11/22 - 02/28	649	03/01 - 06/02	613	1,262
1998-1999	Cattle	11/22 - 02/28	814	03/01 - 06/02	723	1,537

Table 3. Use Pattern Mapping Results Churchill Canyon Allotment – Based on mapped acres outside of the Northern Pine Nut HMA

Utilization Class	Acres Mapped (a)	Class Midpoint (b)	Weighted Average (c) = (a)*(b)	Average Utilization (d) = (Σ(c))/(Σ(a))	Potential Actual Use ¹ (e) = 55%*(Actual Use)/(d)
No Use	-	2.5 %	-	-	-
Slight	4,011	13 %	52,143	-	-
Light	4,856	30 %	145,680	-	-
Moderate	823	50 %	41,150	-	-
Heavy	7,556	70 %	528,920	-	-
Severe	0	90 %	0	-	-
1993-1994 GRAZING SEASON TOTALS	Σ(a)₉₃₋₉₄ = 17,246 Acres	-	Σ(c)₉₃₋₉₄ = 767,892 Acres	45%	1,267 AUMs
No Use	-	2.5 %	-	-	-
Slight	1,430	13 %	18,590	-	-
Light	4,979	30 %	149,370	-	-
Moderate	4,639	50 %	231,950	-	-
Heavy	550	70 %	38,500	-	-
Severe	0	90 %	0	-	-
1995-1996 GRAZING SEASON TOTALS	Σ(a)₉₅₋₉₆ = 11,598 Acres	-	Σ(c)₉₅₋₉₆ = 438,410 Acres	38%	1,721 AUMs
No Use	-	2.5 %	-	-	-
Slight	5,357	13 %	69,641	-	-
Light	5,112	30 %	153,360	-	-
Moderate	8,908	50 %	445,400	-	-
Heavy	3,457	70 %	241,990	-	-
Severe	71	90 %	6,390	-	-
1996-1997 GRAZING SEASON TOTALS	Σ(a)₉₆₋₉₇ = 22,905 Acres	-	Σ(c)₉₆₋₉₇ = 916,781 Acres	40%	1,480 AUMs
No Use	-	2.5 %	-	-	-
Slight	11,408	13 %	148,304	-	-
Light	7,106	30 %	213,180	-	-
Moderate	4,657	50 %	232,850	-	-
Heavy	699	70 %	48,930	-	-
Severe	0	90 %	0	-	-
1997-1998 GRAZING SEASON TOTALS	Σ(a)₉₇₋₉₈ = 23,870 Acres	-	Σ(c)₉₇₋₉₈ = 643,264 Acres	27%	2,571 AUMs
No Use	-	2.5 %	-	-	-
Slight	3,429	13 %	44,577	-	-
Light	8,894	30 %	266,820	-	-
Moderate	1,911	50 %	95,550	-	-
Heavy	20	70 %	1,400	-	-
Severe	0	90 %	0	-	-
1998-1999 GRAZING SEASON TOTALS	Σ(a)₉₈₋₉₉ = 14,254 Acres	-	Σ(c)₉₈₋₉₉ = 408,347 Acres	29%	2,915 AUMs

¹ Potential Actual Use = (Desired Average Utilization) * ((Actual Use) / (Average Utilization))
Please reference Appendix A for Actual Use Data.

Table 4. Plant Phenology Data. The data shown below is taken from the Nevada Rangeland Phenology (BLM), collected between 1976 to 1979, on sites located in and around Churchill Canyon. Since specific dates of the various phenological stages may vary due to climatic variations, a range is presented. Dates in parenthesis indicate that one recording was significantly different than the others. An asterisks (*) denotes key forage species.

Table 4a. Grass phenology data from sites similar to the northeastern and southern portions of the Churchill Canyon allotment. Elevation 5000-5100 feet above sea level.

Range of Dates for Each Penological Stage by Species			
Phenological Stages	Indian ricegrass* (<i>Oryzopsis hymenoides</i>)	Needlegrass* (<i>Stipa sp.</i>)	Bottlebrush Squirreltail (<i>Elymus elymoides</i>)
Growth Starts	03/01-03/20	03/01-03/15	(02/25) 03/20-04/05
½ Vegetative Growth	03/22-04/30	04/15-04/20	(03/20) 04/05-04/15
Flower Stalks Appear	05/05-05/20	05/10-05/15	05/05-05/10
Heads Out Fully	05/15-06/05	05/15-05/20	05/15-06/05
Anthesis	05/20-06/10 (06/20)	06/01	05/20-06/05 (06/10)
Dough Seed Set	06/01-06/12 (06/25)	06/10	05/25-06/10 (06/25)
Hard Seed	06/10-06/15 (07/10)	06/10-06/15	06/05-06/20 (07/05)
Seed Dissemination	06/15 -06/30 (08/10)	06/15-07/01	06/20-07/05 (07/20)
Plants Begin to Dry	06/25-07/25 (09/05)	06/20	06/25-07/05 (08/10)
Plants Dry (Summer)	07/05-08/20 (09/20)	08/01-08/15	07/05-08/05 (09/05)
Regrowth	08/20-10/05 [1976 only]		07/10 - 10/25 [1976 only]

Table 4b. Shrub phenology data from sites similar to the northeastern and southern portions of the allotment. Elevation 5000-5300 feet above sea level.

Range of Dates for Each Penological Stage by Species		
Phenological Stages	Shadscale (<i>Atriplex confertifolia</i>)	Big Sagebrush (<i>Artemisia tridentata</i>)
Leaf Growth	02/25-04/01	02/25-04/01
Twig Growth	04/10-05/20	04/20-06/01
Flower Buds First Visible	05/15-06/01	05/20-07/20
Leaves Full Grown	No data	No data
First Bloom	06/01-06/15	No data
Full Bloom	06/15-07/01	09/20-10/01
Bloom Over	06/20-07/15	10/10-10/20
Seed Ripe	07/15-07/20 (09/15)	No data
Seed Dissemination	07/20-08/15	10/20-11/01
Leaves Turn Yellow	08/15-09/01	No data
Leaves Dry & Drop	09/01-09/15	No data

FIGURES

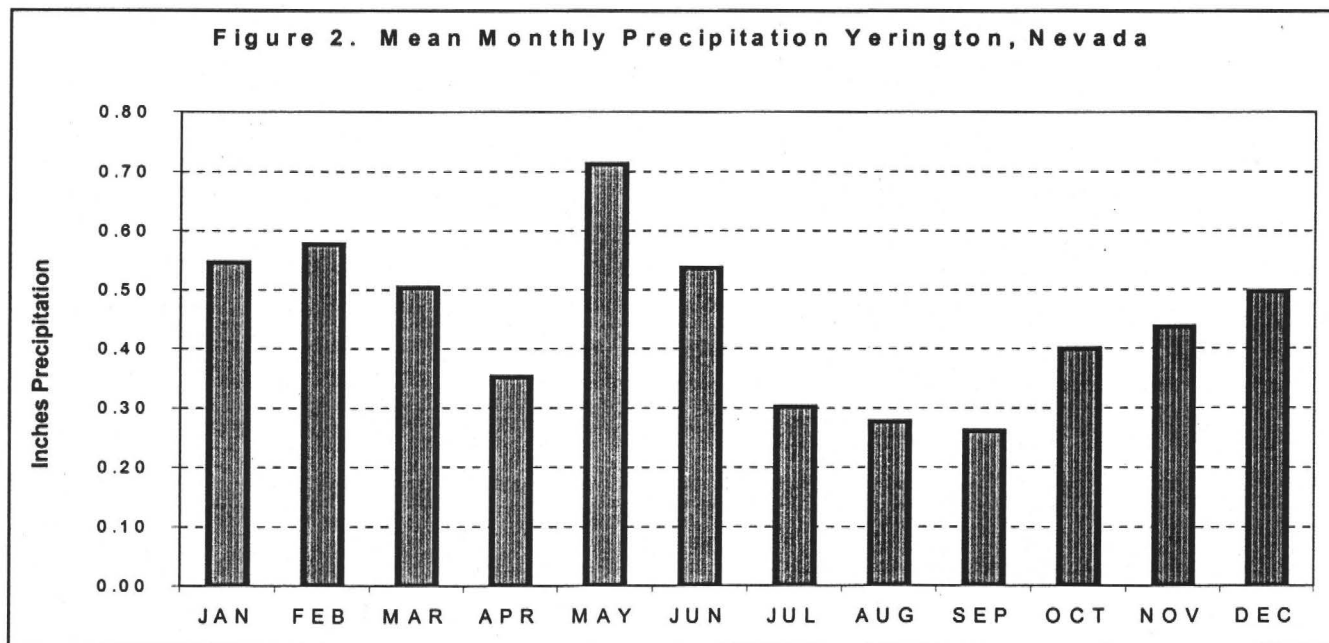
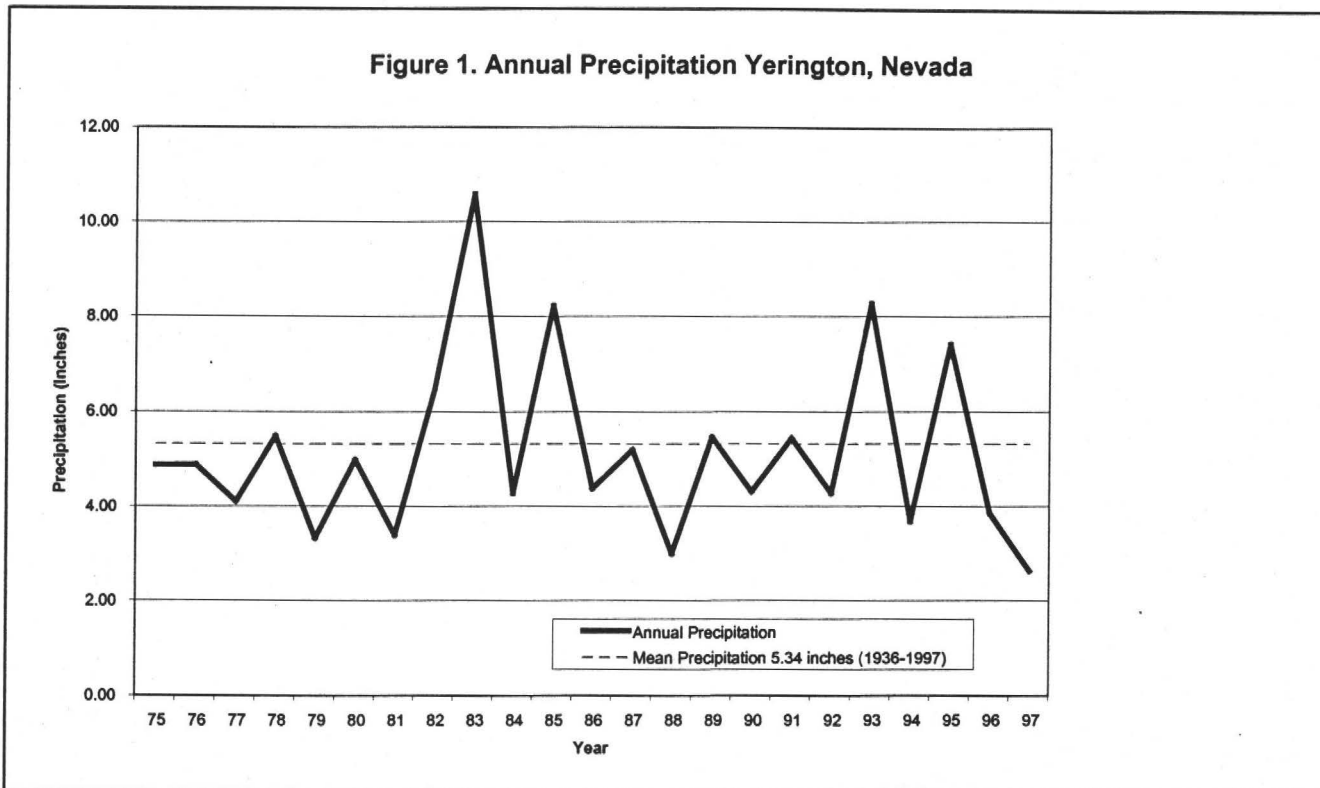
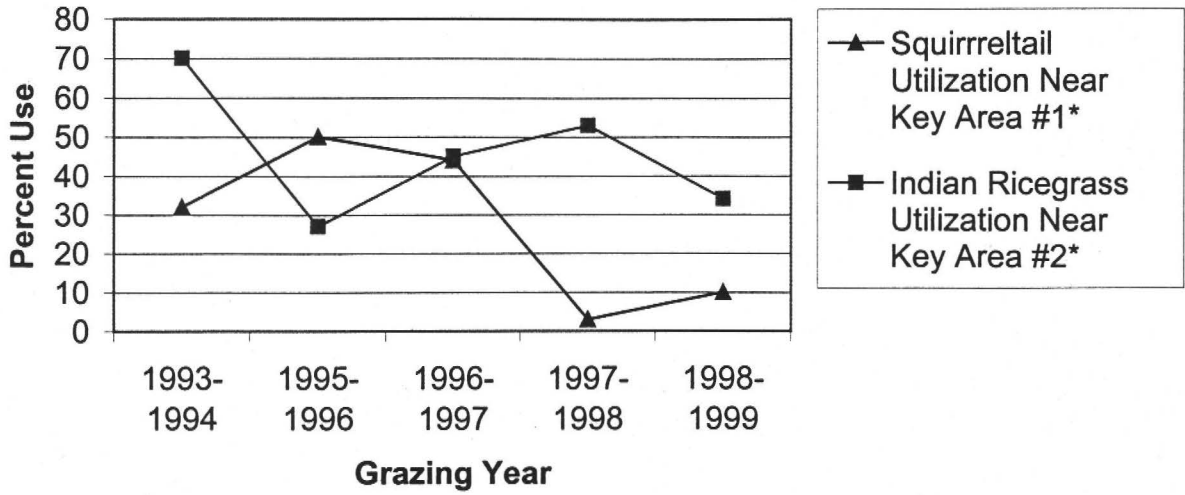
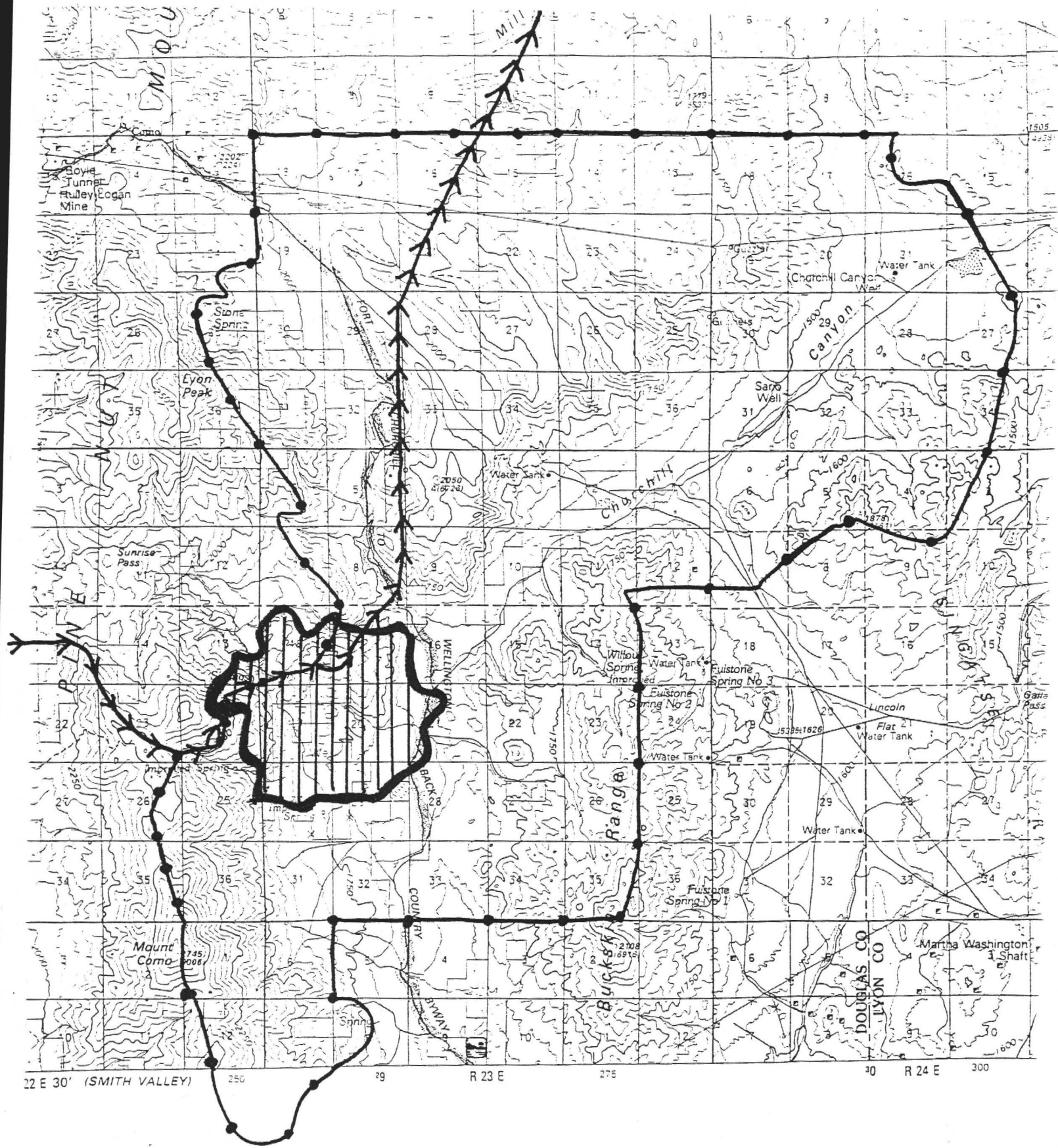


Figure 3. Utilization Near Key Areas*



*Data for 1996-1997 key area #1, 1997-1998 key area #2, & 1998-1999 were collected at the key areas. Because no additional data was collected at key areas, all other data was from the transect located closest to the key area. The transects were within one mile of the key area.



Map 1 – Sunrise Pass Fire July 1996

North ↑



Burn Area

Scale 1:100,000

APPENDIX IV - REFERENCES

Environmental Assessment
Churchill Canyon Grazing Management Actions
EA-NV-030-00-013

REFERENCES
EA-NV-030-00-013

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